



AGENCY FOR ELECTRONIC COMMUNICATIONS
AND POSTAL SERVICES

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AGENCY FOR ELECTRONIC COMMUNICATIONS AND POSTAL SERVICES

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PREAMBLE

The Agency for Electronic Communications and Postal Services (hereinafter referred to as “the Agency”) was founded on 8 March 2001, as an independent national regulatory authority for electronic communications and postal services, functionally independent from all subjects which exploit electronic communications networks, provide equipment or services at the electronic communications and postal services markets. The main guidelines and principles the Agency has applied in its regulatory activities in the sector of electronic communications are: providing safe and foreseeable business environment for the work of operators and for their investments, creating conditions for implementation and development of new technologies in the whole territory of Montenegro, while encouraging rational use of limited resources (radio-frequencies and numbering/addresses), promoting competition, preventing distortion of market competition between operators, as well as resolving disputes between operators, while continuously improving protection of users’ interests.

Managing bodies of the Agency are the Council and Executive Director of the Agency, in accordance with the Law on Electronic Communications (“Official Gazette of Montenegro”, 40/13, 56/13, 2/17, and 49/19). The Agency Council consists of the President and four members. At the end of 2022, the President and the Agency Council held 51 meetings, of which 12 meetings were ordinary meetings and 39 extraordinary meetings. On 31 December 2022, the Agency had 67 employees, including the President of the Council, two Members of the Council and Executive Director of the Agency. During 2021, in the Council were the President and two Members of the Council, while the terms of office for two other Members of the Council expired in 2021 and in 2022.

The Agency carries out its activities in accordance with its responsibilities stipulated by the Law on Electronic Communications, the Postal Services Act (Official Gazette of Montenegro, No 57/11, 55/16, and 55/18), and the Law on the use of physical infrastructure for deployment of high-speed electronic communications networks (“Official Gazette of Montenegro”, 1/22.

Annual Report on the work of the Agency for 2022 is prepared in accordance with Article 26 of the Law on Electronic Communications. The Report is a systematic group of information on: the level of market development and services of electronic communications and postal services, achieved competition level and taken regulatory measures, management efficiency and economical use of limited resources (radio-frequencies and numbering/addresses), as well as on other activities the Agency carried out within its competences, Work Plan and Financial Plan of the Agency for 2022, adopted by Decision No. 00-72/21-34/4 EPA 290 XXVII dated on 29 December 2021, adopted by the Parliament of Montenegro. The Annual Report is consisted of the following chapters:

- 1. Development of Electronic Communications Sector,*
- 2. Imposed regulatory measures,*
- 3. Implementation and quality of Universal Service in Electronic Communications Sector,*
- 4. Assigned limited resources,*
- 5. Development of the postal services market,*
- 6. Realisation and quality of universal postal services,*
- 7. Exercise of rights and protection of the users of electronic communications and postal services,*
- 8. Tasks performed by the Agency, in accordance with the 2022 Work Plan,*
- 9. Procedures carried out in accordance with the Law on Electronic Communications, Postal Services Act and Law on the use of physical infrastructure for the deployment of high-speed electronic communications networks,*
- 10. Performed tasks that have not been subject to the 2022 Work Plan,*
- 11. Conclusion, and*
- 12. Appendices.*

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INTRODUCTION

Every natural or legal person can construct, provide and use electronic communications networks, electronic communications infrastructure and provide electronic communications services according to the conditions stipulated by the Law on Electronic Communications (hereinafter referred to as: the Law), and other regulations, provided that neither a man's life and health nor the environment and national security have been effected. At the end of 2022 in the Register of Electronic Communications Operators kept by the Agency 34 operators were registered.

Universal postal service may be provided by a legal person registered in the Central Register of Business Entities (CRPS), for the provision of postal services based on a special license. Certain postal services from the domain of universal postal service throughout the territory, universal postal service in a specific part of the territory or individual postal services from the domain of the universal postal service in a certain part of the territory can be also provided by legal person registered in the CRPS for the provision of postal services listed in the license issued by the Agency. Commercial postal services can be conducted by legal or natural person based on the application submitted to the Agency. At the end of 2022, 25 operators were entered in the Register of postal services operators.

Electronic communications networks in Montenegro are highly developed, and these networks are supplied with the newest technologies. These networks provide the users in Montenegro with electronic communications services which exist in the developed countries. Significant operators carried out the migration of their networks to the so called All-IP environment, so that the services of voice transmission, data transmission and distribution of AVM contents are provided through a single IP network.

During 2022 the operators invested approx. 69 million euros in the development of electronic communications networks which makes a good base for further increase of their accessibility and provision of even higher and more accessible electronic communications services in the whole territory of Montenegro. This high level of the investments in the sector of electronic communications affirms the fact that we have a foreseeable regulatory framework which has created equal conditions for all the participants in the electronic communications market and which has been also fostering the competition as the best way of regulation. It is also worth mentioning that the Agency stands for the principle of technological neutrality and does not give favor to any technology.

As regards the development level of fixed electronic communications networks at the end of 2022, approximately 71% of the households were covered with access networks based on the fiber optic cables (FTTx), 69% with VDSL, 49% with HFC, 18% with ADSL, and approx. 15% of the households were not covered with fixed broadband access.

During the installation of optical cable ducts was mainly applied common use of telecommunication cable ducts installed in 15 Montenegrin municipalities in the total length of 709.19 km, which is 7.51% more than in 2021.

In 2022 the operators' networks dealing with distribution of AVM contents to end users were modernized. At least three types of distribution are offered in every municipality (KDS, IPTV, DTH and DVB-T2). The users in 13 municipalities may choose among all five operators. In the whole structure dominate KDS, DTH and IPTV users with approx. 97% of market participation.

Development of mobile electronic communications networks in Montenegro continued in 2022, mostly due to an increase in the capacities of the access part of LTE/LTE-Advanced mobile networks with a view to

compensating an increase in the traffic volume and ensuring high quality level of data transmission, as well as commercial launch of 5G NR mobile networks by Crnogorski Telekom and then by One Crna Gora.

All three mobile networks in Montenegro are based on harmonized standards of the second generation (GSM/DCS1800, including GPRS package segment i.e. EDGE), third generation (UMTS, including HSPA+ and DC-HSDPA), and fourth generation networks (LTE i.e. LTE-Advanced). Crnogorski Telekom commercially launched 5G NR networks in March 2022, and One Crna Gora launched 5G NR networks in July 2022, using available frequency resources in the 2 GHz and 2.6 GHz and by applying Dynamic Spectrum Sharing (DSS) technique.

The level of technology development of modern mobile electronic communications networks is assessed based on the network capability to support, at the first place, broadband data transmission service of the appropriate quality. A continuous need of the users to always use higher speeds of data transmission on the one hand and a continuous increase in the traffic volume generated by the users on the other hand made mobile operators permanently improve their networks in order to meet more demanding requests of their users and maintain/improve user experience.

With regard to support to the services in data transfer, GPRS/EDGE was implemented to all GSM/DCS1800 radio base stations in the networks of all three mobile operators. In the access part of 3G networks of all three mobile operators in Montenegro implemented HSUPA technology (3GPP *Release 6*) in uplink, i.e. HSPA+/DC-HSDPA technology (3GPP *Release 7 and 8*) in downlink. UMTS radio base stations of all three mobile operators theoretically allow a maximum flow of 21.1 Mb/s to the users, i.e. 5.76 Mb/s from the user per 2x5 MHz wide channel (which is the case in the 2 GHz band), i.e. equally lower flow when the channels of lower width are used (3.8 MHz or 4.2 MHz wide channels are used in the 900 MHz band).

Although UMTS networks at the user level allow flows of the order of several Mb/s, LTE and NR technologies are relevant for the provision of broadband data transmission services. The LTE technology implemented in the networks of mobile operators in Montenegro enables maximum transmission speeds of 150 Mb/s to the user (downlink) and 50-75 Mb/s from the user (uplink), in a channel width of 2x20 MHz and with the use of 64-QAM modulation and 2x2 MIMO techniques. By applying the technique of aggregating LTE carriers (2CA, 3CA or 4CA), depending on the width of the engaged spectrum, proportionally higher speeds are achieved in the downlink. Crnogorski Telekom and One Montenegro have applied 4x4 MIMO or 8x8 MIMO technique (up to 3GPP *Release 12*) in order to increase capacity at several locations with a large volume of traffic. It should be noted that the stated values represent the theoretical maximum capacity per cell, which is rarely achieved in real conditions. Real flows at the application level depend on many parameters, some of which are not related to network performance, and in LTE networks, this capacity is shared by all users in the service area of the base station.

At its initial phase of implementation, NR technology in the networks of Crnogorski Telekom and One Crna Gora is based on the implementation of a technique of cell resource dynamic sharing between LTE and NR user (DSS technique). According to that implementation scenario, especially considering the width of the engaged spectrum (currently 2x15 MHz), 5G user experience is in a large amount similar to the experience of 4G users. Complete characteristics of 5G NR technology (peak data transfer speeds of the order of 1 Gb/s, data transfer speed at a user level of several hundreds of Mb/s, 10 ms) are expected with the implementation of NR technology in the 3.6 GHz band with the engagement of frequency blocks with a width of 100 MHz or more.

As regards the representation of radio interface technology in the access network for providing data transmission services, according to the results of measurements carried out at the end of 2022, LTE technology dominates with a share of almost 100% in urban areas, or almost 99% in non-urban areas. The remaining data traffic is realized through UMTS networks, while GSM technology is not significantly used for data transmission. Voice transmission service is provided in all three mobile networks through GSM/DCS1800 and UMTS networks, based on circuit switching. VoLTE technology has not yet been implemented, but according to the operator's plans, it will happen in 2023.

The greatest progress in the development plan of mobile electronic communications networks was also achieved in 2022, in an access part of LTE/LTE-Advanced networks of all three operators. By the end of 2022 Crnogorski Telekom implemented LTE radio base stations in the 800 MHz, 1800 MHz, 2 GHz and 2.6 GHz band at 377 locations, of which 2CA technique was implemented at 72 locations, at 44 locations was implemented 3CA technique, and at 63 locations was implemented 4CA technique. Basic coverage with LTE signal of Crnogorski Telekom network referred to approximately 97% population of Montenegro, whereas the coverage with LTE network signal as regards the provision of data transfer service with a minimum downlink of 10 Mb/s referred to 96.8% Montenegro population (data received through software prediction). At the end of 2022, in the LTE access part of Crnogorski Telekom network 198,175 PRB (*Primary Resource Blocks*) were active, which means a raise of more than 30% compared to 2021.

According to software prediction results, basic coverage of Montenegro population with LTE signal of One Crna Gora network amounts to 96.8%, and the coverage with LTE network signal in terms of the provision of data transfer service with a minimum download flow of 10 Mbps is 95.2% of Montenegro population. LTE radio base stations, realised in the 900 MHz, 1800 MHz, 2 GHz and 2.6 GHz band are implemented at 433 locations, of which at 147 locations 2CA technique, at 108 locations 3CA technique, and 4CA technique was implemented at 22 locations. In the LTE access part of Telenor network 151,200 PRB blocks were active at the end of 2022, which is 20% more than in the comparative period of 2021.

Level of basic coverage of Montenegro population with LTE signal of Mtel network amounts to almost 96.3%, while the coverage of LTE network signal in terms of the provision of data transfer with a minimum downlink flow of 10 Mb/s refers to more than 94.5% of Montenegro population (data received through software prediction), which is made by deploying e-Node B station in the 800 MHz, 1800 MHz and 2.6 GHz band at 341 locations (62 more than at the end of 2021), of which at 139 locations was implemented 2CA technique, at 12 locations 3CA technique, and at 36 locations was implemented 4CA technique. At the end of 2022 the capacity in the access part of LTE network of Mtel was provided through 127,200 active PRB blocks, thus exceeding 45% of the number of active blocks in 2021.

According to software prediction results, at the end of 2022, NR network of Crnogorski Telekom covered around 75% of the population of Montenegro, and 5G services were available in all municipalities of Montenegro, except for Andrijevica, Petnjica, Plužine, Šavnik and Tuzi. Total of 78 NR radio base stations in 2 GHz band was implemented. NR network signal of One Crna Gora covered around 30% of the population of Montenegro, and 5G services were available in Podgorica, Bijelo Polje and Tivat. Total 17 NR radio base stations in 2 GHz band and three in 2.6 GHz band was implemented.

According to measuring results of quality parameters of data transmission in mobile networks carried out by the Agency at the end of 2022, an average data transmission speed in city areas are above 50 Mbps in *downlink* in the networks of all three mobile operators, while, depending on the network, in *uplink* they are

in the band from 12-35 Mbps. In areas , zaviso od mreže, kreću u opsegu od 25-34 Mbps na *downlink*-u i 8-22 Mbps na *uplink*-u.

With regard to the measuring carried out at the end of 2019, an average speed of data transfer in downlink significantly raised, both in the city area (from 15-20 Mbps to 50-57 Mbps) and at the level of the whole network (from 12-15 Mbps to 44-51 Mb/s) in the networks of all three mobile operators. Data transmission average speed in *uplink* remained at the similar level among the networks of Crnogorskog Telekom and One Crna Gora, while in Mtel network suffered a decrease (from 20 Mbps to 12 Mbps in the cities, i.e. from 15 Mbps to 11 Mbps at the level of the whole network).

Development level of networks and services and/or the electronic communications market reflects in the following statistics:

- At the end of 2022, number of mobile telephony users in Montenegro amounted to 1,274,031 which is a penetration of 205.48%. In comparison with the last year before, number of users is 13.75% higher. At the end of 2022, there were more *postpaid* users 56.01% (713.625), while there were 43.99% (560,406) *prepaid* users. During 2022 the users of all three mobile operators in Montenegro realized 1,955,719,253 minutes of outgoing traffic.
- At the end of 2022, the number of fixed telephony subscriber lines amounted to 190,595, being a penetration of 30.74% in relation to population number. Compared to previous year, number of fixed subscriber lines is 0.57% higher. During 2022, the users of all four fixed operators in Montenegro made 70,546,872 minutes of outgoing traffic.
- Number of users of fixed broadband access at the end of 2022 was 4.20% higher than in 2021. In the same comparative period, the number of users of mobile broadband access through data SIM cards increased by 9.04%, while the number of users who accessed Internet through mobile networks during December of 2022 was 14.42% higher in relation to December 2021.
- Penetration of a fixed broadband access at the end of 2022 amounted to 31.64% in comparison with the number of population, while the penetration in relation to the number of households amounted to 103.70%¹. The greatest number of users were the users through the networks with optical fibers and amounted 46.04%. Percentage of households in the area of NGA accessibility (30 Mb/s) amounted to 81.70%. Penetration of mobile broadband access, i.e. number of users who accessed Internet through mobile networks in December 2022 amounted to 103.70%.
- At the end of 2022, total leased capacity of Internet transit by foreign operators (capacity of international Internet transit used by the operators in Montenegro) was 305.25Gb/s, and is 20Gb/s higher than at the end of 2021.
- Total number of xDSL users at the end of 2022 amounted to 50,932 being 4.88% less in relation to the end of 2021. The reason of that decrease is a transition of users to optical fiber networks.
- Number of users who accessed Internet through optical fibers at the end of 2022 amounted to 90,319 and is 11.97% higher in relation to 2021.
- Number of users who accessed Internet through cable distribution systems at the end of 2022 amounted to 52,60 and is 3.44% higher than at the end of 2020.
- Total number of Internet leased lines was 232.

¹ Penetration of fixed broadband connections in relation to the number of households is considerably higher than NGA accessibility as all Internet connections are considered, and in the municipalities of coastal area and in some municipalities in the central region of Montenegro a number of connections is considerably higher compared twith regard to the number of households. In Budva, i.e. there are 2 and a half connections per household.

- Internet access service in 2022 through MPLS used 159 users being thus less than in 2021 when there were 164 users of that service.
- Total number of wireless access points decreased from 604 to 596 in 2022 when comparing it with 2021.
- Internet satellite access service used 61 users in 2022, thus being 11 lower compared with 2021.
- Total Internet traffic realized in fixed electronic communications networks during 2022 was 518,41PB and is 47.02% higher than in 2021.
- Average Internet traffic realized by the subscribers in fixed electronic communications networks at monthly level amounted to 220,20GB, which is an increase of 43.86% compared to 2021.
- Number of users of mobile Internet access who accessed Internet via data SIM cards during 2022 increased by 9.04% in relation to 2021.
- Total number of mobile services users (prepaid and postpaid) who accessed Internet (through mobile phones and modems) during December 2022 was 642,967; from 484,881 cards accessed Internet through 3G technology, from 527,791 cards used 4G technology, while 26,534 cards accessed Internet via 5G technology.
- Total Internet traffic realized by mobile network users in 2022 amounted to 103.94 PB and is 41.03% higher compared to 2021.
- Based on the research on the use of ICT² in Montenegro conducted in October 2022, 82.4% of population used Internet in the last three months, which is 0.2 percentage points more compared to the results from 2021.
- Penetration of fixed broadband access (users of: xDSL, FTTH/B, cable distribution systems, WiMAX, leased lines etc.) was 31.6% in 2022, being 1.2 percentage points more than in 2021. When comparing penetration with regard to the number of households, it is 100.7%, being an increase of 4 percentage points compared with 2021.
- Penetration of mobile broadband access, i.e. number of users who accessed Internet through mobile networks during December 2022 amounted to 103.7% and compared with the relevant period in 2021 there is a raise of 13.1 percentage points.
- In 2022, 283,090 minutes of traffic made 16 users via VoIP (Voice over Internet Protocol), who had outgoing traffic of 283,090 minutes, which is 7.20% less in relation to VoIP traffic realized during 2021.
- Total number of leased lines at the end of 2022 amounted to 308. In relation to 2021, at the end of 2022, number of leased lines was 0.3% higher. At the end of 2021, total number of leased lines amounted to 307. A considerable decrease in the number of leased lines was noted in the category of leased lines of 2Mb/s and nx2Mb/s (decrease of 15%) with regard to 2021, while a significant increase was in the leased lines of the lowest capacities (increase of 11%).
- At the end of 2022, number of distribution connections of AVM contents amounted to 256,328 and is higher than the number of connections at the end of 2021 when it amounted to 243,931.
- Total volume of traffic which terminated in the fixed networks in Montenegro amounted to 25,430,424 minutes in 2021, being a decrease of 14.7% in relation to 2021. Moreover, in relation to 2021, there was a 12.77% decrease in the category of terminated national calls, while there was a decrease of 21.08% in the category of terminated international calls with regard to the comparative period.
- Total volume of traffic which terminated in mobile networks in Montenegro during 2022 was 652,784,088 minutes, and is a raise of 7.34% in relation to 2021. godinu. There was also a raise of

² ICT (Information and Communications Technologies)

6.12% in the category of terminated national calls, while in the category of terminated international calls there was a raise of 12.27% compared with 2021.

Montenegro had the highest DESI index in the Western Balkans

In order to monitor the progress made by the economies of the Western Balkans in harmonizing with European Union regulations for electronic communications and information society services, as well as convergence with the internal market, the Regional Cooperation Council (RCC) prepared a study on the state of application of the Digital Economy and Society Index (DESI) in the Western Balkans (WB) for 2022.

With 35.1 points, Montenegro had the highest DESI index for 2022 among WB countries. The value of the DESI index was 34.9 points for Serbia, 32 points for Albania, 27.4 points for North Macedonia, 26.1 points for Kosovo and 23.2 points for Bosnia and Herzegovina. The average DESI index for WB countries was 29.7 points, while the average at the level of European Union countries was 52.3 points.

The DESI index consists of 4 indicators: Human capital, Connectivity, Adoption of digital technologies and Digital public services. With a result of 10.4 points, Montenegro is better than the average of WB countries, which is 8.4 points, for the **Human capital indicator**, but it is still worse than the average of EU countries, which is 11.4. For the **Connectivity indicator**, Montenegro, with a result of 10.4 points, has a significantly better result than the average of WB countries, which is 7.5 points, but the result is lower than the average of EU countries, which is 15 points. For the indicator **Adoption of digital technologies**, Montenegro, with a result of 8.5 points, has a significantly better result than the average of WB countries, which is 5.2 points, but still a lower result than the average of EU countries, which is 9 points. For the Digital Public Services indicator, with a value of 5.8 points, Montenegro has the weakest result of all DESI dimensions and almost the worst result of the WB countries, which have an average of 8 points, which is significantly lower than the average of EU countries, which is 16.8 points.

Brief statistics regarding the sector of postal services at the end of 2022, are as follows:

- In 2022, postal operators conducted 36,135,642 postal services, which is 2.3% more comparing with previous year.
- Pošta Crne Gore as the universal postal operator realized 35,519,563 postal services, which is 98.3% of the total volume of realized services, and other postal operators realized 616,079 postal services or 1.7% of the total volume of realized services.
- In domestic postal traffic was realized 35,039,303 postal services i.e. 97%, while 1,096,339 postal services i.e. 3% was realized in international postal traffic.
- During 2022, Pošta Crne Gore conducted 35,519,563 postal services, which is an increase of 2.2% compared with the previous year, when they amounted to 34,743,988. Out of the total number of conducted postal services, there were 15,329,815 universal postal services and 20,189,748 commercial postal services, out of which 43.2% were universal postal services, and 56.8% were commercial postal services.
- In 2022, Pošta Crne Gore conducted 1.2% more universal postal services i.e. 3% more commercial postal services compared with 2021.

- In the structure of services of Pošte Crne Gore for 2022, the highest share in the amount of 43.6% have letter-post services, and in 2022 Pošta Crne Gore realized 15,477,314 letter-post services, which is 1.3% more than the volume of letter-post services in the previous year.
- Pošta Crne Gore realized 11,648,824 hybrid post services, which is 6.2% more than the volume of hybrid post services realized in the 2021. Share of hybrid post services in the total volume of the services provided by Pošta Crne Gore in 2022 amounted to 32.8%.
- Share of financial postal services in the total volume of realized services of Pošta Crne Gore for 2022 amounts to 20.9%. More precisely, financial postal services amounted to 7,413,355, being 0.1% lower than in 2021. In the total volume of financial postal services, the payment transactions (payments-disbursements) make 56%, money orders 39.8%, and transfer of money 4.2%.
- In 2022, Pošta Crne Gore conducted 609,913 postal orders, which is a raise of 3.2% in relation to 2021, when there were 590,936 postal orders.
- Pošta Crne Gore realized 165,683 express services in 2022, being 5.5% more than in the previous year when 157,113 express services were conducted.
- On the same relevant year, Pošta Crne Gore conducted 47,939 parcel services, and compared with the year before when these services amounted to 49,891, it means a fall of 3.9%.
- Total physical volume of postal services provided by other postal operators within 2022 amounts to 616,079 postal services, which is 3.8% more in relation to 2021, when it amounted to 593,419.
- The greatest share in the total physical volume of postal services provided by other operators, Montenomaks is at the leading position and it rendered 41% of postal services and Express One Montenegro, with 27% of the volume of postal services rendered by other operators.
- In the structure of express services rendered by other operators, Montenomaks is at the leading position, covering 45.6% of express services market of other operators in 2022, followed by Express One Montenegro with 25.5% and DHL that covers 6.6% of that market.
- In the structure of parcel services rendered by other operators, Montenomaks is a leader, covering 36.1% of parcel services market of other operators in 2022, followed by City Express One Montenegro with 28.1% and Halo dostava with its share of 11.2 %.

During 2022, the Agency monitored the implementation of measures and obligations imposed according to the decisions made in the previous years by which upon completion of the analysis of relevant markets, the operators with significant market power on the relevant markets were assigned.

The Agency made decision on starting a new analysis procedure of these relevant markets, upon obtaining a positive opinion from the Agency for the Protection of Competition on the merits of starting a new market analysis procedure. At its session held on February 17, 2022, the Council of the Agency, after carrying out the market analysis procedure according to the aforementioned decision, adopted decisions on assigning the operators with significant market power in the following relevant markets:

- Wholesale market of call termination on its own telephone network provided at a fixed location,
- Wholesale market of call termination on its own mobile telephone network,
- Wholesale high-quality access provided at a fixed location.

At its session held on June 23, 2022, the Agency's Council adopted final texts of decisions on designating Crnogorski Telekom as the SMP (Significant Market Power) operator at the relevant markets of the wholesale local access provided at a fixed location (3a Market) and wholesale central access provided at a fixed location for the mass market products (3b Market).

In 2022, the activities on the project of accounting separation and cost accounting were continued, following the dynamics provided for by the accounting separation and cost accounting methodology. At its session held on 12.05.2022, the Agency made final decisions on adopting the activities performed by the operators on the project of accounting separation and cost accounting, according to CCA/LRIC methodology for mobile and fixed networks for 2020.

At its session held on 12.05.2022 the Agency's Council adopted final decisions on accepting the activities carried out by the operators on the project of accounting separation and cost accounting according to CCA/LRIC methodology for mobile and fixed networks for 2020, and at its session held on 16.06.2022 adopted decision by which the operators with significant market power on relevant markets imposed on operators to introduce prices of the services as of 01.08.2022.

The Agency's Council, at its session held on 7 July 2022, adopted Decision on the value of weighted cost of capital for 2021, establishing that the value of weighted cost of capital before taxation had been at the level of 6.33% before taxation, the operators with significant market power are in obligation to apply when calculating the costs for the provision of regulated retail and wholesale services.

In February 2019 the Agency prepared the "Feasibility Study on the cost model preparation of the Agency, according to Bottom up LRIC Methodology", and in October 2020, after the consultant had been elected, the Agency started the Project "Preparation and implementation of bottom-up LRIC cost models for fixed and mobile electronic communications networks" based on the "bottom-up" approach and Long Run Incremental Costs (LRIC). The Project consists of 5 phases. Phase III of the Project: "Cost Model Preparation and Testing" which is considered to be the most demanding and most complicated, as it refers to the development of bottom-up LRIC costs models for fixed and mobile electronic communications network, has been realized throughout 2022, so that at its session held on 26 January 2023, the Agency's Council, along with other documentation, adopted the following:

- *Bottom-up* LRIC cost model for fixed electronic communications network and
- *Bottom-up* LRIC cost model for mobile electronic communications network.

The Agreement on reducing the prices of roaming services in the public mobile communications networks in the Western Balkans Region was signed on 4 April 2019 in Belgrade, between the ministries of the bodies competent for the field of electronic communications of the following countries: Albania, Montenegro, Kosovo, Republic of North Macedonia and Republic of Serbia. On behalf of Montenegro the Agreement was signed by the Ministry of Economy. In accordance with the Agreement, roaming services for the users from signatory countries are charged as if the users were in their home country (so called "roaming like at home" – RLAH charging regime). During 2022, the Agency controlled implementation of the RLAH regime of the use of roaming services.

The activities initiated during 2021 were additionally intensified In 2022 being focused on the reduction of the prices of roaming services between the Western Balkans region and the EU countries. As a result, the operators from the Western Balkans region and the EU signed in Tirana on 6 December 2022, the Roaming Declaration allowing reduction of roaming service prices between the EU and Western Balkans. In line with the signed Declaration, the process on reducing the prices will begin as from 1 October 2023, while the plan for a gradual reduction in the coming years should be determined by May 1, 2023. Unlike the reduction of

the prices in the Western Balkans region, realized based on the agreement signed the competent ministries, that process is based on a free will and commercial agreements between the operators.

Universal service in Montenegro was provided by Mtel as the Universal service operator for providing Universal Telephone Directory Service and Universal Directory Enquiry Service and by Crnogorski Telekom as the Universal service operator for the provision of the electronic communications network access services, telephone calls and Internet access in the whole territory of Montenegro.

The Agency continued to perform its activities on rationale management of radio-frequency spectrum as a limited natural resource. In 2022, the Agency issued 2,155 approvals for the use of radio frequencies, decisions on determining technical and operational conditions for the use of approved radio frequencies and decisions on assigning the call sign/MMSI number, which is an increase of 107.6% compared to the previous year. In the same respective period 179 approvals for the use radio frequencies and determining technical and operational conditions for the use of approved radio frequencies were revoked. The Agency continued to plan an efficient use of radio frequency bands and to carry out the procedures of international coordination radio frequencies.

After the first phase of the allocation of available radio frequencies for MFCN systems in the spectrum auction procedure, which was launched in October 2021 and ended in February 2022, approvals were extended to the mobile operator Mtel for the use of radio frequencies in the 900 MHz, 1800 MHz and 2 GHz band and allocated free radio frequencies from the 2 GHz and 2.6 GHz band, the Agency has decided that the subject of the second phase of allocation will be radio frequencies from the so-called pioneering 5G bands: 700 MHz, 3.6 GHz and 26 GHz, given that mobile operators have not expressed interest in using and allocating radio frequencies from the 1500 MHz and 2.3 GHz band. The spectrum auction was conducted electronically, using the system for conducting the electronic spectrum auction (EAS system), and that in the period from 20-27 December 2022.

Decision on selecting the bidder in the public tender procedure was made on 12 January 2023, and the approvals were issued on 9 February 2023, with 15 year validity period. Total revenue from the allocation of radio frequencies in the subject public tender procedure, representing the revenue of the budget of Montenegro, amounts to 8,836,146.00 € and is 1.086.146,00 € more i.e. 14% more than in the previous year. It should be noted that a sum of 7,086,011.00 € was paid in the budget of Montenegro, based on the auction spectrum results carried out at the end of 2021.

In 2022, the Agency was conducting ordinary and extraordinary control and monitoring procedures of radio-frequency spectrum at the territory of Montenegro in the form of one-day or several-day control-measuring campaigns. The activities were conducted in accordance with the Plan on ordinary and extraordinary control and monitoring of radio-frequency spectrum in 2021, in the 80 MHz – 3 GHz bands and in line with technical capabilities of the control-measuring equipment and software within the actual System for RF spectrum control and monitoring. At the end of 2022, the Agency conducted measuring of quality parameter services in the public mobile electronic communications networks in order to control harmonization with the conditions defined by the approvals for the use of radio frequencies. The measurements were conducted along the main roads and on the territory inhabited with 95% of the population of Montenegro. Measuring campaign was performed through 23 measuring days in the period from 7-19h, and more than 6,000 km were measured. Measurements were conducted along travel routes and in the territory where 95% of the

population of Montenegro lives. The measurement campaign consisted of 23 measurement days, a total of over 6,000 km was covered, and the measurements were carried out in the period from 07:00 to 19:00.

In 2022, the operators submitted a total of 48 requests for the approval of the numbers and/or addresses (38 requests for the use and 10 requests for the continuance in the use of approvals valid until 2022, and 9 requests for revoking the rights for the use of those resources.

The Single European Emergency Number "112" is not only a call number but also a synonym for modern, integrated systems for receiving emergency calls and giving responses in urgent and emergency situations. Since 20 January 2016, the calls to the number "112" are received through the 112 Center in Podgorica, Bijelo Polje and Bar. During 2022, OKC 112 received 220.220 calls which is 0.38% more than in 2021.

Number portability service in 2022 used 9.871 subscribers i.e. 36.95% more than in the previous year. These services were mostly used by mobile telephone users, which is 9,261, while 610 numbers were ported in the fixed telephony. Average time of number portability in 2022 amounted to 2,44/3,47 (total number of work days/total of days). Number portability service provided from 1 December 2011 till 31 December 2022 amounted to 79,286 numbers, of which 16,307 numbers in the fixed networks and 62,979 numbers in mobile networks.

Supervision of the work of electronic communications operators is performed by the Agency's supervisors for electronic communications. In 2022, a total of 157 controls was done, of which 142 scheduled controls and 17 extraordinary controls. Professional supervision of the work of postal operators was carried out by the Agency's supervisors, and during 2022 a total of 45 controls of the work of postal operators, of which 31 were ordinary and 14 extraordinary controls.

In 2022, the Agency received 332 user complaints. The number of complaints lodged with the Agency compared to the number of complaints lodged with operators of public electronic communications services (approximately 7 700) shows that only 5% of the total number of complaints resulted in further proceedings before the Agency as the second-level complaints authority. In the absence of a decision by the Agency, the Commission may decide to initiate the procedure provided for in paragraph 2 of this Article, in accordance with Article 6 of Regulation (EC) No 765/2008 of the European Parliament and of the Council. Out of a total of 332 proceedings based on user complaints, in 58 proceedings the appeals were approved, in 94 proceedings the actions were rejected as unfounded, and in 156 procedures initiated by user complaints ended with decisions to suspend the procedure due to the fact that, in the meantime, after submitting appeals, and with the mediation of the Agency, the operator changed its decisions, that is, acted in accordance with appeal requests, which is why users gave up appeals.

During 2022, 13 lawsuits were filed against the Agency's decisions with regard to user protection, being less than 4% compared with the total number of received appeals and these were answered to within the legal deadline. According to the judgments of the Administrative Court, made in 2022, 7 lawsuits were refused and the Agency's decisions adopted, while 6 appeals were adopted by which the Agency's decisions were rejected.

Joint use of telecommunications cable ducts were implemented in 15 municipalities of Montenegro in the total length of around 709,190 m, being 7.51% more in relation to the reference period in the year before. At the end of 2022, the operators owned 606 antenna masts. The operators as the owners of antenna masts,

lease the space on antenna masts on 322 locations, which is approx. 54% of the total number of antenna masts. The operators had 729 locations where the premises/buildings/containers with the equipment were located. Joint use was implemented on 228 locations, which is around 31% of the total number of premises/buildings/containers.

In 2020, the Agency handed over a new system for mapping the electronic communication infrastructure (Geoportal), which is based on an open source solution. During 2022 continued its improvement and updating of data on electronic communications infrastructure. The system for mapping electronic communication infrastructure is used by operators, processors of spatial planning documents, state, local and other institutions and bodies, investors and other stakeholders whether physical or legal persons. 124 active users from the following entities were registered on the system: 17 operators, 17 planners-processors of planning documents, 3 state bodies and 2 local self-government bodies.

At the beginning of June 2019, the Agency put into service system for measuring and analysing the quality of internet access service, the so called "EKIP NetTest". That system allows measuring of parameters of Internet access service quality in fixed and mobile electronic communications networks in Montenegro, and is available to all modern web browsers and mobile devices with Android operations system (version 6.0 or some later version), and the iOS (version 10 or later version). During 2022, a total of 3,284 individual measurements of the users from Montenegro were performed according to the measurement server of the EKIP NetTest system. The users of mobile communication networks made 839 measurements, where the average download speed was 56.87 Mbps. The number of measurements in fixed electronic communication networks in the reference period was 2,445. An average download speed amounted to 51.57 Mbps.

The Agency and operators have the obligation to submit data on existing and planned electronic communication networks, electronic communication infrastructure and related equipment in the area covered by the planning document at the request of the holder of preparatory work for the preparation and adoption of the planning document. Also, the same provision stipulates the obligation of the Agency to give an opinion on the compliance of the planning of electronic communication networks, electronic communication infrastructure and related equipment in the process of preparing the planning document. Based on 10 submitted requests, in 2022 the Agency submitted appropriate data and recommendations for the creation of spatial planning documentation. Based on 8 submitted requests for opinions, the Agency submitted opinions on 8 drafts of spatial planning documentation in 2022. Also, the Ministry of Ecology, Spatial Planning and Urbanism submitted proposals for spatial planning documents for approval. The Agency responded to the requests by submitting 3 consents to proposals for spatial planning documents.

Cooperation with competent state bodies and institutions was carried out in accordance with the laws and to the extent necessary for the implementation and application of the Law on Electronic Communications, the Law on Electronic Media, the Law on Digital Broadcasting, the Postal Services Act, the Law on the Use of Physical Infrastructure for the Installation of Electronic of high-speed communication networks, the Act on inspection supervision, the Act on the protection of personal data, the Act on consumer protection and the Act on the protection of competition. In order to establish, develop and strengthen cooperation within the framework of the competences prescribed by law with the Environmental Protection Agency (EPA), models for the improvement of cooperation between these two agencies were agreed upon, and the Cooperation Agreement was signed at the beginning of January 2022.

On the international level, cooperation with the Body of European Regulators for Electronic Communications (BEREC), International Telecommunication Union (ITU), Conference of European Postal and Telecommunications Administrations (CEPT), Universal Postal Union (UPU), European Committee for Postal Regulation (CERP), European Mediterranean Regulatory Group (EMERG), as well as other institutions, organisations and regulatory bodies.

At the end of 2022, the Agency organised international conference entitled "Current and Future Regulatory Challenges, Harmonisation with the European Regulatory Framework". The Conference included 5 program parts and 8 program sessions, with 159 participants.

During 2022, the representatives of the Agency participated in the activities of the Work Group for the Negotiation Chapter 3 –The right to establish the companies and the freedom in the provision of services and the Negotiation Chapter 28 - Consumer and Health Protection.

During 2022, the Agency carried out all activities provided for by the Work Plan and Financial Plan for 2022, adopted by the Decision No: 00-72/21-34/4 EPA 290 XXVII of 29.12.2021 ("Official Gazette of Montenegro" 140/21) of the Parliament of Montenegro and by the Operations Plan for the realisation of the Work Plan 2022 and the Work Program 2022 of the Agency Council.

1. DEVELOPMENT OF ELECTRONIC COMMUNICATIONS SECTOR

1.1. Development level of electronic communications networks

Electronic communications networks in Montenegro are at a very high level of development and are equipped with the latest technologies for the provision of electronic communications services. Through these networks, the users in Montenegro are provided with all electronic communications services that meet the needs of the users of the services available in the developed countries. Big operators carried out migration of their networks to the so-called All-IP environment, so that through voice transmission services a unique IP network, data transfer and distribution of AVM contents are provided.

In 2022, the operators invested approximately 69 million euros in the development of electronic communications networks, which makes a good bases for improving future accessibility and provision of electronic communications services of higher quality and at lower prices throughout Montenegro. This high investment level in electronic communications sector reaffirms the fact that in Montenegro we have foreseeable regulatory framework allowing equal conditions for all participants in the electronic communications market, which encourages competition as the best regulation method. It is also worth mentioning that the Agency stands for the principle of technology neutrality and does not give advantage to any of the technologies.

1.1.1. Development level of fixed electronic communications networks

The backbone of the operators is based on SDH and MPLS transmission systems realized through fiber optic cables and radio relay systems as physical medium for signal transmission.

SDH backbones are realized using the latest SDH equipment of the world known equipment producers. Maximum network capacity is 10Gb/s (STM64) and serves for SDH and EoS transmission traffic (*Ethernet over SDH*). SDH backbone network mostly realized by ring topology in order to protect the services. A smaller part of the backbone SDH network has a chain topology in places where it was not physically possible to implement a ring topology. There are also local SDH rings and chains for receiving SDH and Ethernet traffic of the local transmission level.

MPLS backbone is a transmission infrastructure allowing high-speed transmission of IP traffic on the territory of Montenegro. By using MPLS network, all business users are provided with basic IP communications service for connecting remote locations with central location, and through MPLS network, they can also implement a group of additional services using advanced technology which allow automation of system configuration per request, high level of security of end to end communication in network traffic, mapping of priorities of business processes through the very backbone, as well as advanced surveillance and network management functions. MPLS network is also used as a backbone network for broadband services provided for the users of these services (services of broadband access, IPTV services etc.).

DWDM (Dense Wavelength Division Multiplexing) technology, by multiplexing wavelengths, allows increase in capacity of existing fibre optic cables. With implementation of this technology, a transparent high-speed transmission of national and international transit traffic is provided.

The IMS (IP Multimedia Subsystem) is a network architecture used for providing multimedia services to end users, and which has also been standardized in accordance with 3GPP/TISPAN specifications. Along with Mtel, which has used this platform since the beginning of its work, One Crna Gora and Crnogorski Telekom also implemented IMS platform.

Progress of technology and development of new services always put higher demands to existing access copper network, in order to make transport of service and support to the service available from IP Platforms. Crnogorski Telekom decided to implement MSAN (Multi Service Access Node) concept of access network elements, i.e. to deploy the equipment which makes telephony (*Voice*, ISDN BRI, ISDN PRI and *Broadband*) and broadband xDSL services, available through the network of copper pairs. MSAN enables PSTN user to switch to IMS based system, without using additional equipment i.e. without ADSL or FTTH connections, while telephone remains directly connected to copper network towards MSAN POTS or ISDN port. The equipment is entirely integrated with the IMS system. MSAN active equipment is incorporated according to developed router network and switches in MIPNET network (MPLS network of Crnogorski Telekom), and completely follows topology of MIPNET network. By implementing xDSL technology, beside the access to fixed telephone network and associated services, end user is allowed through actual infrastructure (copper pairs), to access Internet with high-speed flow (up to 40 Mbps-VDSL), as well as the service of distribution of AVM contents. In 2022, Crnogorski Telekom had 253 xDSL hubs.

Development of access networks based on fibre optic cables (FTTH/B) continued also in 2022. Fixed electronic communications operators have developed their access network based on fiber optic cables, using GPON technology, which allows much higher internet access speeds, resulting in higher quality of service provided for end users. Number of FTTH/B connections of Crnogorski Telekom increased by 17.50%, while the number of FTTH connections of Telemach was 16.76% higher than in 2021.

Mtel has also developed its access networks based on the fibre optic cables, so that during 2022, number of FTTH/B connections increased by 8.07%. At the end of 2022, FTTH/B access networks were available to end users in each municipality of Montenegro. The operators have continued to extend their access networks.

Mtel and Telemach have also continued to extend their HFC networks, with implemented DOCSIS 3.0 standard, and in relation to 2021 the number of users raised by 3.44%.

It is estimated that at the end of 2022 approximately 71% of households were covered with FTTx, 69% with VDSL, 49% with HFC, with ADSL 18%, while approx. 15% of household were not covered with fixed broadband access.

During installation of fiber optic cables, joint use of telecommunications cable sewage was mostly implemented, so that it exists in 15 Montenegrin municipalities in the total length of 709,19 km, which is 7.51% more than in 2021.

Further modernization of networks of the operators performing distribution of AVM contents to end users was carried out. In all municipalities at least three methods of distribution are offered, the offer in 19 municipalities is based on all four distribution methods (KDS, IPTV, DTH and DVB-T2). In 13 municipalities, among five available operators the users may choose the one they prefer. In the total structure are dominating: KDS, DTH and IPTV users with around 97% market share.

1.1.2. Development level of mobile electronic communications networks

When it comes to supporting data transmission services, GPRS/EDGE is implemented on all GSM/DCS1800 radio base stations in the networks of all three mobile operators. In the access part of 3G networks, all three mobile operators in Montenegro have implemented HSUPA technology (3GPP Release 6) on the uplink, or HSPA+/DC-HSDPA technology (3GPP Release 7 and 8) on the downlink. UMTS radio base stations of all three mobile operators theoretically enable a maximum flow of 21.1 Mb/s to the user i.e. 5.76 Mbps from the user per 2x5 MHz wide channel (which is the case in 2 GHz band) i.e. proportionally lower flow when the channels of smaller ranges are used (in the 900 MHz band 3.8 MHz or 4.2 MHz wide channels are used).

LTE and NR technologies are relevant although UMTS networks allow a flow rate of several Mbps for the provision of broadband data transmission services. LTE technology implemented in the networks of mobile operators in Montenegro allows maximum transmission speed of 150 Mbps to the user (*downlink*) and 50-75 Mbps from the user (*uplink*), in the 2x20 MHz wide channel and by applying 64-QAM modulation and 2x2 MIMO technique. By applying aggregation of LTE bearers (2CA, 3CA or 4CA), depending on the width of the engaged spectrum, proportionally higher speeds are achieved in the downlink. In order to increase capacity at several locations with a large volume of traffic, Crnogorski Telekom and One Crna Gora applied 4x4 MIMO or 8x8 MIMO technique (up to 3GPP *Release 12*). It should be noted that the mentioned values are theoretical maximum capacity per cell, which is rarely achieved in real conditions. Real flows on an application level depend on many parameters, some of which are not connected to network performances, and as for LTE networks, that capacity is shared among all the users in the base station zone.

In the initial phase of the implementation, NR technology in the networks of Crnogorski Telekom and One Crna Gora is based on the application of technique of dynamic share of resources of the cells between LTE and NR users (DSS technique). In this implementation scenario, especially considering the width of the engaged spectrum (currently 2x15 MHz), the user experience of 5G users does not differ to a large extent from the experience of 4G users. The full characteristics of 5G NR technology (peak data transfer rates of the order of 1 Gb/s, data transfer rates at the user level of the order of several hundred Mb/s, latency below 10 ms) are expected with the implementation of NR technology in the 3.6 GHz band with the engagement of frequency blocks width of 100 MHz or more.

In terms of the presence of radio interface technology in the access network for the provision of data transmission, according to the results of measuring conducted at the end of 2022, LTE technology dominates with its share of almost 100% in the city areas i.e. 99% in non-urban areas. The remaining data traffic is realized through UMTS networks, while GSM technology is not much used for data transmission. Voice transmission services in each of three mobile networks are provided via GSM/DCS1800 and UMTS networks, based on the circuit commutation. VoLTE technology has not still been implemented. According to measuring results carried out at the end of 2019, approximately 95% of total number of voice calls in the city areas and approximately 75% in non-city areas was carried out in UMTS networks, and the remaining in GSM/DCS1800 networks.

As regards the IoT/M2M technologies, only Crnogorski Telekom implemented NB-IoT technology (specified in 3GPP *Release 13*) at several locations, mostly individual user requests in the restricted service zone. NB-

IoT bearer is implemented in the restriction range between the neighbouring LTE bearers in the 800 MHz band.

With each of the three mobile operators, GSM/DCS1800, UMTS and LTE/LTE-Advanced/NR networks have functioned integrally, with integrated core and common transmission network. Transmission part of the networks of One Crna Gora and Mtela is generally based on a micro-wave radio-relay links, with transmission by optical fibers still less prevalent for now, but which is expanding.

In the backbone of transmission network, Crnogorski Telekom has used optical transmission capacities, and in the part of transmission to network backbone it also has also relied in a great part to micro-wave radio relay links. In order to provide the support for meeting the increasing requests for broadband services, transmission network capacities have been continuously expanded, through an increase of the capacities of radio relay links (on some routes to technological maximum) and by the development of optical connecting roads, both in the network backbone and in the transmission part to transmission network backbone. Each of the three mobile operators carried out migration of transmission networks to all IP transmission. In the networks of each of the three operators the so-called vertical handover has been enabled, which is an automatic connection switching from one technology to another, achieving a maximum transmission performance and connection continuity.

As regards the level of population coverage with mobile network signal, Montenegro is comparable with the most developed European countries. Total population coverage with GSM signal is around 99%, and total coverage with the signal of UMTS and LTE networks is around 98% (data received by software prediction), which makes Montenegro one of the countries with extremely good coverage. Coverage of the territory with mobile network signal encompasses almost all inhabited areas (all urban settlements, all suburban areas and the greatest part of rural areas), main roads (including tunnels) and tourist centres and, according to data received by software prediction amounts to 84% per GSM, and for UMTS and LTE more than 80% of the whole territory of Montenegro. Coverage of other, mostly scarcely inhabited areas has been improved by universal service mechanism. Considering demanding terrain configuration of Montenegro, from the point of view of the coverage with mobile network signal, radio access part of mobile networks of each of the three operators has been realized with numerous radio base stations, which has been continuously increasing so at the end of 2022 basic/repeating stations for outdoor and tunnel coverage were functioning in 401 locations in the network of Crnogorski Telekom, 438 in One Crna Gora network and 383 in Mtel network.

As terrain configuration in Montenegro is very demanding for the coverage with mobile network signal, radio access part of mobile networks of all the three operators is realized with radio access signal of mobile networks, with high, continuously increasing number of radio base stations. Thus, at the end of 2022, the following radio base/repeater stations for outdoor and tunnel coverage were in operation: 401 in the network of Crnogorski Telekom, 438 in the network of One Crna Gora, and 383 in Mtel network.

Radio access part of GSM/DCS1800 networks of each of the three operators was realized in the 900 MHz band and with its smaller part in the 1800 MHz band, with 392 radi base stations in the network of Crnogorski Telekom, 422 in the network of One Crna Gora and 358 in MTEL network. Access part of UMTS network was realized in the 3GHz and 900 MHz band, also with quite a high number of Node B stations (at the end of 2022: 277 in the network of Crnogorski Telekom, 426 in the network of One Crna Gora, and 295 in Mtel network). Volume of the installations in the access part of GSM/DCS1800 and UMTS networks has been gradually

decreasing, while mobile operators use the released spectrum for the implementation of LTE and NR technologies.

The greatest progress with regard to the plan of development of mobile electronic communications network during 2022 was achieved in the access part of LTE/LTE-Advanced networks of all three operators. Till the end of 2022, Crnogorski Telekom implemented LTE radio base stations in the 800 MHz, 1800 MHz, 2 GHz and 2.6 GHz in 377 locations, of which 72 locations were provided with 2CA technique, while in 44 locations was implemented 3CA technique, and in 63 locations was implemented 4CA technique. The base coverage with LTE signal of the network of Crnogorski Telekom reached approximately 97% of the population of Montenegro, while the coverage with LTE network signal with regard to the opportunity to provide data transmission services with minimum downlink flow of 10 Mbps, amounted to around 96.8% of the population of Montenegro (data provided by software prediction). At the end of 2022, in the access part of LTE network of Crnogorski Telekom, there were 198.175 PRB (Primary Resource Block) active blocks, being 30% more than at the end of 2021.

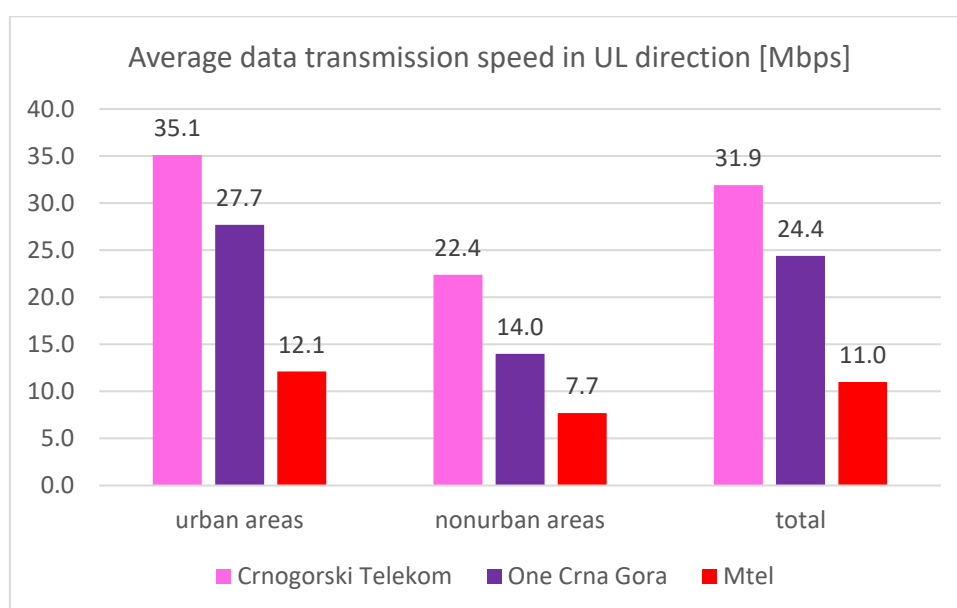
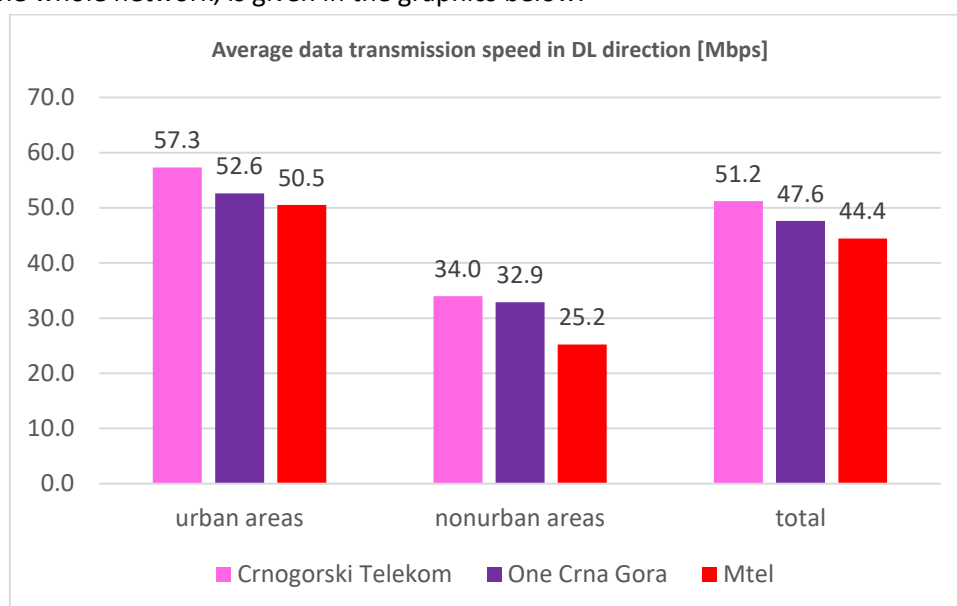
According to the results of software prediction, basic coverage of the population of Montenegro with LTE signal of One Crna Gora network was more than 96.8%, while the coverage with LTE network signal in terms of the opportunity to provide data transmission service with minimum downlink flow of 10 Mbps amounted to 95.2% of the population of Montenegro. LTE radio base stations realized in the 900 MHz, 1800 MHz, 2 GHz, and 2.6 GHz are implemented in 433 locations, of which 2CA technique in 147 locations, while in 108 locations is implemented 3CA technique; at the end of 2022, in the access part of LTE network of Telenor, 151,200 PRB blocks were active, being 20% more than in the previous year.

Level of basic population coverage in Montenegro with LTE network signal of Mtel amounts to nearly 96.3%, while the coverage with LTE network in terms of capability to provide data transmission service with minimum downlink flow of 10 Mbps is more than 94.5% of the population of Montenegro (data provided by software prediction), which is achieved by implementing e-Node of B stations in the 800 MHz, 1800 MHz, and 2.6 GHz bands at 341 locations (62 more than at the end of 2022), of which 2CA technique was implemented at 139 locations, while 3CA technique was implemented at 12 locations, and 4CA technique at 36 locations. At the end of 2022, the capacity in the access part of LTE network of Mtel was provided by means of 127,200 active PRB blocks, being more than 45% more than at the end of 2021.

According to the results of software prediction, basic coverage of the population of Montenegro with NR signal of Crnogorski Telekom network is approximately 75%, while 5G services were available in all the municipalities of Montenegro, except for Andijevica, Petnjica, Plužine, Šavnik and Tuzi. Total of 78 NR radio base stations were deployed in 2 GHz band. At the end of 2022, approximately 30% of the population of Montenegro was covered by NR signal of the network of One Crna Gora, while the access to 5G services was provided in Podgorica, Bijelo Polje and Tivat. Total of 17 NR radio base stations was implemented in 2 GHz band and 2.6 GHz band.

As regards the results of measuring the quality parameters of data transmission services in mobile networks, which the Agency carried out at the end of 2022, an average data transmission speed in urban areas was beyond 50 Mbps in the downlink of the networks of all three operators, while, depending on the network, it was in the range of 12-35 Mbps in the uplink. In non-urban areas an average speed of data transmission, depending on the network, is in the range 25-34 Mbps in the downlink and 8-22 Mbps in the uplink. An

overview of average data transfer speeds in DL and UL directions in urban and suburban areas, as well as at the level of the whole network, is given in the graphics below.



Level of successfully initiated and completed sessions of data transmission in the networks of all three operators was above 95%. In the network of Crnogorski Telekom a downlink flow above 10 Mbps in urban areas was achieved in 96.9% of measuring sessions, of which it was more than 30 Mbps in 81.1% of measuring sessions. A flow in 99.7% of measuring sessions was higher than 3Mbps in the uplink in rural areas, of which in 94.75% of the sessions it was higher than 10 Mbps. In the network of One Crna Gora, a downlink flow was higher than 10 Mbps in 95.4% of measuring sessions made in urban areas, of which in 72.3% of the sessions was higher than 30 Mbps. In the uplink in urban areas was achieved a flow higher than 3Mbps in 99.3% of measuring sessions, while in 90.3% measuring sessions in urban areas was achieved a flow over 10 Mbs. In Mtel network was achieved a downlink flow of more than 10 Mbps in urban areas in 92.6% of measuring session, of which it was higher than 30 Mbps in 60.5% of measuring sessions. It was achieved a flow of more than 3 Mbps in 97.9 % of measuring sessions made in urban areas, of which it was only in 30.1 % of the sessions higher than 10 Mbps.

Comparing with the end of 2019, an improvement in average data transmission speed in the downlink, in the network of all three operators, both in urban areas (from 15-20 Mbps to 50-57 Mbps) and at the level of the whole network (from 12-15 Mbps to 44-51 Mbps), was achieved. Average data transmission speed in the downlink remained at the more or less same level in the networks of Crnogorski Telekom and One Crna Gora, while there was a fall in the Mtel network (from 20 Mbps to 12 Mbps in rural areas, i.e. from 15 Mbps to 11 Mbps at the level of the whole network).

Relying on the above mentioned, the level of development of mobile communications networks and the availability of mobile communications services in Montenegro at the end of 2021 can be expressed as follows:

- 98-99% population coverage with GSM signal;
- Coverage of 97-98% population with UMTS and LTE signal;
- allowed data transfer service with functional flow of 10Mbps or more in downlink, on the territory inhabited with appr. 97% of population;
- 15-20 Mb/s average speed of data transfer in downlink in urban areas, and 10-18 Mbps along the main roads (according to measurement results at the end of 2019);
- in serving data traffic LTE/LTE-Advanced networks participate with over 99% in urban areas, i.e. over 95% along main highways, while the rest of data traffic is realized through UMTS networks;
- in serving voice traffic, UMTS networks participate with a share of over 95% in urban areas, i.e. over 75% along the main highways, and the rest of the voice traffic takes place through GSM/DCS1800 networks;
- the technology development level of UMTS networks is stopped at HSPA+ and DC-HSPA (3GPP Release 7 and 8) regarding downlink, and HSUPA (3GPP Release 6) regarding uplink;
- the technology development level of LTE networks at LTE-Advanced level (3GPP Release 10-12), e-Node B stations with up to three aggregated LTE carriers 10 MHz or 20 MHz wide, 64-QAM modulation and 2x2 MIMO technique (4x4 MIMO technique on several locations with a large traffic volume in the network of two operators);
- VoLTE technology is not implemented;
- implemented NB-IoT technology (3GPP Release 13) in the network of one operator, on some locations;
- one operator conducted testing of 5G NR technology in the range of 2 GHz with application of DSS technique.

Relying on the above mentioned, the level of development of mobile communications networks and the availability of mobile communications services in Montenegro at the end of 2022 can be expressed as follows:

- coverage of 98-99% population with GSM signal;
- coverage of 97-98% population of Montenegro with UMTS and LTE signal;
- allowed data transfer service with functional flow of 10 Mbps or more in downlink, on the territory inhabited with appr. 97% of population;
- average data transmission speed in downlink in urban areas, and brzina prenosa podataka u *downlink* smjeru u gradskim oblastima iznad 50 Mb/s, a u vangradskim oblastima oko 30 Mb/s;
- in serving data traffic, LTE/LTE-Advanced networks participate with almost 100% in urban areas, i.e. with nearly 99% in non-urban areas, while the remaining data traffic is realized through UMTS networks;
- in serving voice traffic, UMTS networks participate with a share of over 95% in urban areas, i.e. over 75% in , and the remaining voice traffic takes place through GSM/DCS1800 networks;
- level of technology development of UMTS networks has been stopped at HSPA+ and DC-HSPA (3GPP Release 7 and 8) regarding *downlink*, i.e. HSUPA (3GPP Release 6) regarding *uplink-u*;

- level of technology development of LTE networks is at the level of *LTE-Advanced (3GPP Release 10-12)*, *e-Node B* station with up to four aggregated LTE carriers 10 MHz, 15 MHz or 20 MHz wide, 64-QAM modulation and 2x2 MIMO technique (4x4 MIMO and 8x8 MIMO technique implemented on several small locations with large traffic volume in the network of two operators);
- VoLTE technology is not implemented;
- NB-IoT technology (3GPP Release 13) in the network of one operator is implemented on small number of locations;
- two operators put into commercial work 5G NR technology based on DSS technique, 5G services are available in 20 municipalities of Montenegro, coverage with NR signal is more than 75% of the population.

1.2. Implementation of 2022-2026 Digital Transformation Strategy

At the proposal of the Ministry of Public Administration, Digital Society and Media, at the end of December 2021, the Government of Montenegro adopted 2022-2026 Digital Transformation Strategy of Montenegro with 2022-2023 Actionim Plan. 2022-2026 Digital Transformation Strategy of Montenegro is a development framework which will define preconditions and initiatives necessary for quick adaptation to an increasingly complex digital environment and agile and proactive development of digital Montenegro. With an efficient digital environment, which will create positive impacts on economic development, it will also contribute to the development of society as a whole.

In the adopted document is given a comprehensive review of the current situation in various technical, organizational, legal, society and other aspects of digital transformation, and the main challenges to be analyzed by Digital Transformation Strategy. All presented arguments and conclusions are supported by specific data and information in individual segments (organization and coordination; e+-services and e-services design, eID, trust and syber security; data availability and interoperatbility, availability and (critical) infrastructure, skills and education; ICT industry, digital readiness of the Montenegrin society).

The challenges in digital transformation of Montenegro identified in the Analysis of state are addressed by two strategic goals reflecting and presenting the picture of Montegrin digital reality and are further channeled through seven operational goals with the areas i.e. activity groups in order to reach improved aimed state.

The first strategic goal is focused on capacity and ability improvement for digital transformation of Montenegro, while the other one is focused on the improvement of digital awarness of the Montenegrin society and digital competitiveness of the ICT Sector.

Within Strategic goal I, the following operations have been identified:

- Efficient and effective coordination and monitoring of digital transformation;
- Improving availability, interoperability and data management;
- Wider coverage and modernization of electronic communications infrastructure;
- Development and increase of digital knowledge and skills in the Montenegrin society.

Within Strategic goal II, the following operational goals have been identified:

- Increase of the citizens and economy awarness regarding digital development;
- Improving the quality, quantity and use of e-services;

- Improvement and development of ICT sector.

In order to monitor the realization of operational goals, appropriate performance indicators have been defined. Each performance indicator is precisely defined through the indicator passport (description, data necessary for its calculation, calculation methodology, institution responsible for calculating values, etc.). In addition, the initial values for the performance indicators, as well as target values of the indicators for 2024 and 2026, are given.

On the basis of strategic and operational goals defined in this way, key activities for the realization of operational goals were defined with the Activity Holders and partners in the realization of the aforementioned activities.

Performance of Montenegro Digital Transformation Strategy will be realized through two action plans of which the first for the period 2022 – 2023, and the second for the period 2024 - 2025. The Action Plan 2022-2023, as a part of the Strategy, gives an overview of the activities necessary for the accomplishment of the operational goals, and the holders of the activities and partners for each of them, terms for the realization, performance indicators as well as the funds and the manner of financing.

With regard to its competences defined by law, the most significant participation of the Agency relates to Operational Goal 1.3 (Increased coverage and modernization of electronic communication infrastructure), which deals with issues of availability of adequate ICT infrastructure, which represents the basis for all digital services, both for their development and for their wide use. The following table shows the values of the indicators from the Digital Transformation Strategy, which the Agency is responsible for monitoring (initial value, value at the end of 2022 and planned values for 2024 and 2026)

Indicator	Initial state 2021	2024 Plan	2026 Plan	2022 state
Ratio of coverage of the households with BB of 100Mb/s+ speed	76.7%	81.6%	86.4%	78.46%
Ratio of coverage of the population with mobile BB with 10 Mb/s+	97.2%	98%	99%	97.47%

Within the activities defined by that Strategy with a view to accomplishing operational goals, the Agency is responsible for the activities regarding radio frequency assignment in the bands intended for 5G. The subject activity is carried out by the Agency in the public tender procedure for issuing the approval for the use of radio frequencies in the bands 700 MHz, 3.6 GHz and 26 GHz (pioneer 5G bands), in the period October-December 2022. Mobile operators have been assigned radio frequencies in the bands 700 MHz and 3.6 GHz, while radio frequencies in the 26 GHz band were not allocated as mobile operators were not interested in their assignment and use. The assignment procedure was formally completed on February 9, 2023, by issuing the approvals for the use of radio frequencies in the 700 MHz and 3.6 GHz bands to mobile operators. Thus, that activity was completely realized within the given terms.

Through 2022 – 2023 Action Plan, the Agency is also recognized as a partner (participant) in numerous other activities, especially within the framework of Operational Goal 1.3 (Increased coverage and modernization of electronic communication infrastructure). In all activities, the implementation of which was started during 2022, the Agency took part and gives its full contribution to the implementation of the activities in question.

1.3. Overview of registered operators of electronic communications during 2022

Operator elektronskih komunikacija u smislu Zakona o elektronskim komunikacijama je fizičko ili pravno lice,

Pravno ili fizičko lice dužno je da, prije početka korišćenja, odnosno operator prije prestanka ili izmjene režima korišćenja javnih elektronskih komunikacionih mreža ili pružanja javnih elektronskih komunikacionih usluga, u pisanoj formi, podnese prijavu Agenciji najmanje 15 dana prije početka korišćenja, odnosno prestanka ili izmjene režima korišćenja javnih elektronskih komunikacionih mreža ili pružanja javnih elektronskih komunikacionih usluga.

An operator of electronic communications within the meaning of the Law on Electronic Communications is a natural or legal person, that is, an entrepreneur who provides or has the right to provide a public electronic communication service or to make available a public electronic communication network or a public electronic communication infrastructure and facilities.

A legal or natural person is obliged to submit a written application to the Agency at least 15 days before the start of use, i.e. before the termination or change of the regime of use of public electronic communication networks or the provision of public electronic communication services.

The Agency shall within seven days from the date of receipt of duly fulfilled application enter the operator in the Register of operators or remove it from the Register and issue the confirmation on registration, change or removal of the operator from the Register.

At the end of 2022, a total of 34 operators were in the Register of operators kept by this Agency, for performing the following activities:

- implementation of public fixed electronic communications network and provision of public fixed electronic communications services,
- implementation of public mobile electronic communications networks and provision of public mobile electronic communications services,
- implementation of public fixed electronic communications networks based of fixed wireless access (FWA) and provision of public electronic communications services,
- provision of the service of voice transmission through the networks based on internet protocol,
- provision of public service of internet access,
- provision of public service of leased lines,
- implementation of public electronic communications networks for transmission and broadcasting of radio signals and other signals, provision of public electronic communications services of transmission and broadcasting of radio signals, public electronic communications services of the lease of lines and public electronic communications services of multiplexing, transmission of multiplexed signals to the transmitter multiplex network for broadcasting radio and other signals and electronic communications infrastructure lease services,
- implementation of public cable electronic communications networks and provision of public electronic communications services of distribution of radio and television programs to end users,
- provision of public electronic communications services by means of its own functional networks/systems,
- implementation of public electronic communications networks based on a broadband wireless access (BWA) and provision of public electronic communications services,
- provision of IP telephony service, return call and information centre services,
- provision of internet access service through wireless access systems in radio-frequency bands of 2.4 GHz and 5 GHz, intended for these systems,

- provision of lease service of digital ducts in national and international lines,
- provision of fiber lease service (dark fiber),
- providing the services of: internet access, voice transmission over internet protocol (VoIP), video streaming, fax, Voice service and ethernet connection (point - point), and IP transit,
- provision of the service of connection to a national Internet exchange point (IXP),
- provision of the service of access and use of the electronic communications network and electronic communications infrastructure lease,
- implementation of electronic communications networks based on TETRA (Terrestrial Trunked Radio) standard and electronic communications services of voice transmission and short text messages via TETRA system,
- provision of public electronic communications services via satellite (internet access and leased line services),
- provision of the service of public telephone box and voice transmission via networks based on internet protocol.

In 2022, the company entered in the Register of operators was:

- „PRO SOLUTIONS" d.o.o. Tivat, entered for Internet access services.

During 2022, the following operators were deleted from the Register:

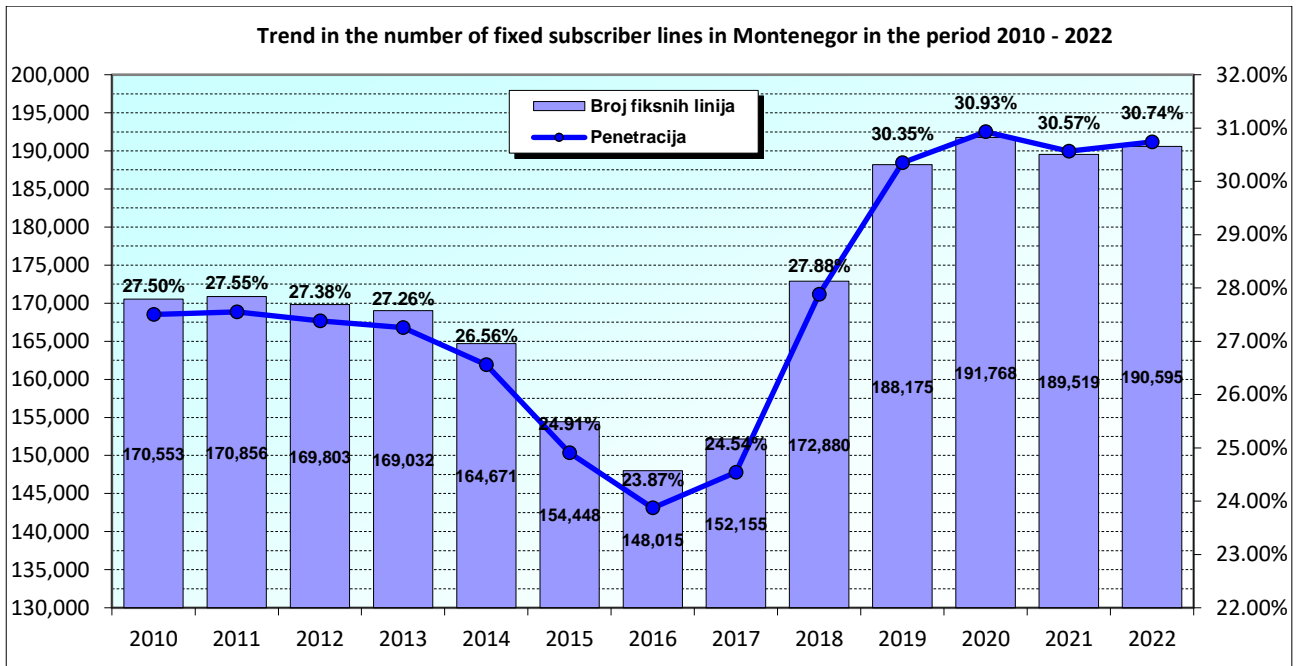
- „IT-DESK“ d.o.o. Podgorica, for the services of access and use of the elements of electronic communications network;
- “DASTO MONTEL” d.o.o. Cetinje, for the provision of Internet access services and leased lines..

1.4. Fixed telephony market

During 2022, services of fixed telephony at the territory of Montenegro were provided by the operators: Crnogorski Telekom, Mtel, Telemach and One Crna Gora.

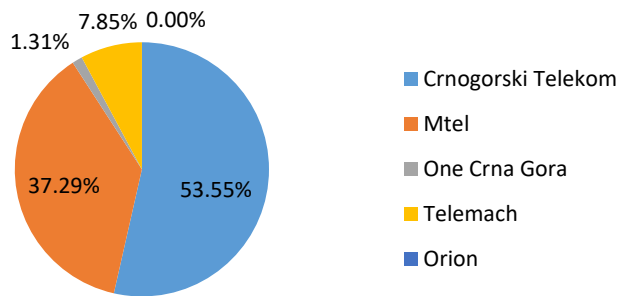
At the end of 2022 there were 190,595 fixed subscriber lines, which corresponds to a penetration in relation to the number of inhabitants of 30.74%. Comparing with the previous year, the number of subscriber lines increased by 0.57%.

The chart below presents a trend in the number of fixed subscriber lines and penetration in Montenegro.

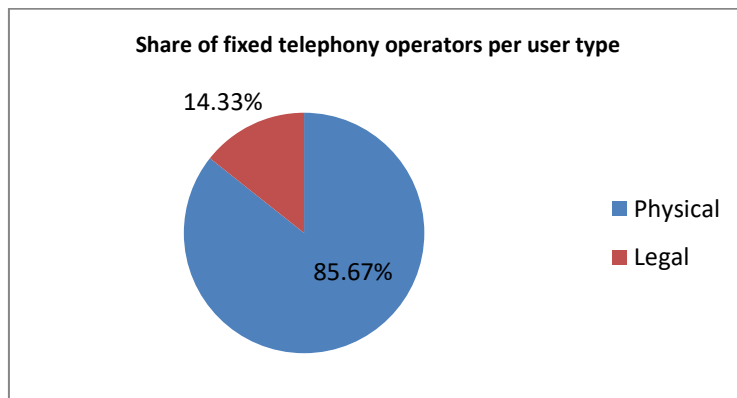


Of the total number of fixed telephony connections, Crnogorski Telekom had 102,061, Mtel 71,081, Telemach 14,960 and One Crna Gora 2,493 connections.

Share of the operators of fixed telephony operators per number of connections

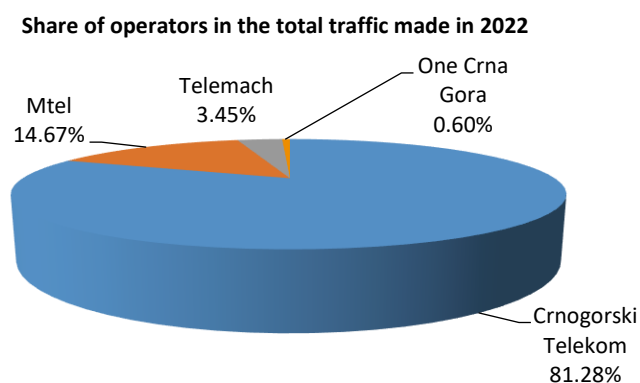


Share of physical persons in the total number of fixed telephony connections in Montenegro was 85.67%, and of legal persons the share was 14.33%.



1.4.1. Traffic volume and structure

In 2022, the users of all four fixed operators in Montenegro made 70,546,872 minutes of outgoing traffic. The share of outgoing traffic made from Crnogorski Telekom, in the total number of outgoing traffic was 81.28%, while the share of outgoing traffic made from Mtel amounted to 14.67%, from Telemach 3.45%, and the share of outgoing traffic from One Crna Gora amounted to 0.60%. The pie-chart below shows the market share of operators per number of outgoing traffic minutes.



1.4.2. Comparison of fixed telephony prices of operators performing their activities on the market of Montenegro

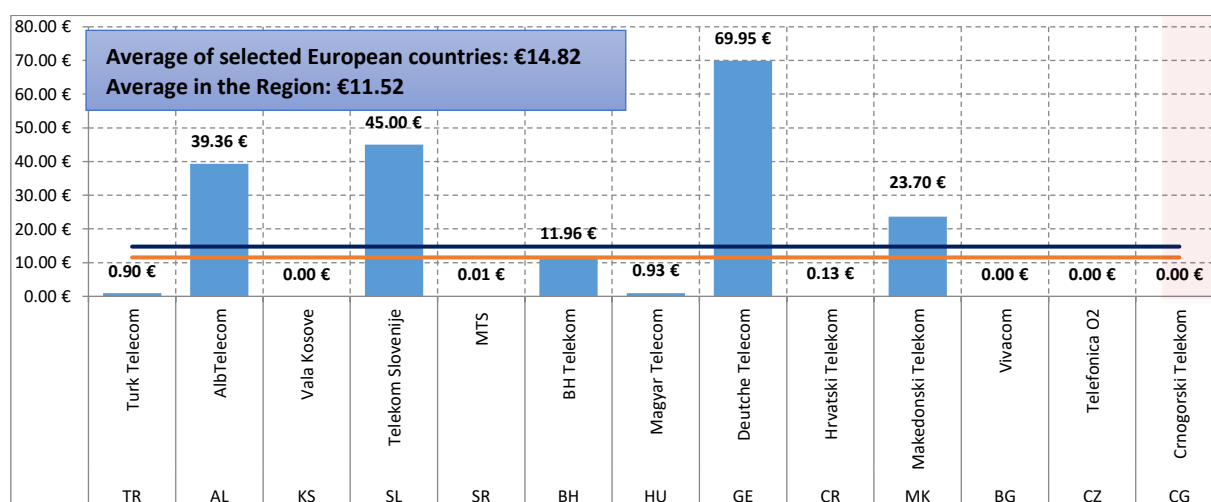
With a view to comparing fixed telephony prices among the operators offering those services in Montenegro (Crnogorski Telekom, Mtel, Telemach) one service package with the largest number of users from each of these operators have been considered. The prices refer to physical persons² and are given in € (EUR) with VAT included, on December 31, 2022.

Operator	Crnogorski Telekom	Mtel	Telemach
Package name	Standard package (billing: 60+1 s)	Tel BOX 1 (billing: 60 s + 60 s)	Tel package (billing: 60+1 s)
Monthly fee for network access (or for network maintenance)	6.17	-	10.80
Monthly subscription	3.83	6.99	3.90
Conversations conducted in the network	Local: 0,0136/0,0097 Intercity: 0,0155/0,0109 Periods: /peak/low traffic	0.015	0.014
Other fixed networks in Montenegro	0,0280	0.045	0.014
Mobile networks in Montenegro	0,0282/0,0271 (Periods: peak/weak traffic)	0.06	0.06
International conversations (Serbia, fixed networks)	0.12	0.30	0.11
International conversations (Serbia, mobile networks)	0.21	0.30	0.31
International conversations (Region, fixed networks)	0.12	0.21 – 0.26	0.12
International conversations (Region, mobile networks)	0.27	0.21 – 0.26	0.31

International conversations (Europe, fixed networks)	0.08	0.26	0.14
International conversations (Europe, mobile networks)	0.20	0.26	0.31
International conversations (the USA, fixed networks)	0.05	0.41	0.10
International conversations (the USA, mobile networks)	0.05	0.41	0.10

1.4.3. Fixed network connection fees

Connection fee to the network of Crnogorski Telekom was €0 at the end of 2021. This fee refers both to physical and legal persons. In the following chart is given comparison with surrounding countries and selected European countries, VAT included.

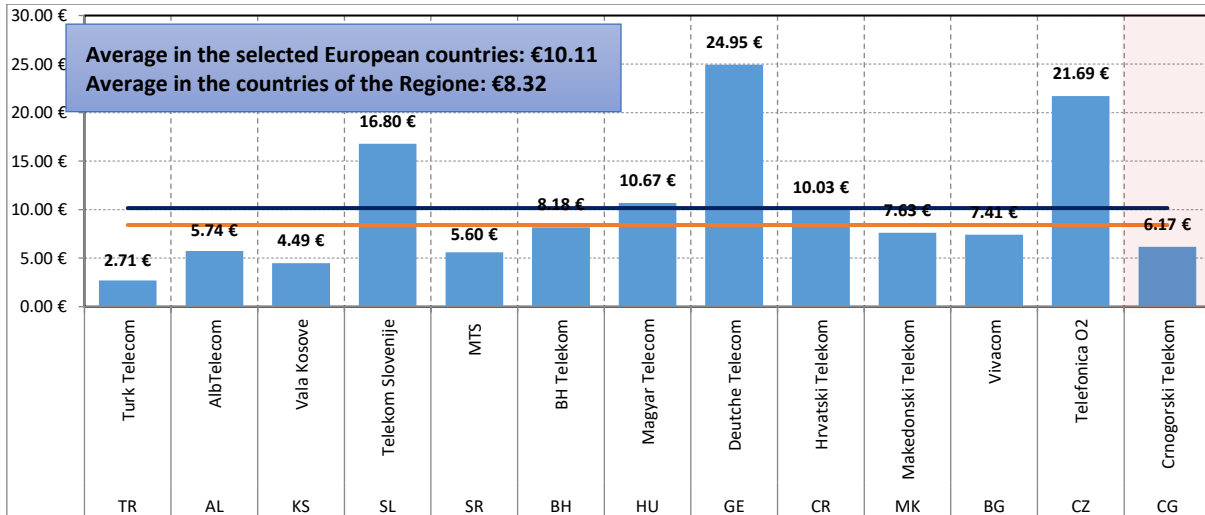


Average price of connections in the countries of the Region amounts to €11.52, while connection fee offered by Crnogorski Telekom is €0.

Average price of connections in the observed selected countries of Europe is €14.82, while the price of connections of Crnogorski Telekom is 0 €.

1.4.4. Monthly subscription fee

Monthly subscription fee for the users of fixed telephony services of Crnogorski Telekom is €6.17. In the chart below is given a comparison of monthly subscription fee with the ones in the surrounding countries and in the selected European countries.

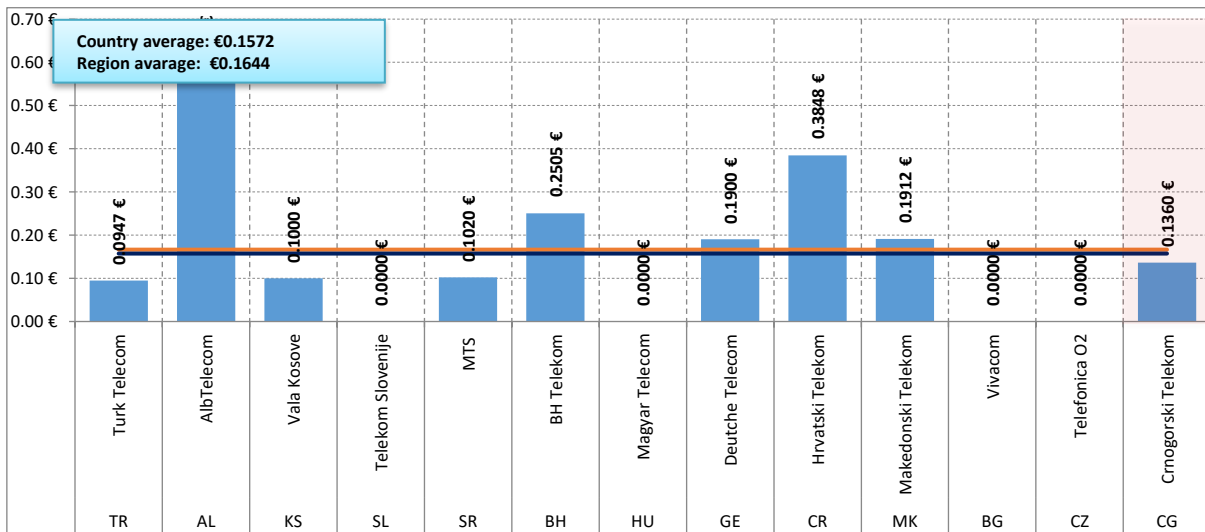


Average monthly subscription fee in the countries of the Region is €8.32, while monthly subscription fee offered by Crnogorski Telekom is €6.17, being 25.84% lower than the respective average in the countries of the Region.

Average monthly subscription fee in the observed selected European countries amounts to €10.11, while a monthly subscription fee offered by Crnogorski Telekom is €6.17, which is 38.97% lower than the respective average in the selected European countries.

1.4.5. Local call fee

The following is the chart of the countries in the Region and selected European countries by a 10-minute local call fee. The prices are in EUR, VAT included.

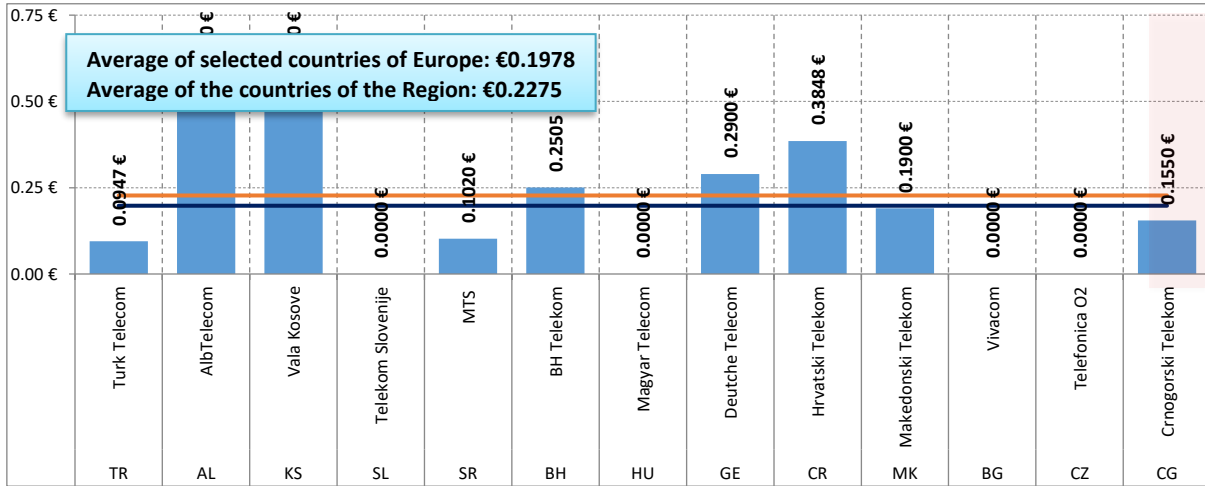


Average 10-minute local call fee in the countries of the Region is €0.1644, while a 10-minute local call fee offered by Crnogorski Telekom is €0.1360, being 17.27% lower than the respective average in the countries of the Region.

Average 10-minute local call fee in the observed selected European countries is €0.1572, while a 10-minute local call fee offered by Crnogorski Telekom is €0.1360, i.e. 13.49% lower than respective average in the selected countries of Europe.

1.4.6. National call fee

The following chart presents 10-minute calls in the incumbent network in the countries of the Region and selected European countries by national (intercity) calls. The fees are expressed in euros, with VAT included.

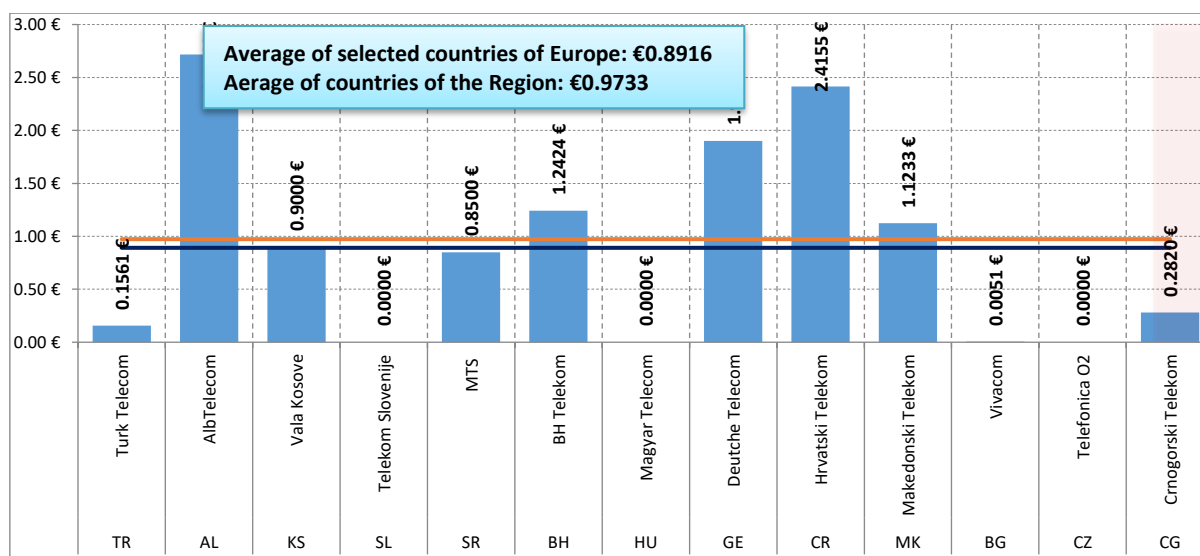


Average price of a 10-minute national call in the countries of the region is €0.2275, while the price of a 10-minute national call offered by Crnogorski Telekom amounts to €0.1550, being 31.86% lower than mentioned average in the countries of the Region.

Average price of a 10-minute national call in the selected countries of Europe is €0.1978, while an average price of a 10 minute national call offered by Crnogorski Telekom is 0.1550 €, which is 21.63% less than mentioned average in the selected countries of Europe.

1.4.7. Call fee to national mobile networks in Montenegro

Graphic below shows the fee of a 10-minute call made from the networks of incumbent operators to national mobile networks in the countries of the Region and selected countries of Europe. Prices are expressed in EUR, VAT included.



Average fee of a 10-minute call to mobile networks in the countries of the Region amounts to €0.9733, while the price of a 10-minute call made to mobile networks offered by Crnogorski Telekom is 0.2820 €, being 71.02% less than mentioned average in the countries of the Region.

Average fee of a 10-minute call made to mobile networks in the observed selected countries of Europe is €0.8916, while the fee of a 10-minute call made to mobile networks, offered by Crnogorski Telekom is 0.2820 €, being 68.37% less than mentioned average in the selected countries of Europe.

1.4.8. Prices of calls made to other fixed networks in Montenegro

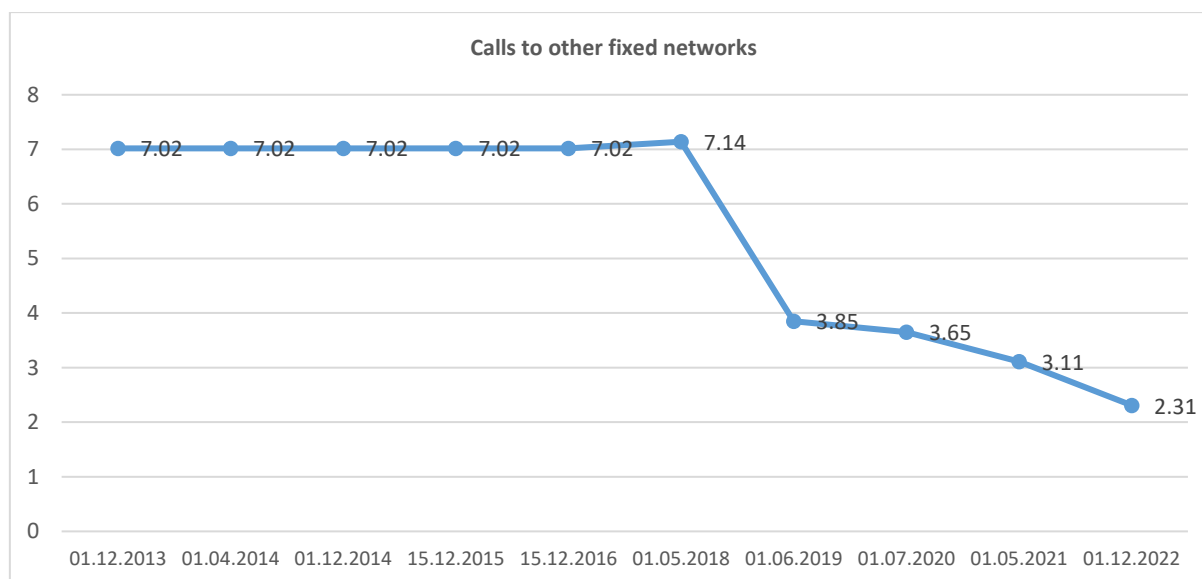
In the period 2013-2018, the Agency did not apply regulation of prices of the service of calls made to other fixed network. In that period Mtel was the only alternative fixed operator operator providing the services of fixed telephony through WiMax technology and did not have a significant network coverage and a subscriber base.

Since 2018, the situation at the market changed in the sense of higher competition level as the operators: Mtel, Telemach, One Crna Gora and IPMont started to significantly spread their networks at the first place with a view to providing service packages, including the services of access to public telephone network and calls to fixed location.

That is why the Agency has, after verification of the results of the cost model according to CCA/LRIC methodology for fixed network for 2016, imposed on Crnogorski Telekom to reduce the prices of calls to other fixed networks by 40%, and after verification of CCA/LRIC cost model verification results for fixed network for 2018, to reduce them by 5%, and upon adoption of the cost model results for 2019, to reduce them by another 15%.

By its decision of 23.06.2022, the Agency imposed on Crnogorski Telekom to apply the price of 0.0231€/min for the service of calls made to fixed networks of other operators in Montenegro in the period of peak traffic.

Overview of the reduction of call service charges for the calls to fixed networks in the period 2013-2020



Trend in charges of calls to other fixed networks in €/cent in the period 2013-2021

From the beginning of the application of results of cost models in the regulation of prices of this service, Crnogorski Telekom applied the highest rate of service price reduction of around 46%, in the mid-2019.

Overview of the reduction in call service charges for the calls made to fixed networks in the period 2013-2020

Service type	01.12.2013	01.04.2014	01.12.2014	15.12.2015	15.12.2016	01.05.2018	01.06.2019	01.07.2020	01.05.2021	01.12.2022	Charge reduction for the total period in %
Calls to fixed networks	7.02	7.02	7.02	7.02	7.02	7.14	3.85	3.65	3.11	2.31	
Charge reduction per year in %		0%	0%	0%	0%	2%	-46%	-5%	-15%	-25%	-67%

Average annual decrease of local call service charge in the observed period is approximately 8%, and comparing the valid charge in 2022 with the respective charge in 2013, total decrease in service charge is 67%.

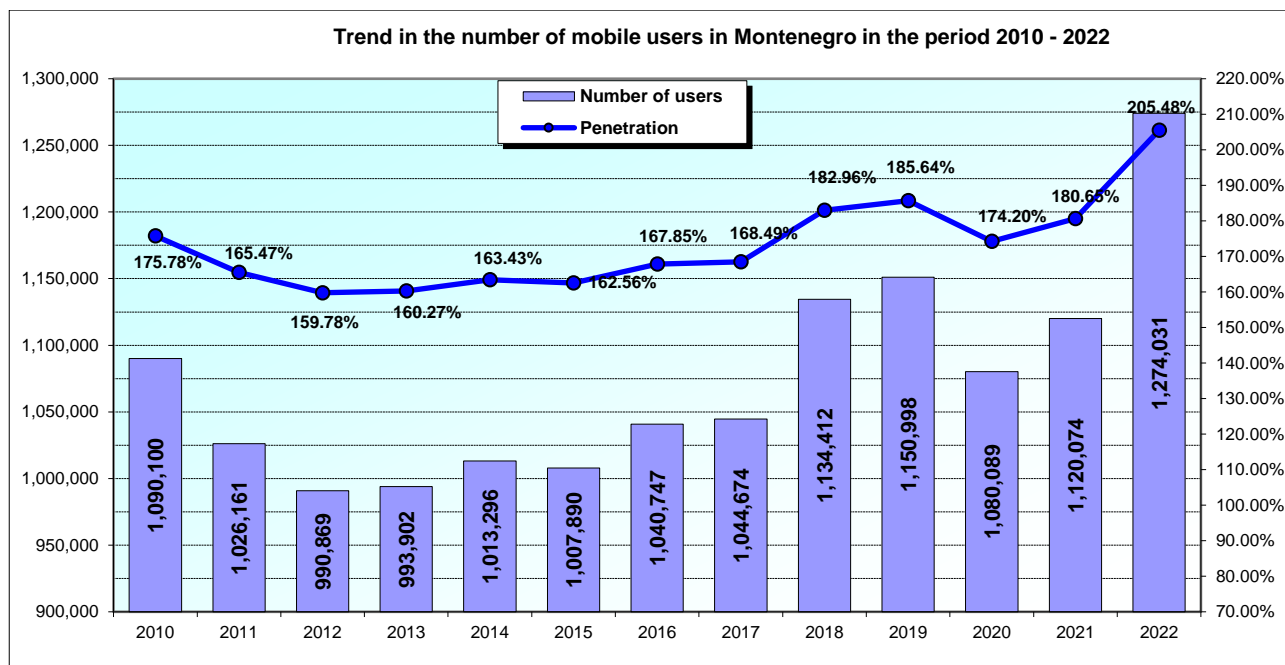
1.5. Mobile telephony market

Three telecommunications operators: One Crna Gora, Crnogorski Telekom and Mtel perform their activities at mobile telephony market of Montenegro. At the end of 2022, number of mobile telephony users in Montenegro was 1,274,031, which is a penetration of 205.48%.

In relation to the same period in 2021 number of users is 13.75% higher. At the end of 2022 there was 56.01% (713,625) more postpaid users, while the number of prepaid users amounted to 43.99% (560,406).

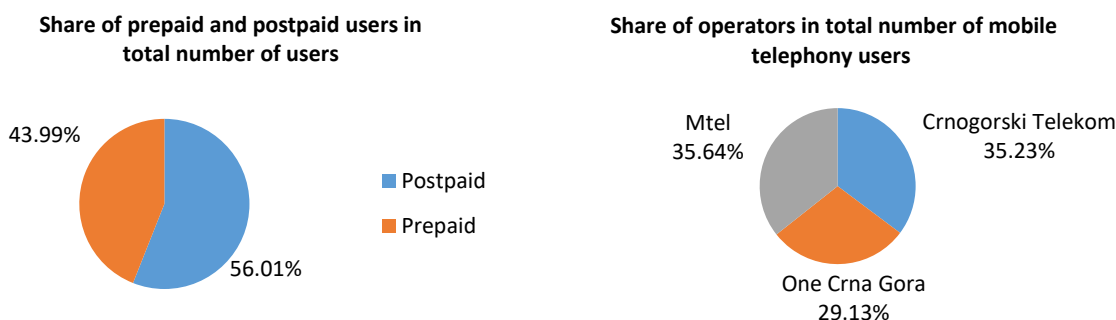
The highest penetration during 2022 at the mobile telephony market of Montenegro was recorded in September, when amounted to 218.32 %, and the lowest was recorded in February when amounted to 177.04%.

In the chart below is given mobile telephony penetration on an annual level, for the period 2010-2021.



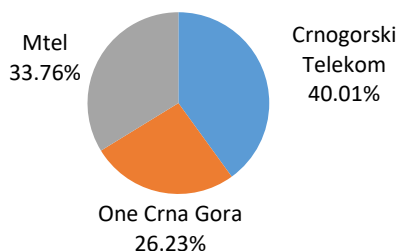
Out of total number of 1,274,031 mobile telephony users in Montenegro, the largest share at the end of 2022 had mobile operator Mtel with 454,070 users, followed by Crnogorski Telekom with 448,848 users, One Crna Gora with 371,113 users or in rates: Mtel 35.64%, Crnogorski Telekom 35.23% and One 29.13%.

Out of total number of 713,625 postpaid users Crnogorski Telekom had 285,501, Mtel 240,909, and One Crna Gora 187,215 users, and of total number of 560,406 prepaid users Mtel had 213,161, One Crna Gora 183,898, and Crnogorski Telekom 163,347 users. Share of postpaid users, and share of certain mobile telephony operators in the total number of users are given in the following pie charts:

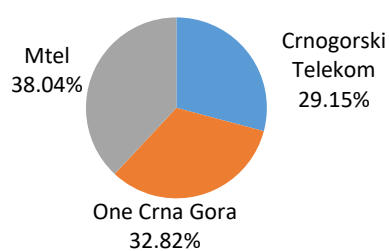


Share level with regard to the number of prepaid and postpaid users of mobile operators are given in percentages in the following pie charts:

Share of the operators in total number of *postpaid* users

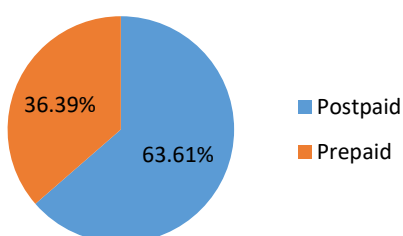


Share of the operators in total number of *prepaid* users

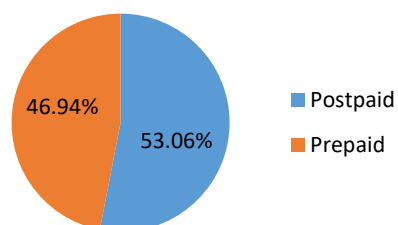


Share level with regard to the number of prepaid and postpaid users of mobile operators are given in percentages in the following pie charts:

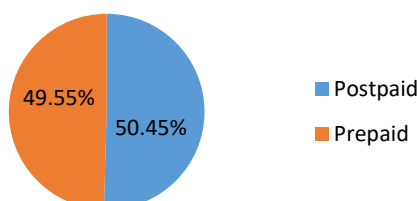
Share of prepaid and postpaid users in total number of users of Crnogorski Telekom



Share of prepaid and postpaid users in total number of Mtel users



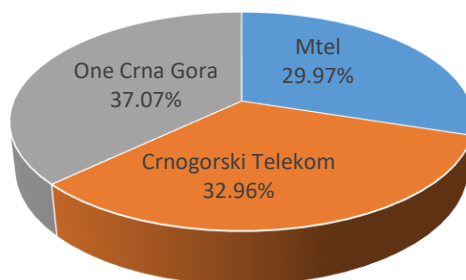
Share of prepaid and postpaid users in total number of users of One Crna Gora



1.5.1. Traffic volume and structure

During 2022, the users of all three mobile operators in Montenegro realized 1,955,719,253 minutes of outgoing traffic. Share in the total realized outgoing traffic was: 37.07% from One Crna Gora, 32.96% from Crnogorski Telekom and 29.97% from Mtel network. Market share of the operators per minute of outgoing traffic is shown in the following pie chart:

Share in total traffic realized in 2022



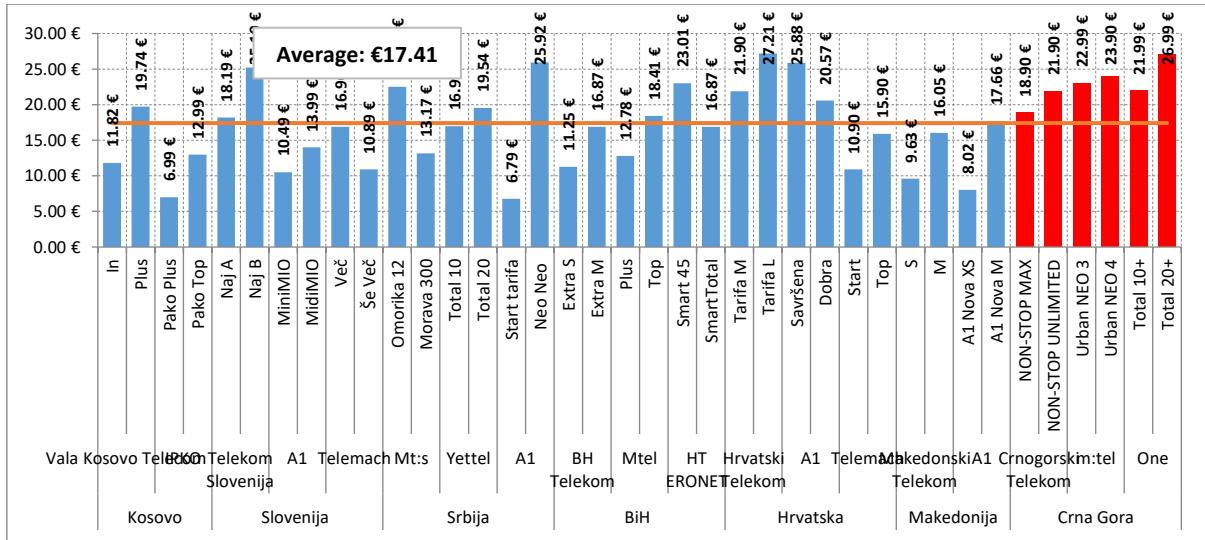
1.5.2. Prices of mobile telephony users

Comparative analysis of mobile telephony services is very complex considering that mobile operators in Montenegro, Region and Europe offer great number of packages different in monthly fee/call/SMS message/traffic data/way of charging and other advantages within the packages.

The above mentioned analysis is an overview of tariff packages of mobile operators from the countries of the Region (Kosovo, Slovenia, Serbia, Bosnia and Herzegovina, Croatia, North Macedonia and Montenegro). For the purposes of comparison, two user packages were taken each, for physical persons, especially postpaid and especially prepaid. In addition to this, the same type of analysis was also performed for the packages of mobile operators in European countries, and the countries were selected so as to include the countries where the owners of the operators - Deutsche Telekom Group, Telenor Group and Telekom Serbia, operate in Montenegro.

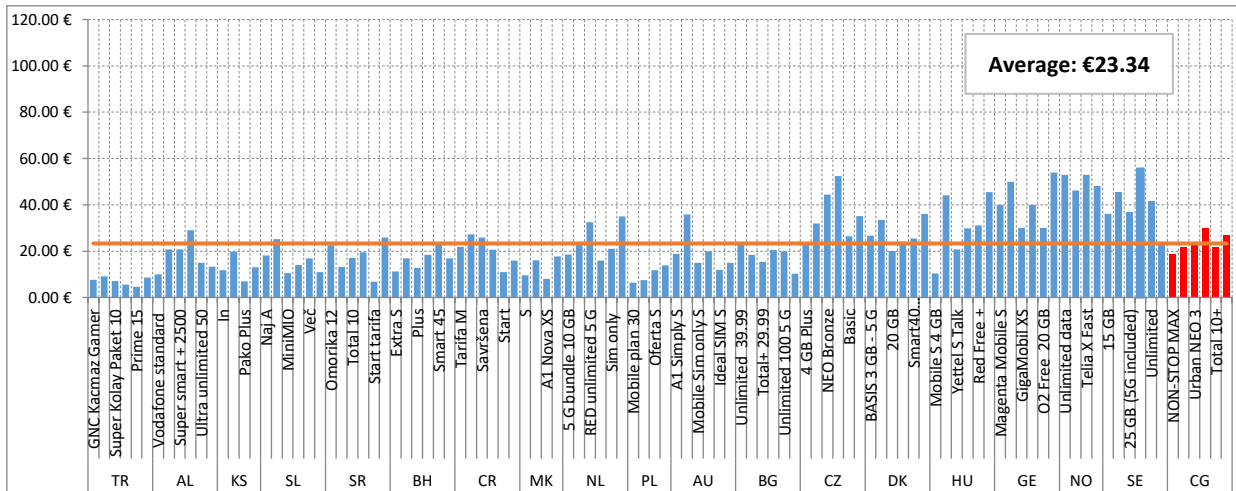
1.5.2.1. Postpaid packages for physical persons

Comparative overview of monthly subscriptions for selected postpaid packages of mobile operators for physical persons, in the countries of the Region, is given in the following chart, where, according to the criterion of monthly subscription fee, only one package of Crnogorski Telekom is below average of the observed countries (€17.41), while other packages of Montenegrin operators are above mentioned average.



Comparative overview of prices of monthly subscription fee for postpaid packages of mobile operators in the countries of the Region, for physical persons

Comparative overview of monthly subscription fee for selected postpaid packages for physical persons of mobile operators in the European countries is given in the following chart; we see that, according to the criterion of monthly subscription fee, packages of Crnogorski Telekom, one package of Telenor and one package of Mtel are below the average of the observed European countries (€23.34), while one package of Mtel and one of One Crna Gora are above mentioned average.

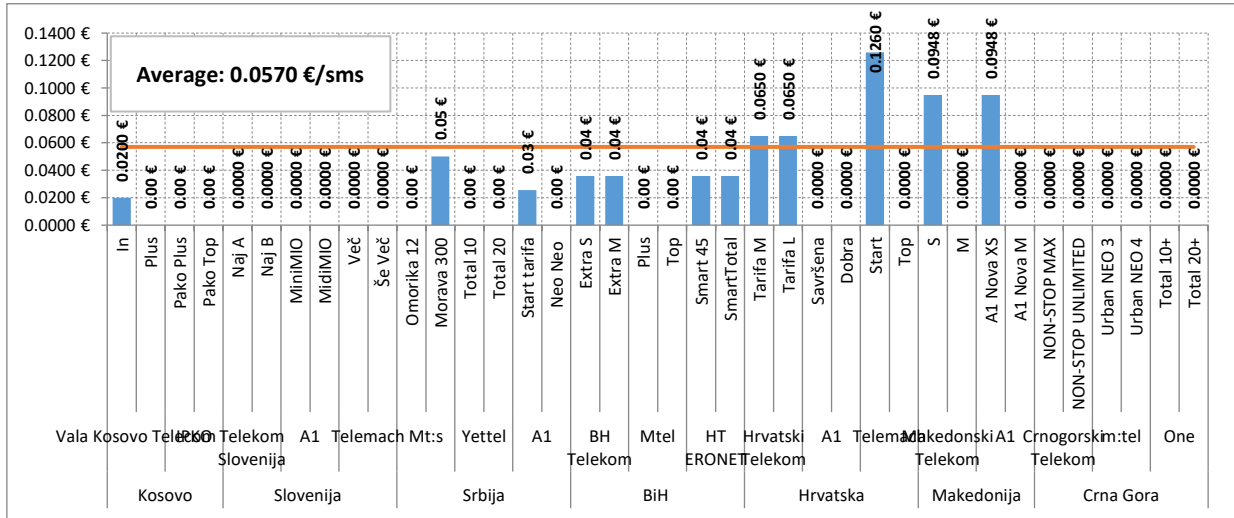


Comparative overview of monthly subscription fee for postpaid packages of mobile operators in selected European countries, for physical persons

Comparative overview of monthly subscription fee in the countries of the Region (€17.41) is lower than the average in the European countries (€23.34), although there is a significant number of operators which exist both in the Region and in the selected European countries (e.g. Vodafone, T-Mobile, ONE), meaning that there are different tariff policies in these countries, in line with life standards of population in the countries of the region and of those in more developed European countries.

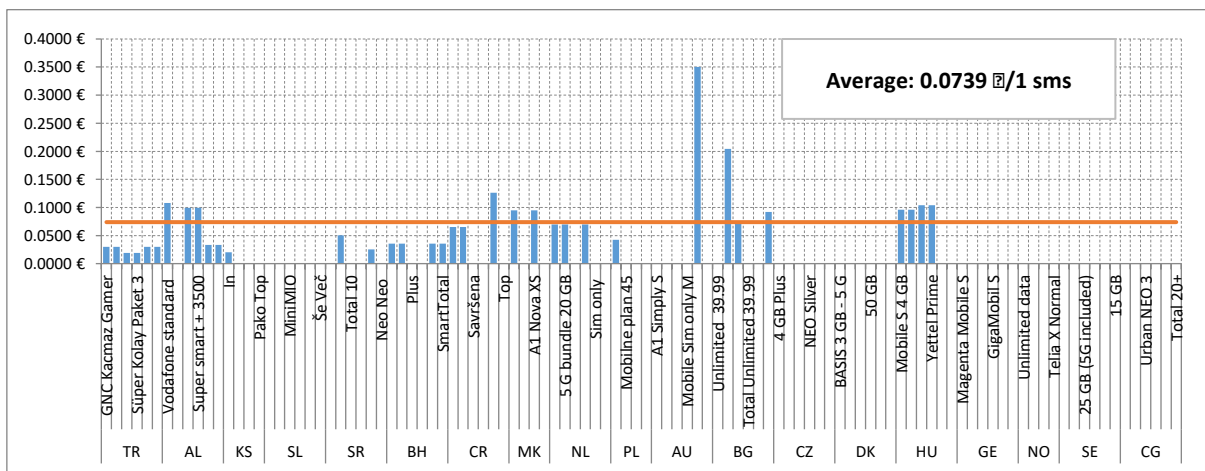
Comparative overview of the price of SMS service sent to national mobile operators, is given in the following chart, thus we can see that, according to that criterion, package fees of all three Montenegrin mobile operators are below average of the observed countries of the region (€0.0570 per message). Except for the

packages with free SMS messages sent to national mobile operators (included in monthly subscription fee), package fees of Montenegrin mobile operators are among the most favourable ones.



Comparative overview of SMS prices of postpaid packages of mobile operators of countries in the Region, for physical persons

Comparative overview of the price of SMS message for selected postpaid packages of mobile operators in the European countries, for physical persons, is given in the chart below; according to that criterion, all three Montenegrin mobile operators are below average of the European countries (€0.0739 per message), i.e. the prices of SMS messages are free of charge, i.e. included in monthly subscription fees. Most of the operators in Europe offer postpaid packages with free minutes and SMS messages to all networks in the country, and among them are also most of the packages of Montenegrin operators processed in this analysis. The prices of all SMS messages free of charge i.e. included in monthly subscription fee, are excluded from calculation of an average value, in order to make better insight in the prices of chargeable SMS messages.

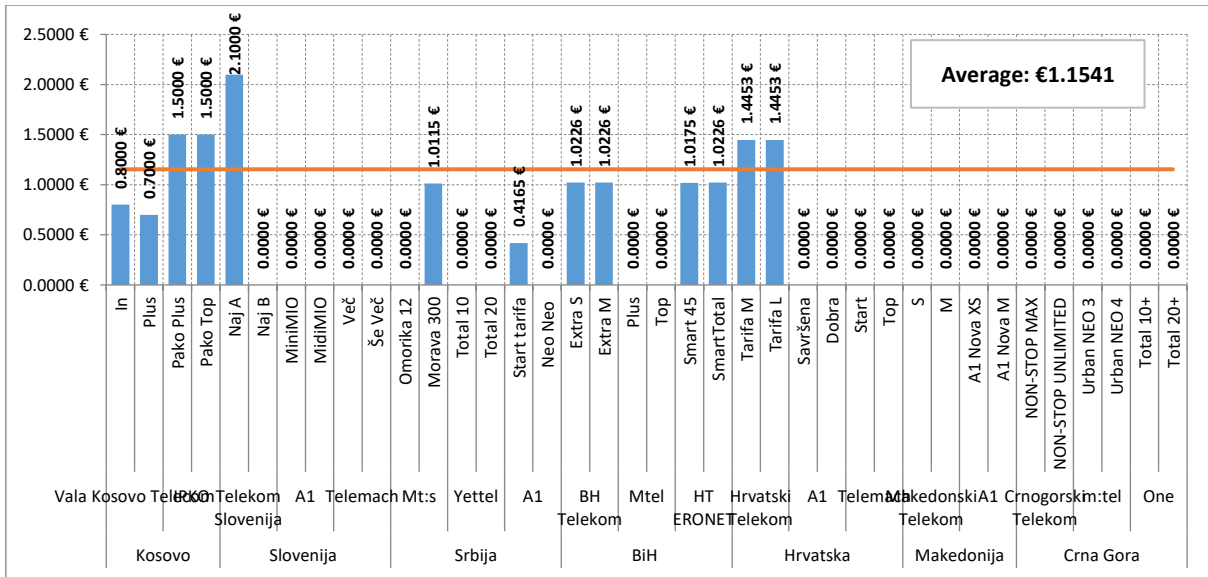


Comparative overview of SMS price of postpaid package of mobile operators of the European countries, for physical persons

Average SMS price in the countries of the Region (€0.0570) is lower than the average in the European countries (€0.0739), although there is a significant number of operators both in the Region and in the EU countries (e.g. Vodafone, T-Mobile, ONE), which means there are different tariff policies in these countries, in line with life standards of population in the countries of the Region and of those in more developed European countries.

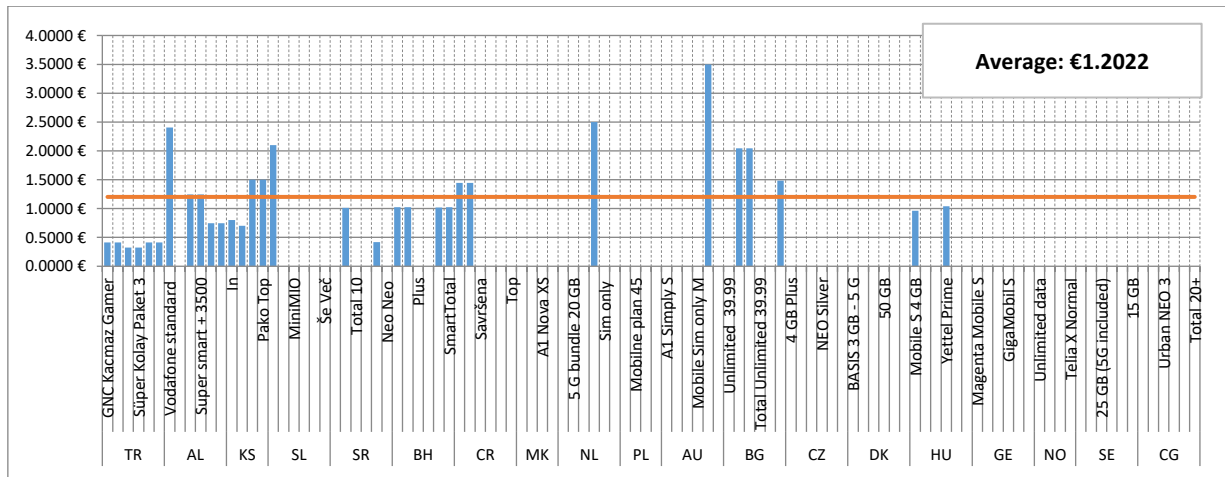
Comparative overview of the price of a 10-minute call to national fixed networks is given in the following chart, and in line with that criterion, only one package of Crnogorski Telekom is above average of the observed countries in the Region (that amounts to €1.1541 for a 10-minute call).

Most of the operators in the Region offer postpaid packages with free minutes to all networks in the country, and among them are also most of the packages of Montenegrin operators processed by that analysis. Prices of all free calls are excluded from calculation of an average value, in order to make better insight in the prices of chargeable calls.



Comparative overview of a 10-minute call to national fixed networks within postpaid packages of mobile operators in the countries of the Region, for physical persons

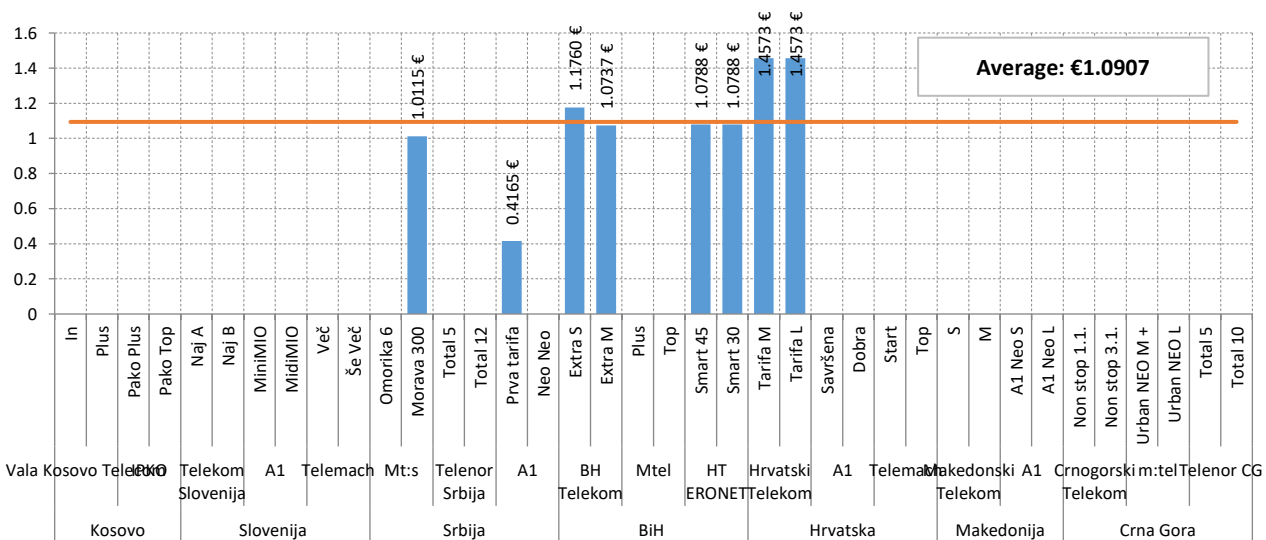
Comparative overview of the price of a 10-minute call to national fixed networks and the European countries, is given in the following chart, and according to that criterion, the packages offered by Montenegrin operators are below average of the observed European countries (€1.2022 for a 10-minute call). According to that criterion, the packages of Montenegrin operators are competitive with most of the packages offered in the European mobile telephony market, as they offer free calls to fixed networks in the country. The prices of all free calls are excluded from calculation of an average value in order to make better insight in the prices of chargeable calls.



Comparative overview of a 10-minute call to national fixed networks in postpaid packages of mobile operators in the European countries, for physical persons

Comparative overview of the price of a 10-minute call in mobile network (on-net) is given in the following chart, and according to that criterion, packages of mobile operators in Montenegro are below an average of the observed countries of the Region (€1.0907 for a 10-minute call). In other words, in almost all processed packages, free calls are offered in their own networks (on-net).

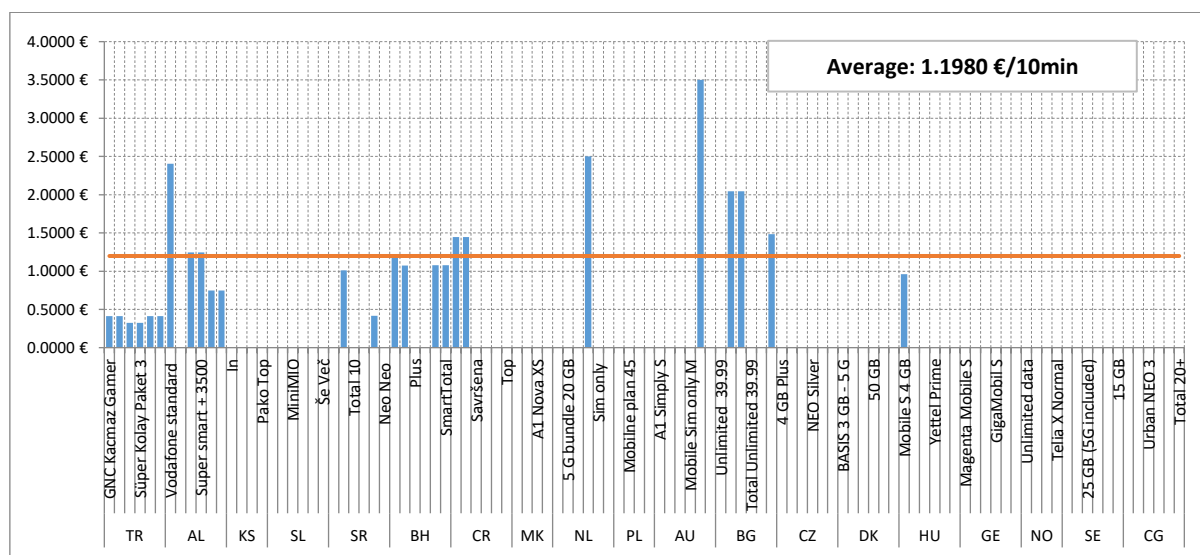
Most of the operators in the Region have in their offer postpaid packages with the minutes to all networks in the country, free of charge, i.e. included in the monthly subscription fee, among which are packages of Montenegrin operators processed in that analysis (Crnogorski Telekom Non Stop Max. and Non Stop Unlimited, Mtel Urban NEO 3 i Urban NEO 4, One Total 10+ i Total 20+). Prices of all calls free of charge are excluded from calculation of the average value, in order to make better insight in the whole picture of chargeable call prices.



Comparative overview of a 10-minute call in the network (on-net) of postpaid packages of mobile operators in the countries of the Region, for physical persons

Comparative overview of the price of a 10-minute call in mobile network (on-net) in relation to observed European countries is given in the following chart, where, according to this criterion, all packages of Montenegrin operators are below average of the observed European countries (€1.1980 for a 10-minute

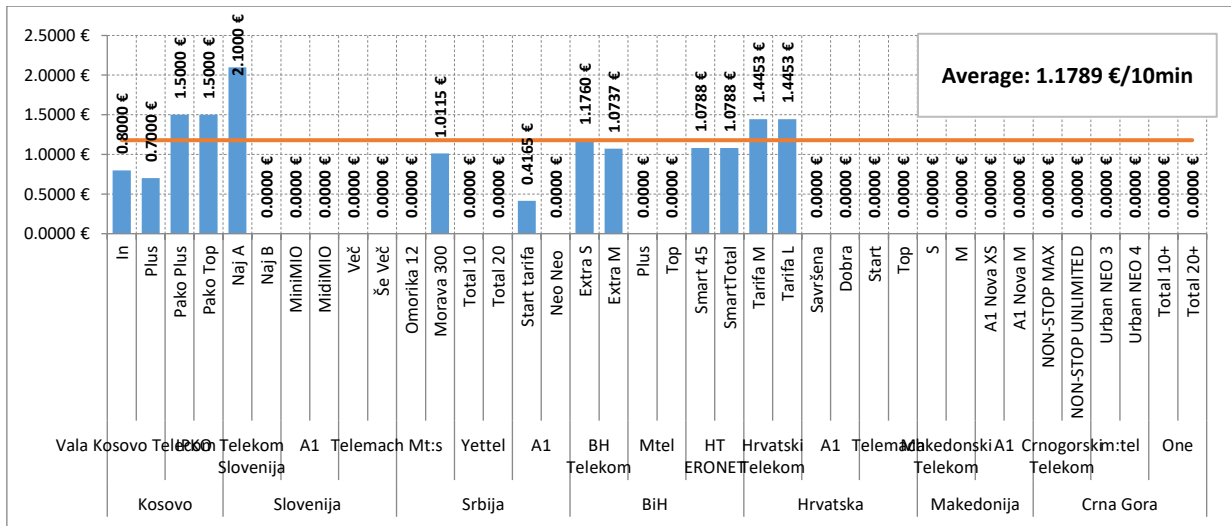
call), i.e. the prices within the network of all processed packages are free of charge, in other words, included in the monthly subscription fee. Most of mobile operators in Europe, and in Montenegro, in their offer have packages with the call in the network, free of charge. Prices of all calls free of charge i.e. included in monthly subscription fee, are excluded from calculation of an average value, in order to make more logical picture of the prices of on-net chargeable calls.



Comparative overview of a 10-minute call in the network (on-net) of postpaid packages of mobile operators in the European countries, for physical persons

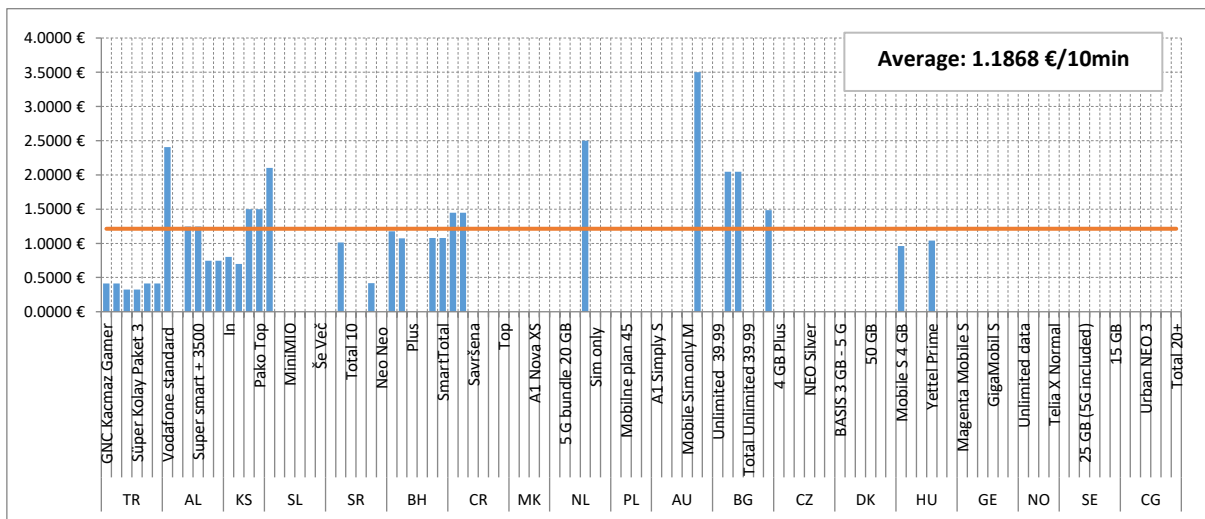
Comparative overview of the price of a 10-minute call in mobile network (off-net) is given in the following chart, where we see that, according to this criterion, one package of Crnogorski Telekom is above average of the observed countries in the Region (€1.1789 for a 10-minute call).

Most of the operators in the Region have in their offer postpaid packages with the minutes to all networks in the country, free of charge, meaning included in a monthly subscription fee, among which are packages of Montenegrin operators processed in this analysis (Crnogorski Telekom Non stop Mx, Non stop Unlimited, One Total 10+ i Total 20+, Mtel Urban Neo 3 i Urban Neo 4), but the prices of all calls free of charge have been excluded from calculation of the average value, due to making more logical insight in the picture of chargeable call prices.



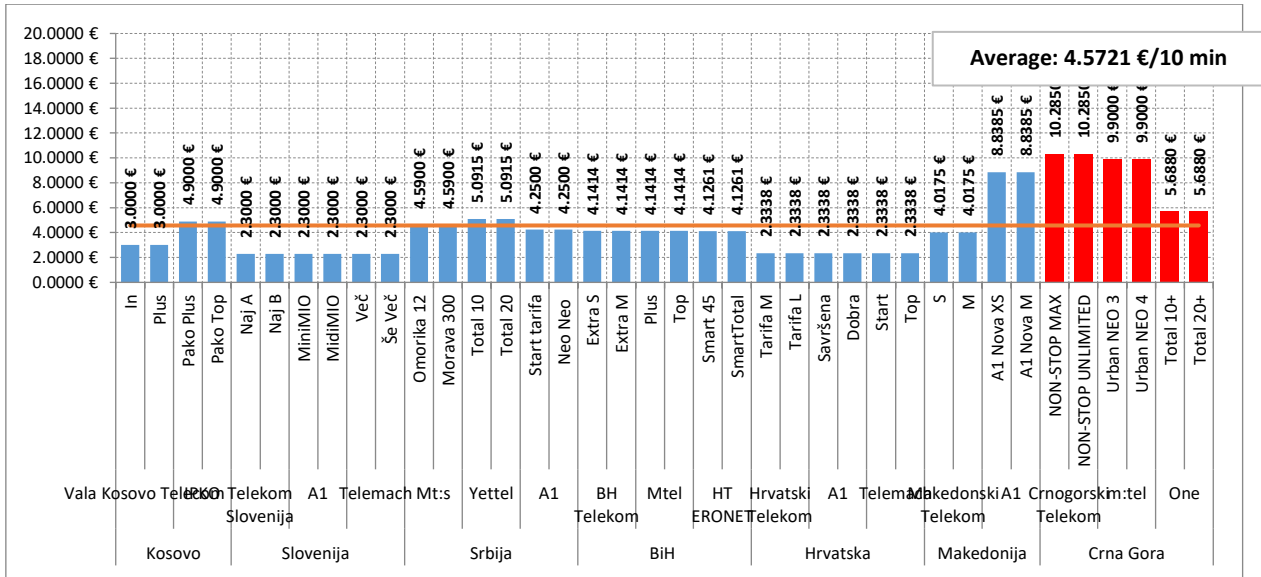
Comparative overview of a 10 minute call to other national mobile networks (off-net) in postpaid packages of mobile operators in the countries of the Region, for physical persons

Comparative overview of the price of a 10-minute call made to other national mobile networks (off-net), in relation to the observed European countries is given in the following chart, where it is clear that, according to this criterion, packages of Montenegrin operators are below average of the observed European countries (€1.2125 for a 10-minute call). It should be noted that most of the mobile operators in Europe, as well as in Montenegro, in their offer have packages with calls to all mobile networks free of charge, as they are included in a monthly fee.

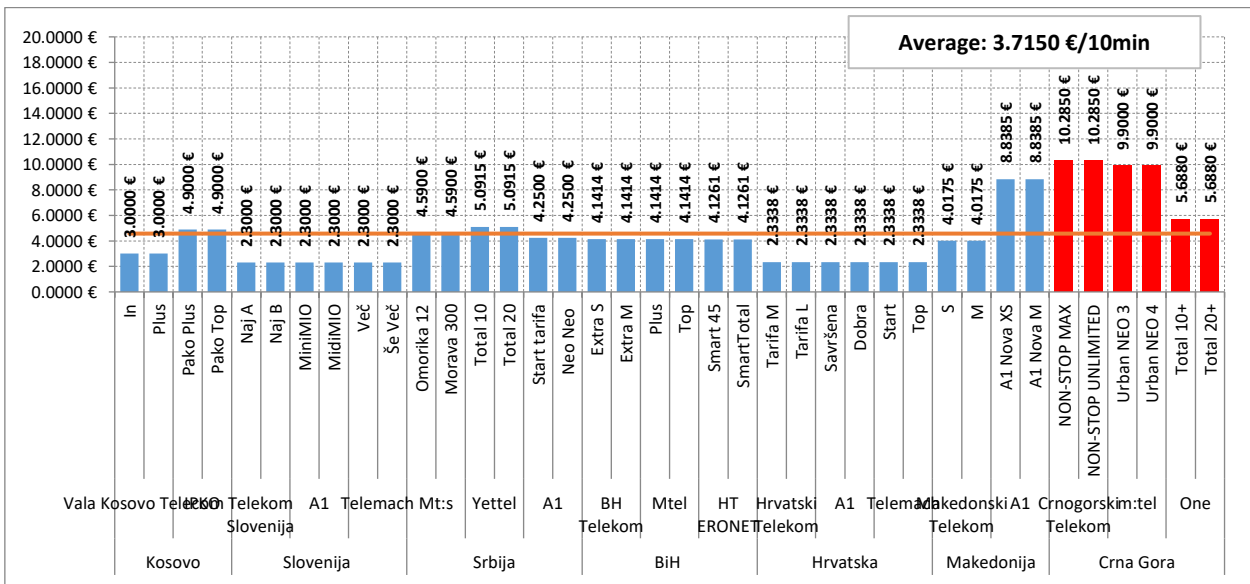


Comparative overview of the price of a 10-minute call to other national mobile networks (off-net) in postpaid packages of mobile operators in the European countries, for physical persons

Comparative overview of the price of a 10-minute international calls to Great Britain, Region and EU is given in the following chart. It is clear from the chart No. 18 that in all processed packages, the prices of a 10-minute international call to Great Britain is above average of the observed countries in the Region (€4.5721 for a 10-minute call). Also, in the chart No. 19 we see that the prices of a 10-minute call to Great Britain in Montenegro are above average of the observed European countries (which amounts to €3.7150 for a 10-minute call).

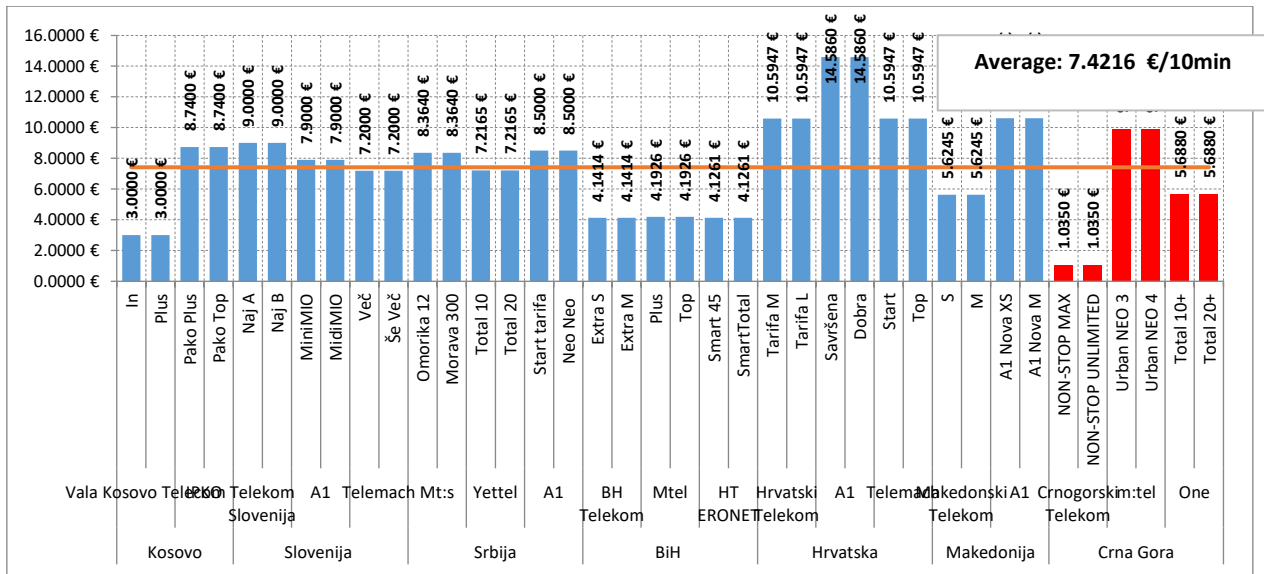


Comparative overview of the price of a 10-minute international call of mobile operators in the countries of the Region (postpaid, physical persons), made with Great Britain

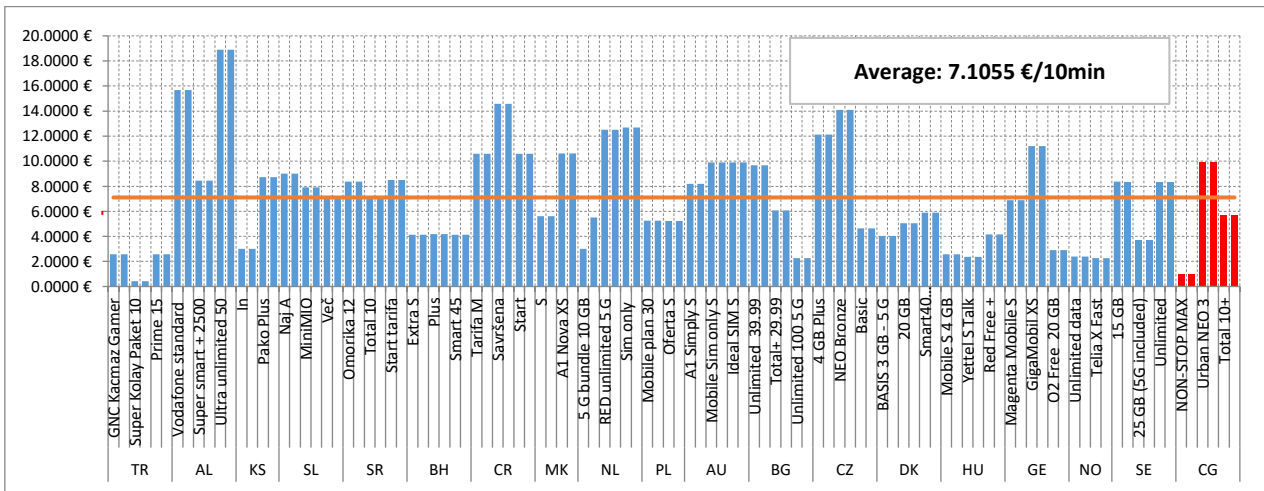


Comparative overview of the price of a 10-minute international call of mobile operators in Europe made with Great Britain (postpaid, physical persons)

Prices of a 10-minute call made to the USA in selected packages for Crnogorski Telekom and One Crna Gora are below average of the countries in the Region (7.4216 € for a 10-minute call), and below average of the observed European countries (€7.1055 for a 10-minute call), while the price of Mtel package is above both mentioned averages. Comparing individual prices, Crnogorski Telekom has one of the most favourable relevant-prices of calls to the USA among all observed countries in the Region, and is the most favourable comparing with observed European countries.



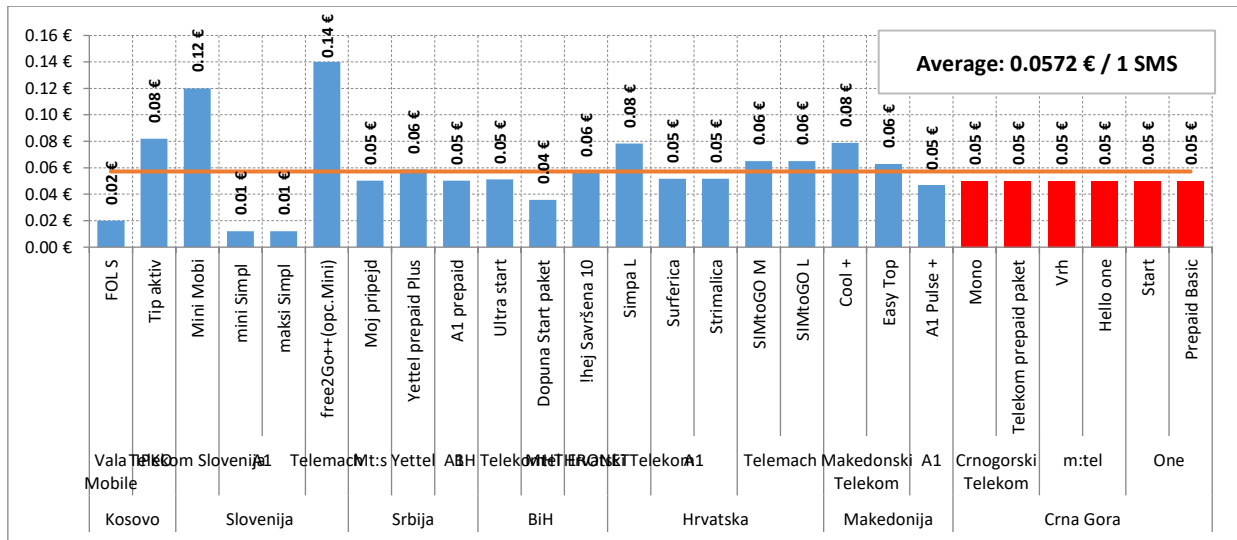
Comparative overview of the price of a 10-minute international call of mobile operators in the Region, made with Great Britain (postpaid, physical persons)



Comparative overview of the prices of a 10-minute international call of mobile operators from European countries made to the USA (postpaid, phy)

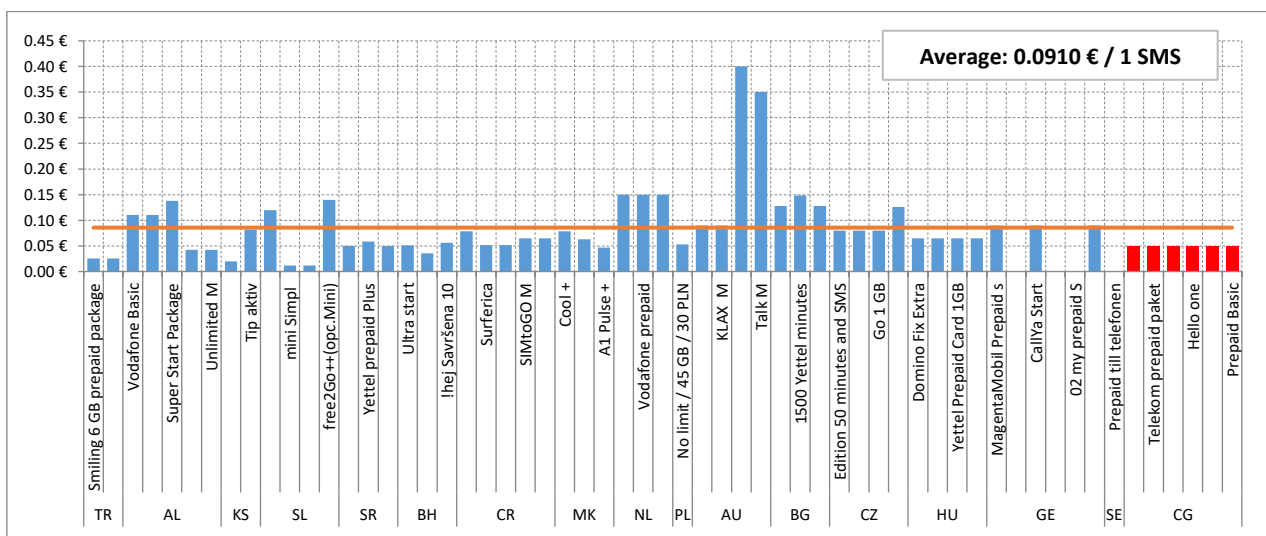
1.5.2.2. Prepaid packages for physical persons

Comparative overview of the prices of SMS messages sent to national mobile operators is given in the next chart, where we see that, according to this criterion, the packages of all three Montenegrin mobile operators are below average level of observed countries (0.0572 € per message).



Comparative overview of the prices of SMS messages in prepaid packages of mobile operators in the Region, for physical persons

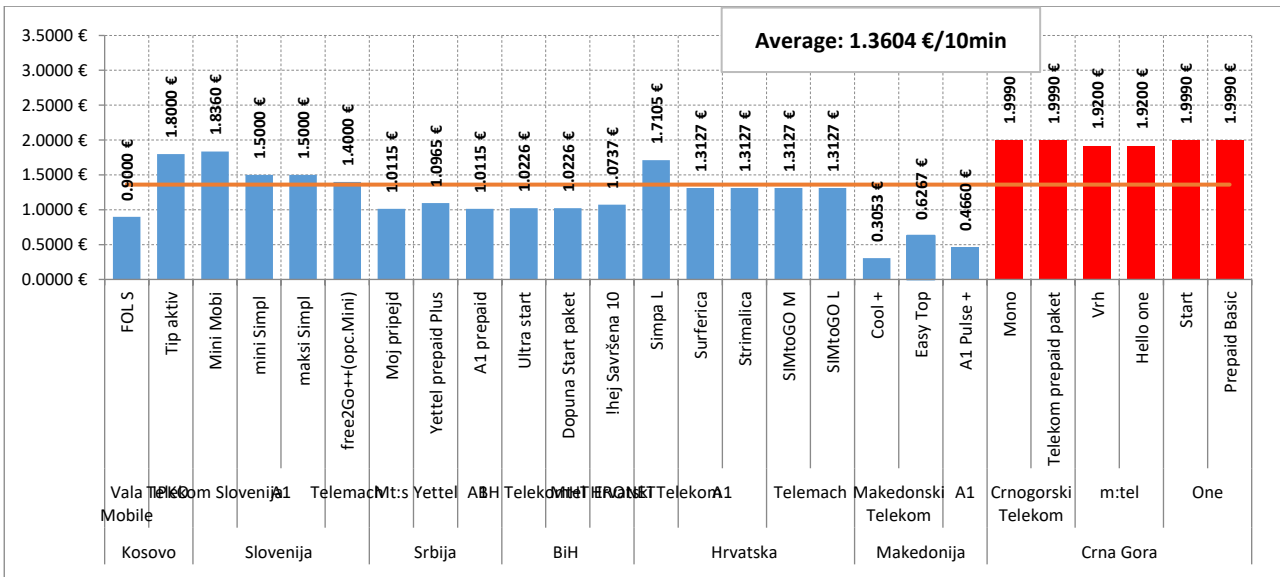
Comparative overview of the prices of SMS messages for selected prepaid packages for physical persons of mobile operators in the European countries is given in the next chart, and according to that criterion, packages of all three Montenegrin mobile operators are below average of the European countries (0.0910 € per message). According to this criterion, prices of mobile operators in Montenegro are more favourable than the prices offered by operators in the Region and in most European countries.



Comparative overview of the price of SMS message in prepaid packages of mobile operators of European countries, for physical persons

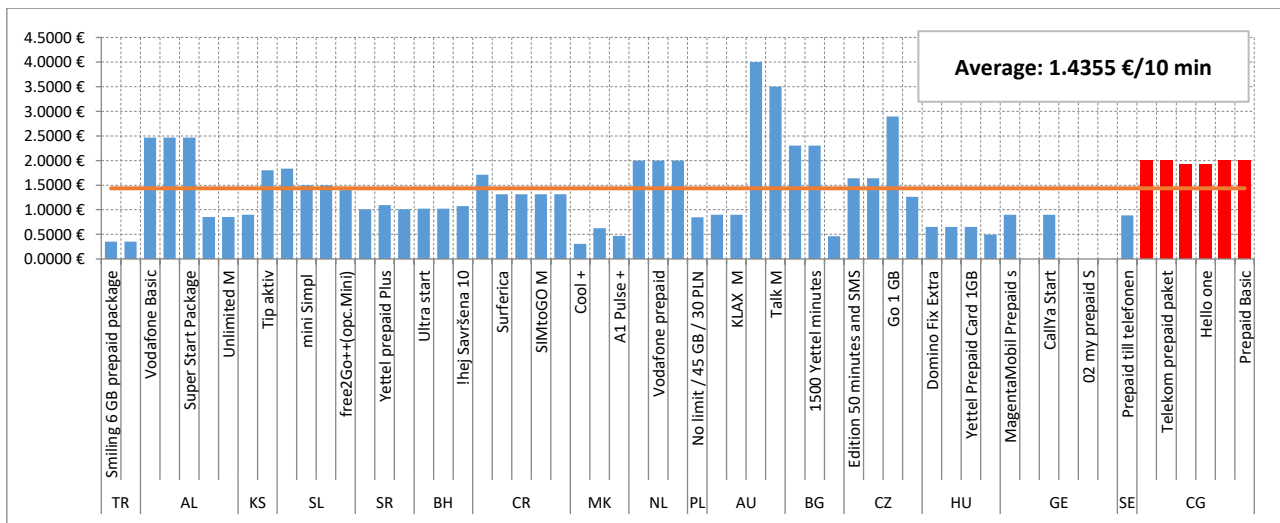
Comparative overview of a 10-minute call to national fixed networks, in relation to observed European countries is given in the next chart, and we can see that, according to this criterion, the prices of selected prepaid packages of Crnogorski Telekom, Mtel and One Crna Gora are above an average of observed countries in the Region (€1.3630 for a 10-minute call).

1.DEVELOPMENT OF ELECTRONIC COMMUNICATIONS SECTOR



Comparative overview of the price of a 10-minute call to national fixed networks in prepaid packages of mobile operators of countries in the Region, for physical persons

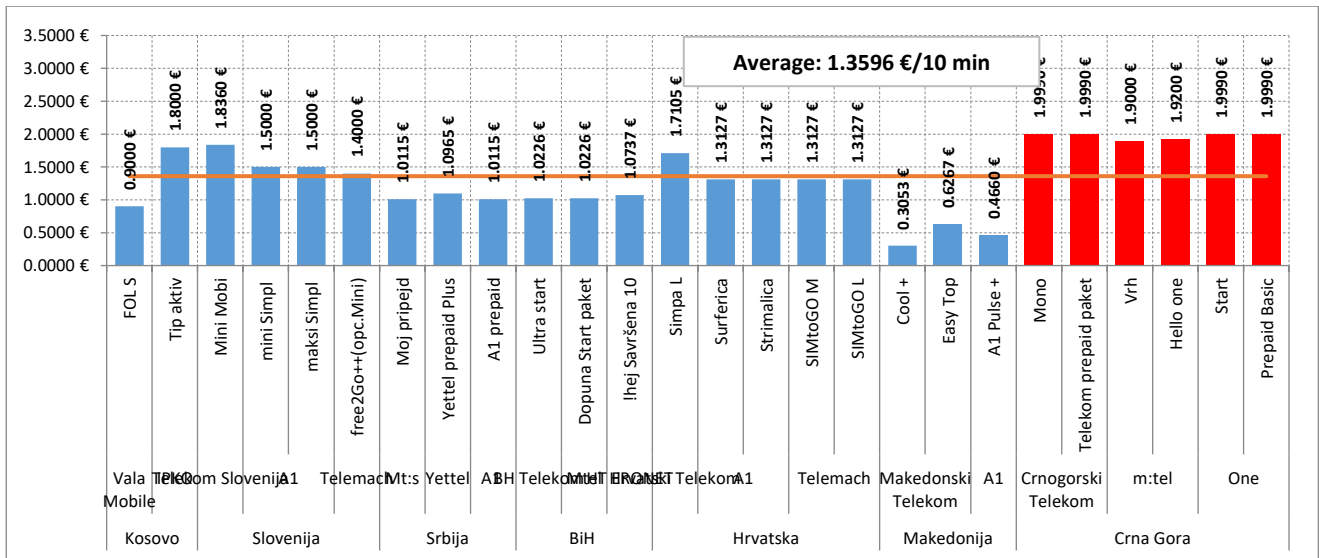
Comparative overview of a 10-minute call to national fixed networks, in relation to observed European countries is given in the chart below, where it is clear that, according to this criterion, the prices of selected packages of Crnogorski Telekom, Mtel and One Crna Gora are above an average of observed European countries (€1.4355 for a 10-minute call).



Comparative overview of the price of a 10-minute call to national fixed networks in prepaid packages of mobile operators of European countries, for physical persons

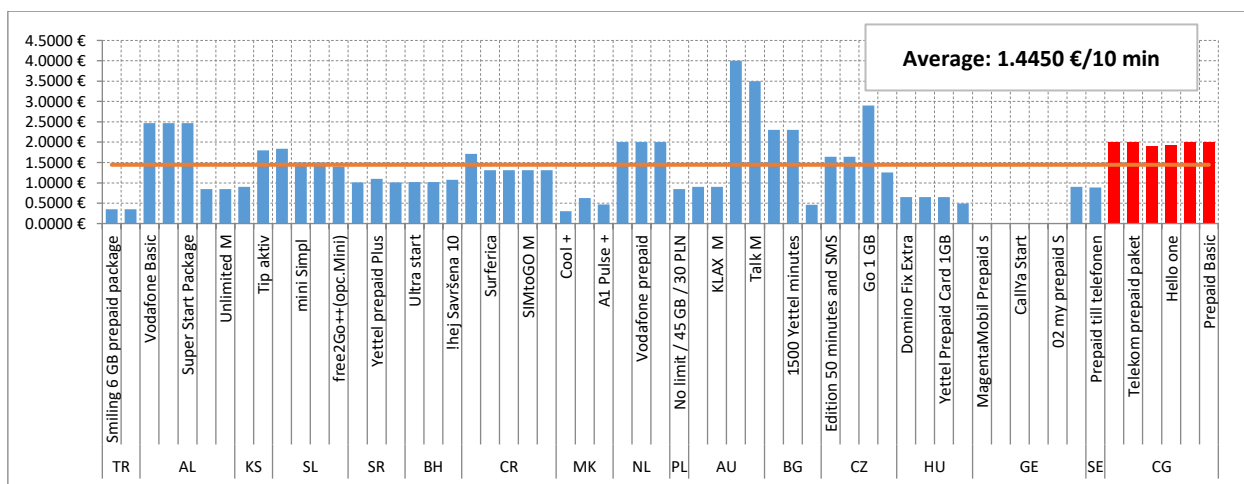
Comparative overview of a 10-minute call in the network (on-net) is given in the following chart, where it is clear that, according to this criterion, the prices of selected prepaid packages of Crnogorski Telekom, Mtel and One Crna Gora are above average of observed countries in the Region (€1.3596 for a 10-minute call).

1.DEVELOPMENT OF ELECTRONIC COMMUNICATIONS SECTOR



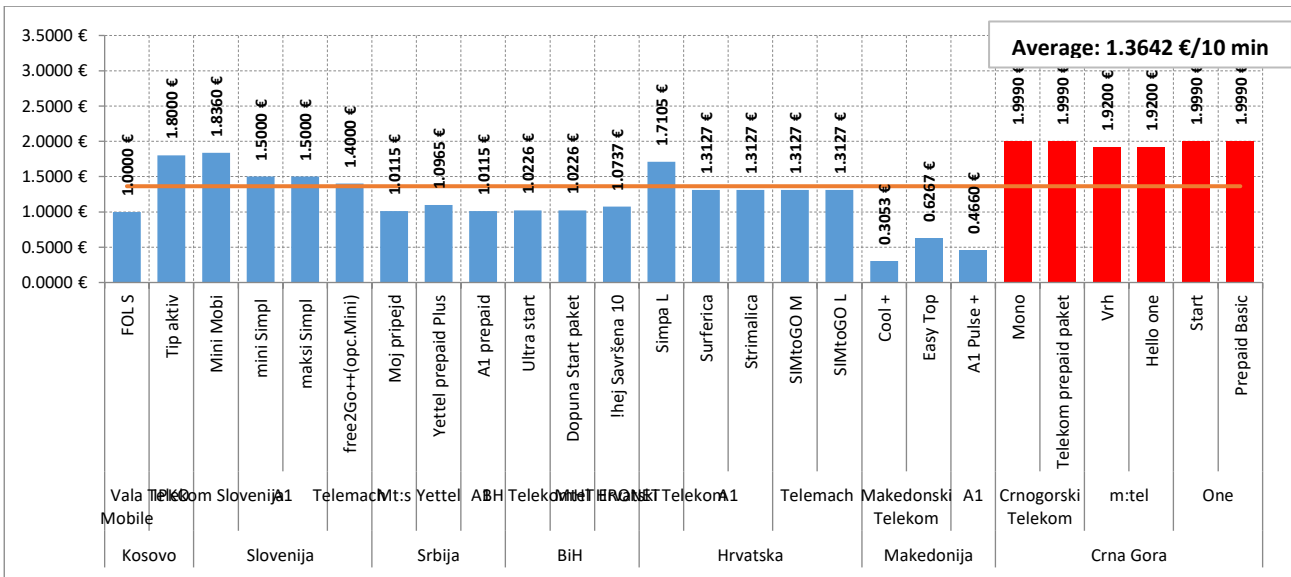
Comparative overview of the prices of a 10-minute call in network (*on-net*) for packages of mobile operators (prepaid, physical persons) in the Region

Comparative overview of the price of a 10-minute call in the mobile network (*on-net*) in relation to the observed European countries, is given in the following chart no 27; we see that observed packages of Crnogorski Telekom, Mtel and One Crna Gora are above average of the observed European countries (€1.4450 for a 10-minute call).



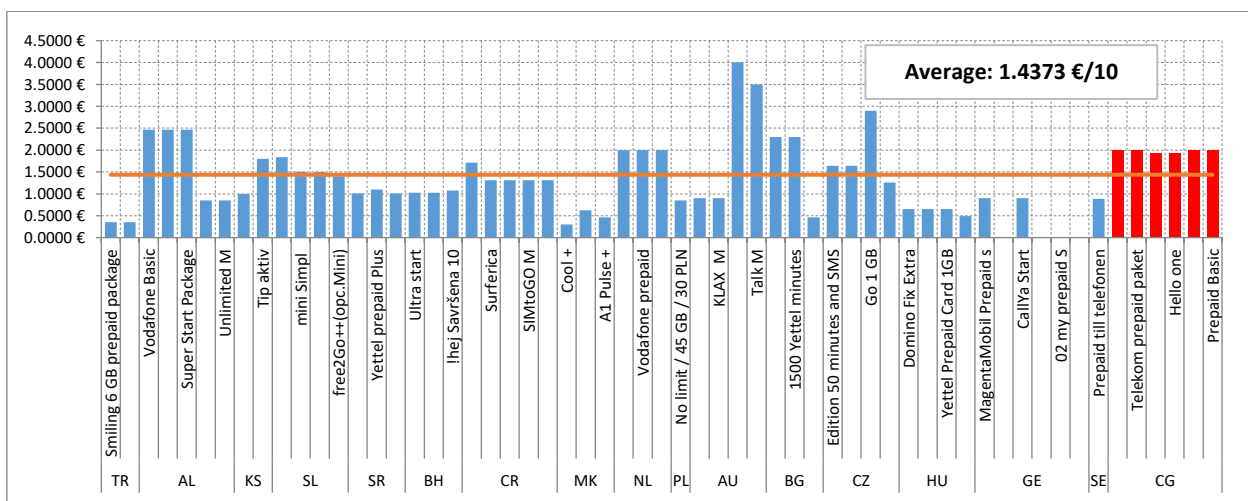
Comparative overview of the prices of a 10-minute call in network (*on-net*) for packages of mobile operators (prepaid, physical persons) in Europe

Comparative overview of the price of a 10-minute call to national mobile networks (*off-net*) is given in the following graph, and according to this criterion, the prices of selected packages of Crnogorski Telekom, Mtel and One Crna Gora are above average of observed countries in the Region (€1.3642 for a 10-minute call).



Comparative overview of the price of a 10-minute call to national mobile networks (off-net) for packages of mobile operators (prepaid, physical persons) in the Region

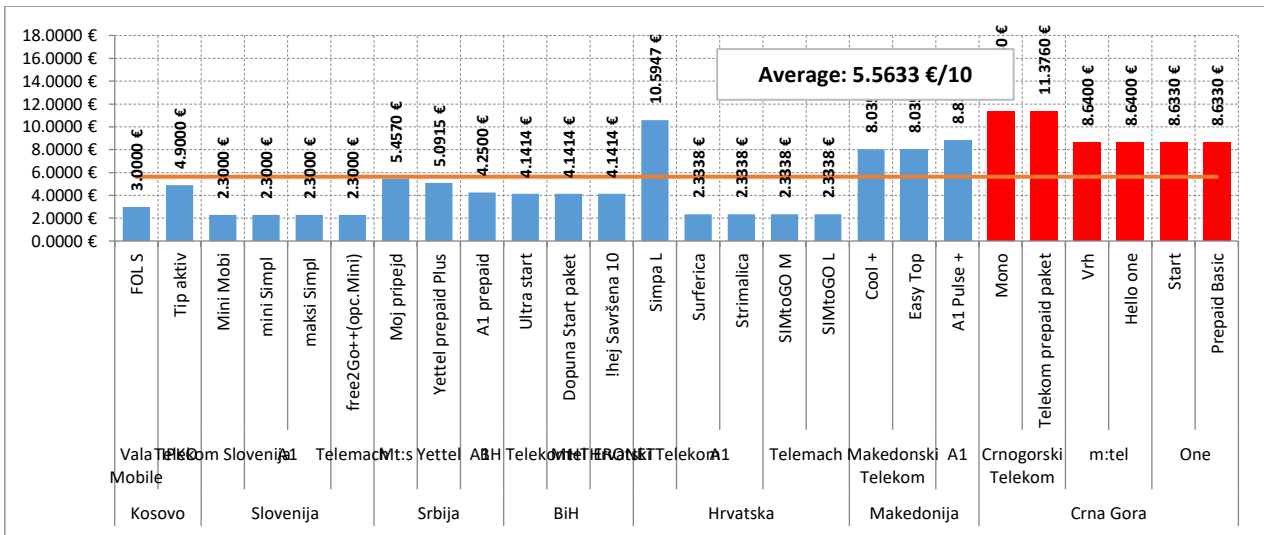
Comparative overview of the price of a 10-minute call to other national mobile networks (off-net) in relation to observed European countries, is given in the following graphic; according to that criterion, the prices of packages of Crnogorski Telekom, Mtel and One Crna Gora are above average of observed European countries (€1.4373 for a 10-minute call).



Comparative overview of the price of a 10-minute call to national mobile networks (off-net) for packages of mobile operators (prepaid, physical persons) in Europe

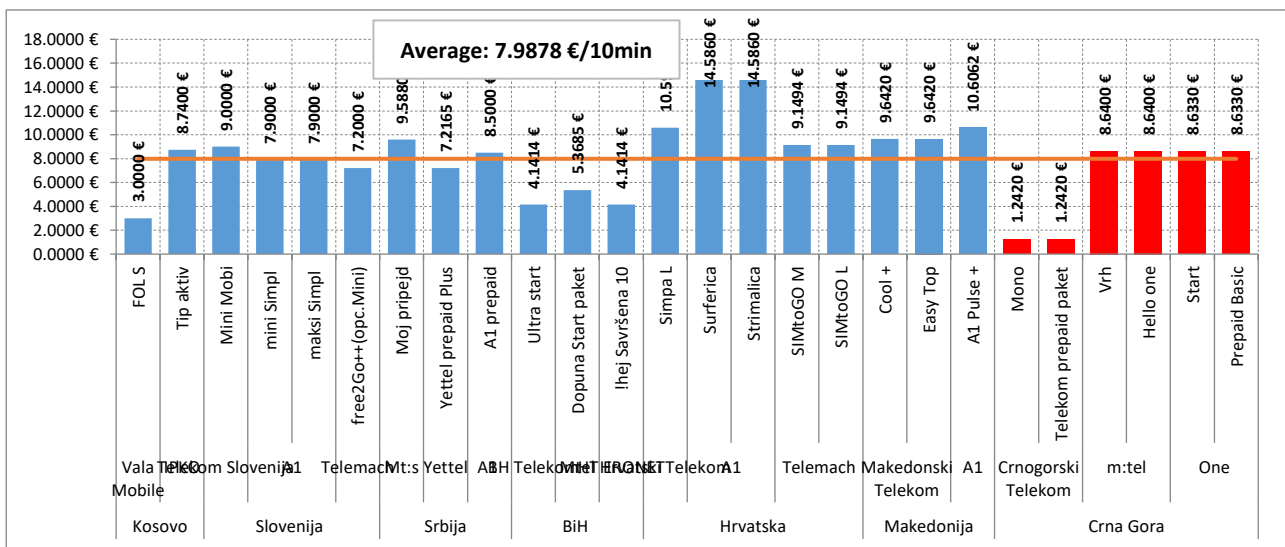
In the following graphics is given a comparative overview of the price of a 10-minute international call to Great Britain and the USA; the prices of all three mobile operators in Montenegro, for a 10-minute call to Great Britain, are above average of observed countries in the region (€5.5633 for a-10 minute call).

1.DEVELOPMENT OF ELECTRONIC COMMUNICATIONS SECTOR



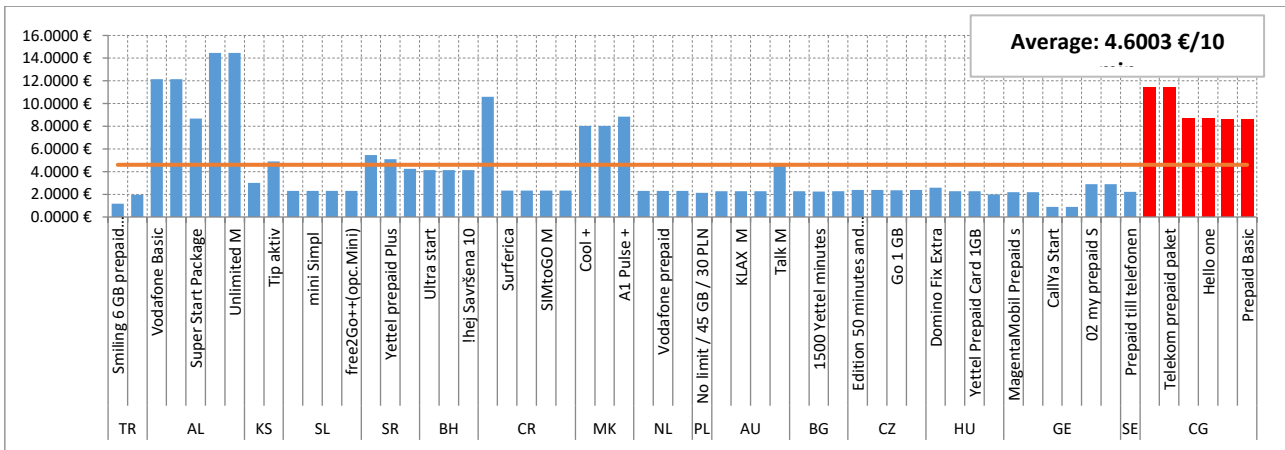
Comparative overview of the price of a 10-minute international call of mobile operators in the Region made with Great Britain (prepaid, physical persons)

Prices of Montenegrin operators for a 10-minute call to the USA depend on average price in observed countries of the region (€5.5633 for a 10-minute call); thus, prices offered by all three operators are above average.



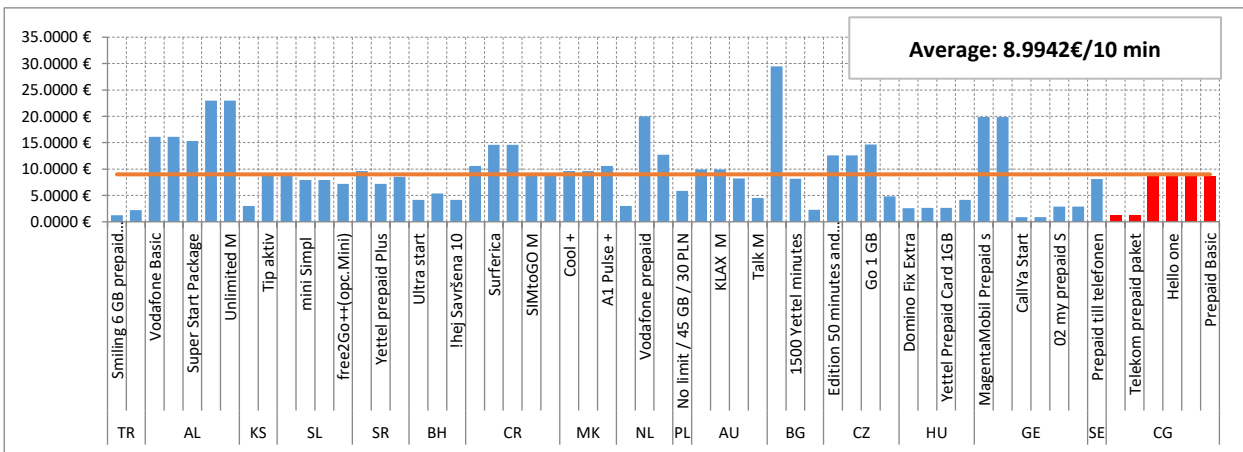
Comparative overview of the price of a 10-minute international call of mobile operators in the Region with the USA (prepaid, physical persons)

In the following charts is given an overview of a 10-minute call to Great Britain and to the USA, and it is clear that the prices in Montenegro of a 10-minute call made to Great Britain is above average of the observed countries of Europe (€4.6003 for a 10-minute call).



Comparative overview of the price of a 10-minute international call of mobile operators in Europe, made to Great Britain (prepaid, physical persons)

Price of a 10-minute call to the USA varies depending on the average of the observed European countries (€8.9942 for a 10-minute call); prices offered by One Crna Gora and Mtel are almost at the level of mentioned average, while the prices offered by Crnogorski Telekom are significantly below the average. Individually, among all observed European countries, Crnogorski Telekom offers one of the most favorable call price (charged €1.2420 for a 10-minute call, regardless of whether the calls have been made to fixed networks or to mobile networks in the USA).

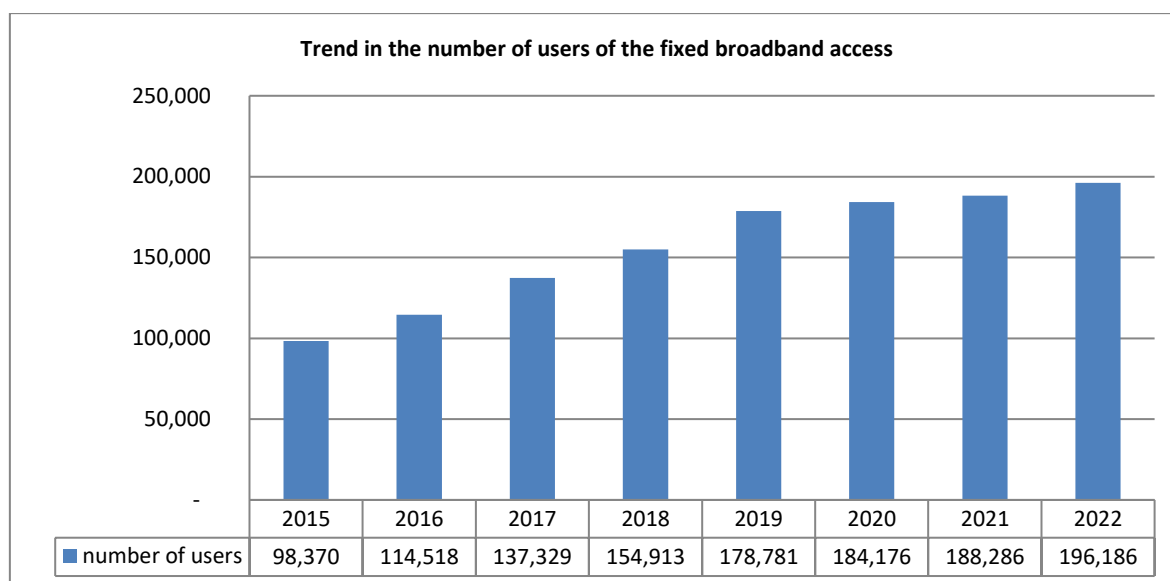


Comparative overview of the price of a 10-minute international call of mobile operators in Europe, made to the USA (prepaid, physical persons)

1.6. Internet and broadband access market

In 2022, number of users of fixed broadband access was 4.20% higher than in 2021. Number of users of mobile broadband access through data SIM cards in 2022 increased by 9.04% in relation to 2021, while number of users who accessed Internet through mobile networks in December 2022 was 14.42% higher than in December 2021.

Chart below shows trend in the number of users of fixed broadband access for the period 2015-2022.



Penetration of fixed broadband access at the end of 2022 was 31.64% in relation to population number, while penetration in relation to number of households was 103.70%³. Most of them were the users of networks with fibre optic since they made 46.04%. Percentage of households in the field of NGA availability (30 Mb/s) was 81.70%. Penetration of mobile broadband access, i.e. number of users who accessed Internet through mobile networks in December 2022 amounted to 103.70%.

At the end of 2022, total leased capacity of foreign operators (capacity of international Internet transit used by the operators in Montenegro) was 305,25Gb/s which is 20Gb/s higher in relation to the end of 2021.

Crnogorski Telekom was connected with Internet access providers via a 200Gb/s link to Telekom Hrvatska, Mtel via a 85Gb/s to Telekom Srbija, Telemach via a 10Gb/s to SBB, One Crna Gora via a 10,24Gb/s to Yettel Srbija and IPMont of 10Mb/s to Akton.

1.6.1. Fixed broadband access

1.6.1.1 Internet access through xDSL-a (ADSL⁴ and VDSL⁵)

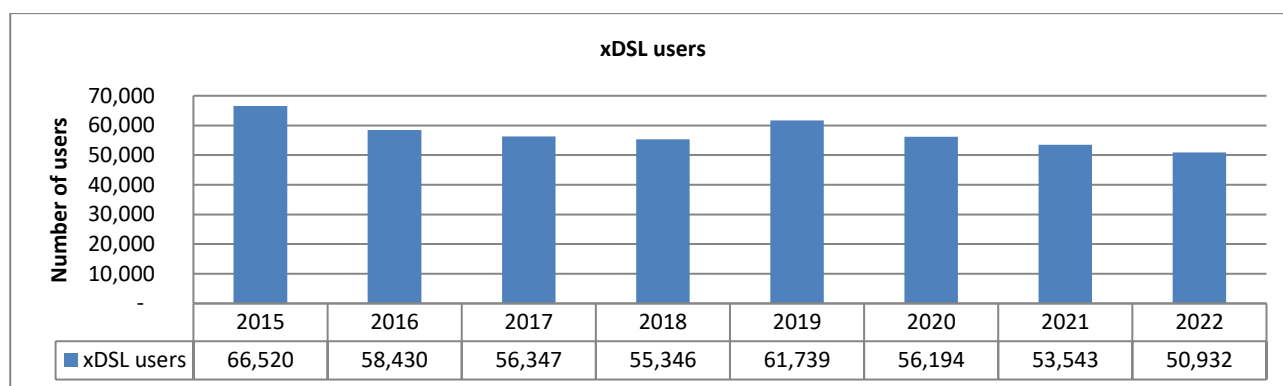
Internet access service through xDSL (ADSL and VDSL) in Montenegro is provided by Crnogorski Telekom, which had 53.543 xDSL users at the end of 2022, of which 48.089 users were physical persons, and 5.454 were legal persons. Of the total number of xDSL users 22.546 were ADSL users (20.082 physical persons and 2,464 legal persons), while 30.997 were VDSL users (28,007 physical persons and 2,990 legal persons). In 2022, there was a decrease in the number of xDSL users, so that year the number of users was 4.88% lower than in the previous year and the reason was a transmission of users to optical fiber networks.

Chart below shows a comparative overview of the number of xDSL users for the period 2015-2022.

³ Penetration of fixed broadband connections in relation to the number of households is significantly higher than the NGA availability, since all Internet connections were considered, and in the coastal municipalities and in the central part of Montenegro, the number of connections is significantly higher than the number of households. For example, in Budva there are more than 2,5 connections per household.

⁴ ADSL (Asymmetric digital subscriber line)

⁵ VDSL (Very-high-bit-rate DSL) - DSL technology offering faster transmission than ADSL, through phone pairs.



With residential users, the most popular are flat packages of ADSL on demand, with maximum download speed of 4 Mbps, used by 37.75% of ADSL users, and Extra Duo VDSL Internet 20/2, which includes Internet access services with maximum download speed of 20 Mbps, used by 22.21% of VDSL users. As for business users, 26.04% of ADSL users use Magenta 1 Biznis Min-Standard VDSL Internet package with maximum download speed of 45Mb/s.

In the Table below is given the number of xDSL users per municipality, in the period 2019-2022.

Municipality	2019			2020			2021			2022		
	ADSL	VDSL	total	ADSL	VDSL	total	ADSL	VDSL	total	ADSL	VDSL	total
Andrijevica	156	41	197	143	46	189	132	51	183	122	50	172
Bar	2,601	3,126	5,727	2,071	2,962	5,033	1,758	3,062	4,820	1,502	3,096	4,598
Berane	1,070	391	1,461	973	457	1,430	879	511	1,390	790	574	1,364
Bijelo Polje	1,397	813	2,210	1,268	818	2,086	1,176	832	2,008	1,057	885	1,942
Budva	1,939	2,483	4,422	1,590	2,395	3,985	1,401	2,488	3,889	1,147	2,693	3,840
Cetinje	828	879	1,707	674	861	1,535	551	828	1,379	472	824	1,296
Danilovgrad	863	824	1,687	769	826	1,595	682	826	1,508	594	817	1,411
Gusinje	310	247	557	282	268	550	267	284	551	227	306	533
Herceg Novi	2,955	4,591	7,546	2,503	4,753	7,256	2,158	5,044	7,202	1,791	5,368	7,159
Kolašin	369	274	643	346	288	634	324	297	621	277	318	595
Kotor	2,717	3,637	6,354	2,301	3,644	5,945	2,040	3,937	5,977	1,693	4,225	5,918
Mojkovac	523	150	673	445	166	611	400	173	573	356	187	543
Nikšić	2,016	1,790	3,806	1,778	1,821	3,599	1,592	1,788	3,380	1,385	1,808	3,193
Petnjica	50	19	69	45	15	60	41	18	59	38	17	55
Plav	744	502	1,246	679	565	1,244	645	617	1,262	550	703	1,253
Pljevlja	544	412	956	509	416	925	452	416	868	399	380	779
Plužine	66	98	164	62	84	146	55	69	124	44	66	110
Podgorica	7,158	6,835	13,993	5,383	6,278	11,661	4,362	5,862	10,224	3,588	5,336	8,924
Rožaje	1,063	553	1,616	897	709	1,606	803	814	1,617	686	900	1,586

Šavnik	81	40	121	71	39	110	65	43	108	66	46	112
Tivat	1,395	1,418	2,813	1,175	1,422	2,597	1,057	1,425	2,482	895	1,485	2,380
Tuzi	252	132	384	199	100	299	147	72	219	108	59	167
Ulcinj	1,680	1,091	2,771	1,397	1,105	2,502	1,266	1,227	2,493	1,085	1,307	2,392
Žabljak	355	261	616	321	275	596	293	313	606	271	339	610
Total:	31,132	30,607	61,739	25,881	30,313	56,194	22,546	30,997	53,543	19,143	31,789	50,932
	61,739			56,194			53,543			50,932		

Availability of xDSL is 99.51%, meaning 99.51% of users with fixed telephone connection can introduce xDSL service. At the end of 2022, Crnogorski Telekom had 224 xDSL nodes.

1.6.1.2. Internet access through access networks with optical fiber (FTTH/B)

In 2022 continued development of access optical fiber networks and installation of optical fiber to end users. Internet access through access network with fiber optic is offered by: Crnogorski Telekom, Mtel, Telemach and FiberCom. Number of users who accessed Internet through optical fiber amounted to 90,319 at the end of 2022, being 11.97% higher in relation to the end of 2021.

At the end of 2022, Crnogorski Telekom had 32,199 users, of which 27,952 were physical persons and 4,247 were legal users. Number of users of Crogoriski Telekom, with FTTH/B connection, raised by 17.50% in relation to 2021. The most attractive package among residential users was Magenta 1 L v 4 (300/30 Mbps) flat package used by 17.47% of residential users, while 19.07% of business users preferred Magenta 1 Biznis Min Standard Optika (300/30 Mbps).

In the same period Mtel had 50,525 users with FTTH/B connection, which is 8.07% more than at the end of 2021. Of that number there were 47,585 residential users and 2,940 business users. The most attractive package for residential users was flat package Box 2.1 (100/4 Mb/s) used by 35.25% residential users, while the same package used 16.56% of business users.

Telemach had 7,565 users with FTTH/B connection, which is 16.76% more compared to the end of 2021. Of that number 7,087 were residential users, and 478 business users. The most attractive package for residential users was flat package FIBER EON Full (300/12 Mb/s), used 33% of residential users, while the same package had 11.50% business users.

At the end of 2022, FiberCom had 30 users, of which 21 residential and 9 business users. The most popular package among residential users was Internet 20 (20/4 Mb/s), used by 57% residential users, while the same package used 55% business users.

In the next Table is given numbe of users of Internet access service through access networks with optical fiber, for the period 2015-2022.

FTTx users							
2015	2016	2017	2018	2019	2020	2021	2022
17,466	12,971	34,942	47,535	63,113	73,300	80,664	90,319

In the following Table is given number of users per operator and per household in which it is possible to have Internet access via access networks with optical fiber.

FTTH/B users					
Municipality	Crnogorski Telekom	Mtel	Telemach	FiberCom	Total
Andrijevica	14	0	0	0	14
Bar	2,714	5,944	299	0	8,957
Berane	206	1,652	0	0	1,858
Bijelo Polje	341	2,432	0	0	2,773
Budva	1,496	2,698	0	0	4,194
Cetinje	817	1,496	0	0	2,313
Danilovgrad	270	2,093	0	0	2,363
Gusinje	1	41	0	0	42
Herceg Novi	1,408	118	9	0	1,535
Kolašin	51	31	0	0	82
Kotor	1,685	1,120	0	0	2,805
Mojkovac	106	387	0	0	493
Nikšić	1,719	7,687	236	0	9,642
Petnjica	0	214	0	0	214
Plav	21	0	0	0	21
Pljevlja	199	7	0	0	206
Plužine	79	97	0	0	176
Podgorica	18,909	17,453	7,021	30	43,413
Rožaje	76	247	0	0	323
Šavnik	15	0	0	0	15
Tivat	1,476	1,149	0	0	2,625
Tuzi	310	2,279	0	0	2,589
Ulcinj	181	3,380	0	0	3,561
Žabljak	105	0	0	0	105
Total:	32,199	50,525	7,565	30	90,319

1.6.1.3. Internet access via cable distribution systems (CDS)

Internet access service through cable distribution systems, that is, through hybrid fibre-coaxial (HFC- Hybrid fibre-coaxial) networks is provided in Montenegro by Mtel and Telemach. Both operators implemented DOCSIS 3.0 Standard enabling data transmission high speeds. At the end of 2022, there were 52,160 users, of which 48,759 residential users and 3,401 business users, which is 3.44% more users compared to the end of 2021.

At the end of 2022, Mtel had 34,102 users, of which 31,760 residential users and 2,342 business users. Number of Mtel users increased by 4.94% in relation to the end of 2021. Also at the end of the same year, Mtel had Internet access users through cable distribution systems (CDS) in 20 municipalities of Montenegro. The most popular package among residential users was flat BOX 2.1 (100/4 Mb/s), flat package used by 23.79% of users, while the same package was used by 10.04% of business users.

Internet access service through cable distribution systems (CDS) was provided by Mtel at the end of 2022 in 20 municipalities of Montenegro. The most attractive package for residential users was flat package BOX 2.1 (100/4 Mb/s), used by 35.21% users, while the same package was used by 16.61% business users.

Internet access service through cable distribution systems (CDS) is provided by Telemach in 9 municipalities of Montenegro. At the end of 2022, Telemach had 18,058 users, of which 16,999 residential users and 1,059 business users. The most attractive package among residential users is EON Full (300/12 Mbps) flat package used by 25.96% of residential users, while among business users the most popular was EON Premium (400/20 Mbps) flat package, used by 18.60% of business users.

In the next Table is given an overview of the number of users of Internet access provided through cable distribution systems (CDS) at the end of 2022.

2022	HFC/CDS users								
	Mtel			Telemach			Total		
	physical	legal	total	physical	legal	total	physical	legal	total
Andrijevica	286	16	302	0	0	0	286	16	302
Bar	816	63	879	1,822	88	1,910	2,638	151	2,789
Berane	802	71	873	0	0	0	802	71	873
Bijelo Polje	1,204	71	1,275	1,126	50	1,176	2,330	121	2,451
Budva	11,120	954	12,074	91	10	101	11,211	964	12,175
Cetinje	676	15	691	0	0	0	676	15	691
Danilovgrad	1	4	5	0	0	0	1	4	5
Gusinje	0	0	0	0	0	0	0	0	0
Herceg Novi	1,854	112	1,966	2,252	155	2,407	4,106	267	4,373
Kolašin	0	3	3	0	0	0	0	3	3
Kotor	14	13	27	1,299	75	1,374	1,313	88	1,401
Mojkovac	143	9	152	0	0	0	143	9	152
Nikšić	3,216	95	3,311	856	37	893	4,072	132	4,204

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Petnjica	0	0	0	0	0	0	0	0	0
Plav	0	0	0	0	0	0	0	0	0
Pljevlja	1,770	68	1,838	1,323	46	1,369	3,093	114	3,207
Plužine	0	1	1	0	0	0	0	1	1
Podgorica	6,279	591	6,870	6,821	507	7,328	13,100	1,098	14,198
Rožaje	754	29	783	0	0	0	754	29	783
Šavnik	0	0	0	0	0	0	0	0	0
Tivat	1,440	77	1,517	1,409	91	1,500	2,849	168	3,017
Tuzi	3	4	7	0	0	0	3	4	7
Ulcinj	1,382	144	1,526	0	0	0	1,382	144	1,526
Žabljak	0	2	2	0	0	0	0	2	2
Total	31,760	2,342	34,102	16,999	1,059	18,058	48,759	3,401	52,160

In the next Table is given an overview of total number of Internet access service users through cable distribution systems (CDS) per municipality for the period 2015-2022.

Municipality	HFC/CDS users							
	2015	2016	2017	2018	2019	2020	2021	2022
Andrijevica	4	15	90	232	306	334	318	302
Bar	7	1,158	792	2,429	2,516	2,630	2,642	2,789
Berane	471	1,002	1,581	2,004	992	839	856	873
Bijelo Polje	1	936	2,096	3,784	2,457	2,434	2,497	2,451
Budva	3,981	5,026	7,806	9,759	11,069	11,047	11,362	12,175
Cetinje	284	845	1,269	736	711	661	676	691
Danilovgrad	0	2	0	1	3	5	5	5
Gusinje	0	0	0	0	0	0	0	0
Herceg Novi	12	214	618	3,086	3,523	3,671	3,950	4,373
Kolašin	0	0	0	0	1	2	2	3
Kotor	0	1	0	868	1,036	1,166	1,279	1,401
Mojkovac	0	41	257	283	133	145	145	152
Nikšić	1,496	4,907	2,515	3,573	3,884	4,039	4,189	4,204
Petnjica	0	0	0	0	0	0	0	0
Plav	0	0	0	0	0	0	0	0
Pljevlja	1	391	809	2,904	3,071	3,219	3,248	3,207
Plužine	0	0	0	0	0	1	1	1

Podgorica	864	9,837	3,741	11,953	13,073	13,880	14,163	14,198
Rožaje	1	3	269	536	679	771	776	783
Šavnik	0	0	0	0	0	0	0	0
Tivat	26	570	876	2,235	2,512	2,597	2,752	3,017
Tuzi	0	0	0	0	7	9	8	7
Ulcinj	224	1,407	2,067	2,273	2,039	1,694	1,556	1,526
Žabljak	0	0	0	0	0	2	2	2
Total	7,372	26,355	24,786	46,656	48,012	49,146	50,427	52,160

1.6.1.5. Internet leased lines

At the end of 2022, four operators provided Internet leased line services: Crnogorski Telekom, IPMont, Mtel and One Crna Gora. Total number of Internet leased lines amounted to 232, and per operators: Crnogorski Telekom 50, Mtel 4, One Crna Gora 172 and IPMont 6 leased lines.

1.6.1.6. Internet access via MPLS⁶

At the end of 2022, Internet access services via MPLS used 159 users: 155 with Crnogorski Telekom and 4 with Mtel.

1.6.1.7. Internet access via wireless access points (2.4 GHz and 5 GHz)

Total number of wireless access points decreased from 604 in 2022 to 596 at the end of 2022. In the same period ASP-BeeNet had 1, Crnogorski Telekom 43, Mtel 99, Net Mont 20, One Crna Gora 72, Orion Telekom 111, TeleEye Montenegro 14, Telemach 172, WiMax Montenegro 21 and Wireless Montenegro had 43 access points.

In the Table below is given number of wireless access points per municipality at the end of 2022.

2022	Wireless access points										
	ASP BeeNET	Crnogorski Telekom	Mtel	Net Mont	One Crna Gora	Orion Telekom	Tele Eye Montenegro	Telemach	WiMAX Montenegro	Wireless Montenegro	Total
Andrijevisa	0	0	0	0	1	2	0	0	0	0	3
Bar	0	2	4	20	2	11	6	14	4	4	67
Berane	0	1	4	0	2	3	0	0	0	1	11
Bijelo Polje	0	1	4	0	1	2	0	10	0	2	20
Budva	0	2	7	0	6	9	5	3	4	5	41
Cetinje	0	1	5	0	2	6	0	0	0	0	14

⁶ MPLS (Multiprotocol Label Switching)

Danilovgrad	0	1	2	0	1	5	0	0	0	0	9
Gusinje	0	0	0	0	0	1	0	0	0	0	1
Herceg Novi	0	12	3	0	2	7	0	28	3	0	55
Kolašin	0	0	1	0	2	2	0	0	0	1	6
Kotor	0	6	4	0	2	7	0	4	2	2	27
Mojkovac	0	0	1	0	1	2	0	0	0	0	4
Nikšić	0	1	13	0	3	5	0	4	0	2	28
Petnjica	0	0	0	0	1	1	0	0	0	0	2
Plav	0	1	0	0	1	2	0	0	0	0	4
Pljevlja	0	1	2	0	2	7	0	10	0	2	24
Plužine	0	0	0	0	1	1	0	0	0	0	2
Podgorica	0	9	43	0	10	21	0	87	4	18	192
Rožaje	0	1	2	0	1	3	0	0	0	0	7
Šavnik	0	0	0	0	2	1	0	0	0	0	3
Tivat	0	1	3	0	23	5	1	12	3	1	49
Tuzi	0	0	0	0	0	2	0	0	0	1	3
Ulcinj	0	2	1	0	5	5	2	0	1	2	18
Žabljak	1	1	0	0	1	1	0	0	0	2	6
Total	1	43	99	20	72	111	14	172	21	43	596

Number of users who accessed Internet through wireless access points amounted to 2,323 at the end of 2022, while ASP BeeNet had 103, NetMont 263, Orion Telekom 1,379, TeleEye Montenegro 25, and WiMax Montenegro had 553 users. Free WiFi service is offered by: Crnogorski Telekom, Telemach, One Crna Gora, Mtel, and Wireless Montenegro.

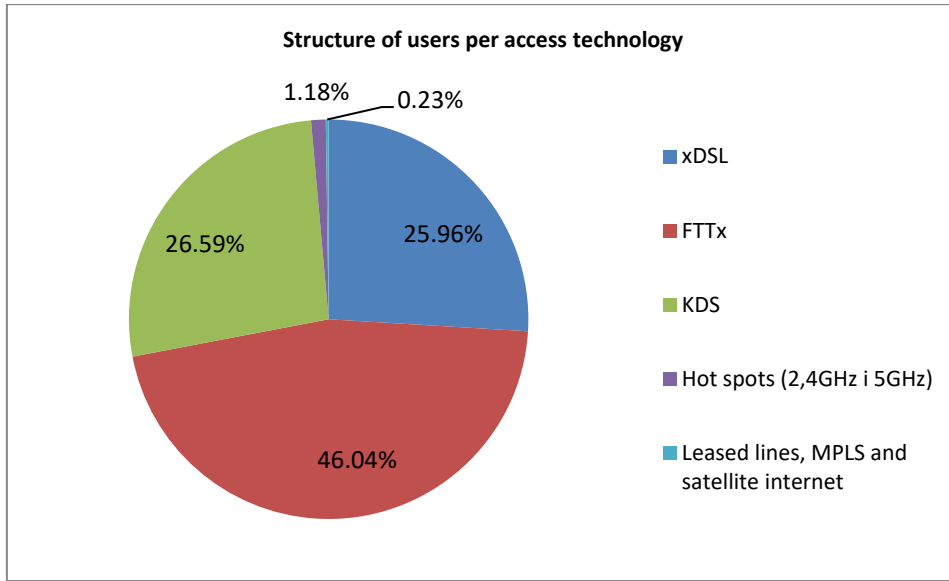
1.6.1.8. Satellite Internet

Services of satellite Internet access are offered by operator SBS Net Montenegro. At the end of 2022, there were 72 users, of which 3 residential and 58 business users. All packages are in download speed of 10 to 30 Mbps band. Trend in the number of users of satellite Internet access for the period 2015-2022 is shown in the Table below:

Satellite Internet access							
2015	2016	2017	2018	2019	2020	2021	2022
77	85	82	79	76	73	72	61

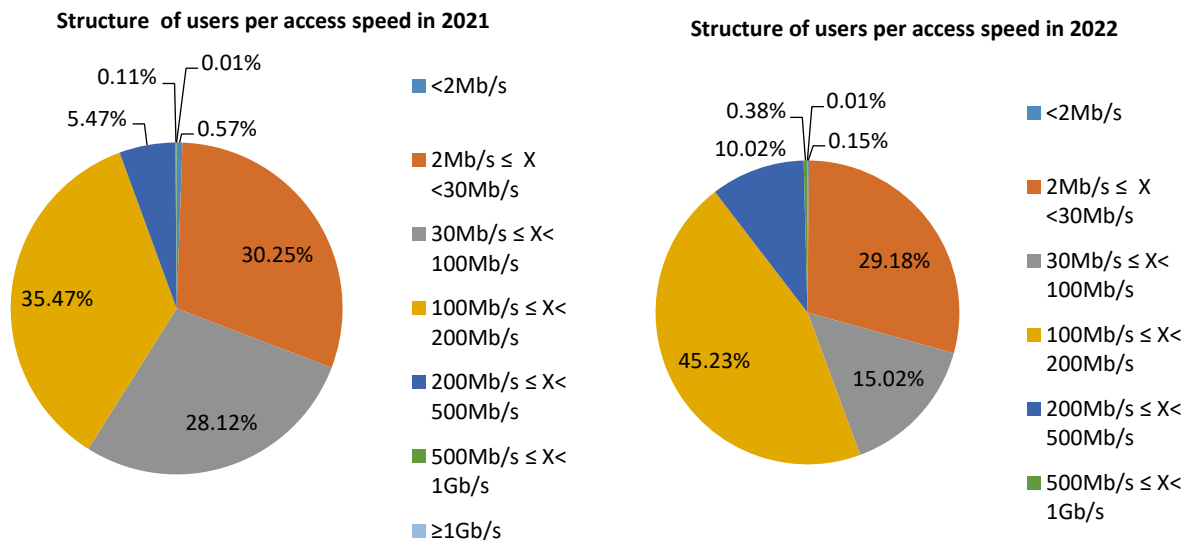
1.6.1.9. Structure of users of fixed broadband Internet access

Structure of users of fixed broadband Internet access, per access technology, is given in percentages in the following pie-chart, while the Table that follows it shows the structure of users of fixed broadband Internet access, per access type, for the period 2015 – 2022.



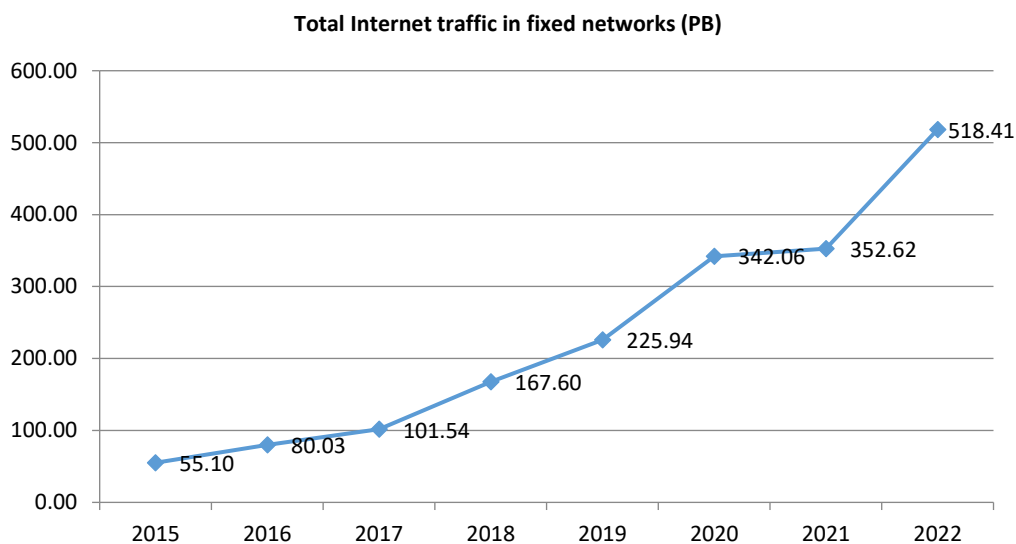
Access technology	xDSL	FTTx	KDS	WiMAX	Hot spots (2.4GHz and 5GHz)	Leased lines, MPLS and satellite Internet
2015	59.18%	15.54%	5.72%	5.02%	14.14%	0.39%
2016	50.80%	11.30%	31.90%	3.20%	2.40%	0.40%
2017	40.90%	25.36%	28.89%	2.15%	2.29%	0.41%
2018	35.73%	30.68%	30.12%	1.49%	1.65%	0.34%
2019	34.53%	35.30%	26.86%	1.28%	1.75%	0.28%
2020	30.51%	39.80%	26.68%	1.23%	1.51%	0.26%
2021	28.44%	42.84%	26.78%	0.39%	1.30%	0.25%
2022	25.96%	46.04%	26.59%	0.00%	1.18%	0.23%

Structure of users of fixed broadband Internet access per access speed, given in percentages for the end of 2021 and the end of 2022 is presented in the following pie-charts.



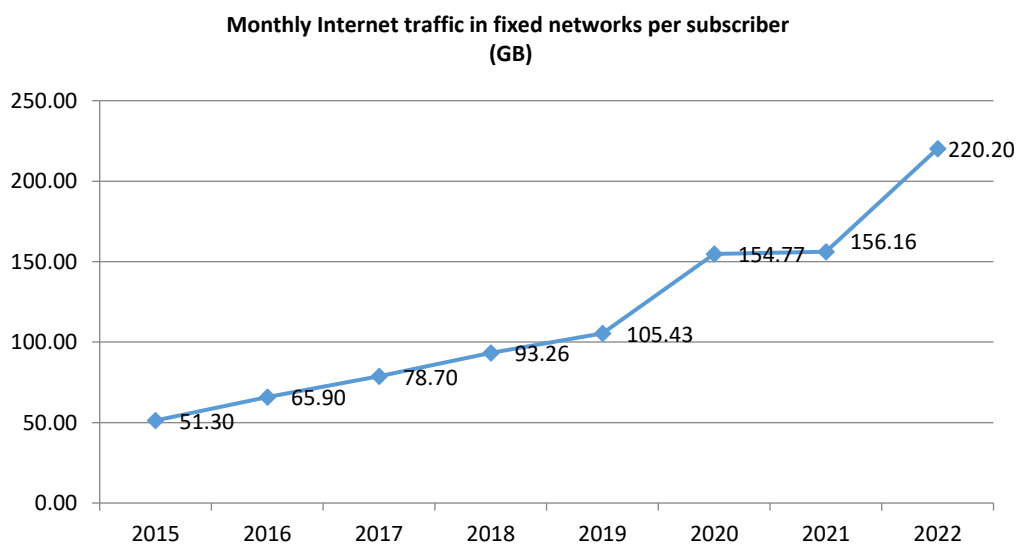
1.6.1.10. Traffic realized via fixed broadband Internet access

Total Internet traffic realized by the users in fixed electronic communications networks in 2022 amounted to 518.41PB which is 47.02% more than in 2021. Increasing trend in the total of realized Internet traffic in fixed electronic communications networks is shown in the following graphic:



Average Internet traffic realized in 2022 by the subscribers in fixed electronic communications networks on monthly level was 220.20GB and is 43.86% higher than in 2021.

Increasing trend of an average Internet traffic realized by the subscribers in fixed electronic communications networks on monthly level is shown in the following graphic.



1.6.2. Mobile broadband Internet access

Number of users of mobile broadband Internet access who accessed Internet via data SIM cards during 2022 increased by 9.04% in relation to 2021. Number of users of Crnogorski Telekom increased by 3.48%, while

number of users of One Crna Gora increased by 19.16%. The Table below gives a structure of data SIM card users in 2022.

	Postpaid	Prepaid	Total
Crnogorski Telekom	31,794	294	32,088
One Crna Gora	17,979	2,324	20,303
Total	49,773	2,618	52,391

In the following Table is given the number of data SIM card users per operator in the period 2015-2022.

Users of data SIM cards								
	2015	2016	2017	2018	2019	2020	2021	2022
Crnogorski Telekom	21,439	21,068	26,972	28,312	32,093	32,396	31,008	32,088
One Crna Gora	32,232	34,220	38,641	26,172	17,711	15,235	17,038	20,303
Total	53,671	55,288	65,613	54,484	49,804	47,631	48,046	52,391

Users of data SIM cards of Crnogorski Telekom realized traffic of 16.26PB, being an increase of 36.67% in relation to 2021. Users of One Crna Gora realized traffic of 6.05PB and it is an increase of 10.12% in relation to 2021.

Operator Mtel does not have in the offer data SIM cards used only for data transmission service, but in 2022 with a total of 76,573 SIM cards of Mtel is only realized data transmission traffic of 2,36PB.

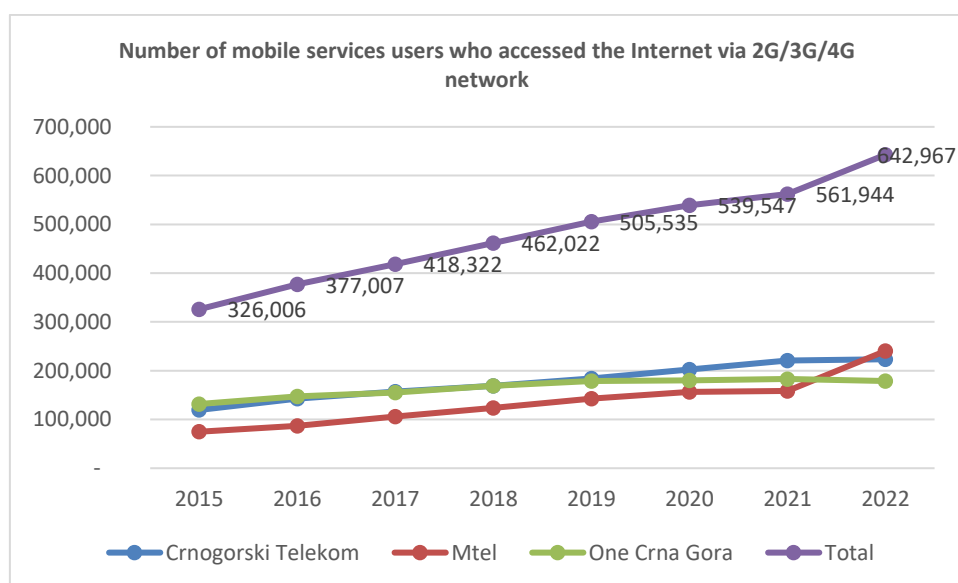
Total number of the users of mobile services (prepaid and postpaid) who accessed Internet (via mobile telephone and modem) in December 2022 amounted to 642,967, whereas from 484,881 cards was accessed to Internet via 3G technology, from 527,791 cards via 4G access technology, while the access to Internet was made via 5G technology from 26,534 cards. Number of users of Crnogorski Telekom amounted 240,410 (37.39%), of One Crna Gora 223,489 (34.76%), and 179,068 (27.85%) of Mtel. Number of users who accessed Internet via mobile networks in December 2022 was 14.42% higher than in December 2021.

Increasing trend in the number of mobile service users who accessed Internetu (via mobile telephones and modems) per year is given in the Table below. Data are given per year and refer to December of each of downstated years.

		2015	2016	2017	2018	2019	2020	2021	2022
Crnogorski Telekom	2G/3G/4G/5G	119,482	143,016	157,164	168,893	184,117	202,774	220,577	240,410
	3G	91,697	121,125	114,086	114,600	117,096	117,496	111,412	115,711
	4G	0	0	63,557	86,069	114,870	160,543	186,815	206,057
	5G	0	0	0	0	0	0	0	23,791

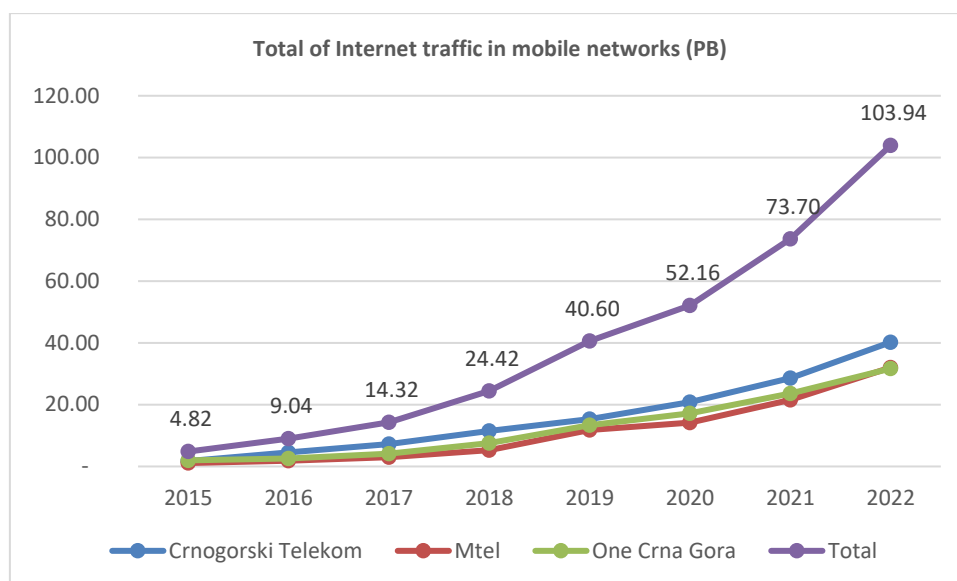
MTel	2G/3G/4G/5G	74,834	86,746	106,214	124,001	142,690	156,714	158,342	179,068
	3G	57,642	68,169	89,745	114,223	134,350	140,636	144,620	161,206
	4G	0	0	4,637	25,215	57,977	77,842	93,121	129,364
	5G	0	0	0	0	0	0	0	0
One Crna Gora	2G/3G/4G/5G	131,690	147,245	154,944	169,128	178,728	180,059	183,025	223,489
	3G	121,994	145,613	157,308	176,020	185,966	191,493	197,252	207,964
	4G	0	0	65,045	104,651	135,274	153,813	170,570	192,370
	5G	0	0	0	0	0	0	0	2,743
Total	2G/3G/4G/5G	326,006	377,007	418,322	462,022	505,535	539,547	561,944	642,967
	3G	271,333	334,907	361,139	404,843	437,412	449,625	453,284	484,881
	4G	0	0	133,239	215,935	308,121	392,198	450,506	527,791
	5G	0	0	0	0	0	0	0	26,534

Number of users who accessed the Internet via 2G/3G/4G/5G network per operator and in total is given in the following graphic:



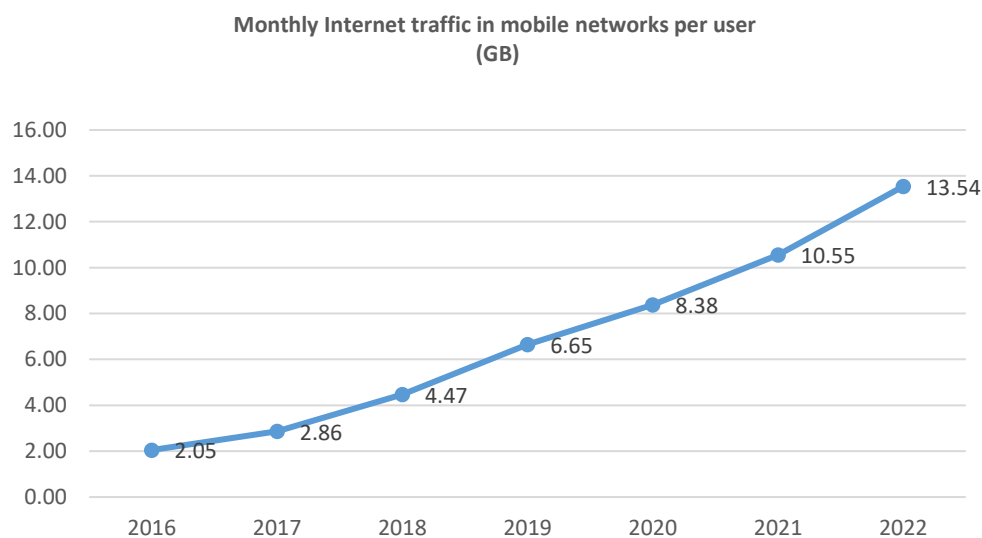
1.6.2.1. Traffic realized via mobile broadband Internet access

Total Internet traffic realized by users via mobile networks during 2022 amounted 103.94PB and is 41.03% higher than in 2021. Increasing trend in the total of realized Internet traffic via mobile electronic communications networks is given in the following graphic:



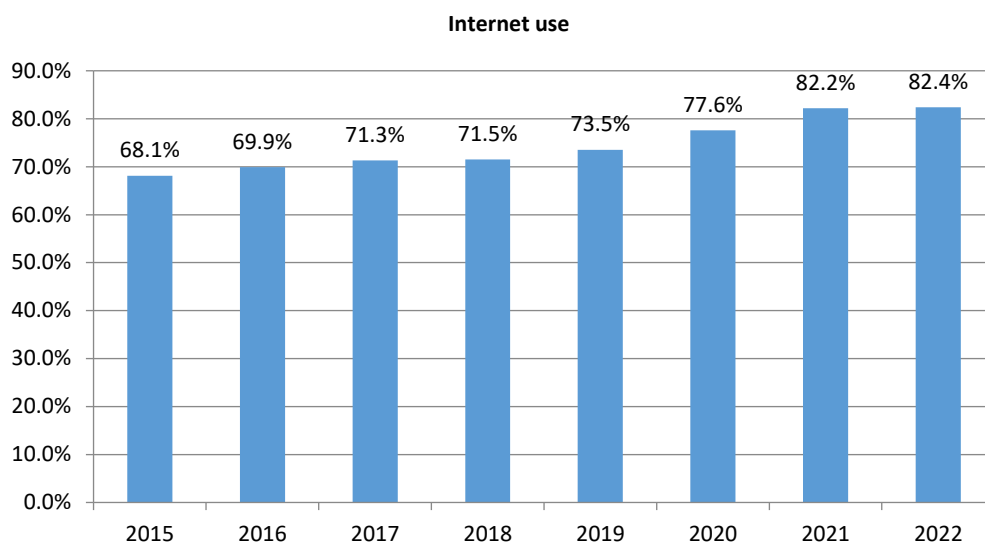
On a monthly level, an average user achieved 13.54GB of Internet traffic via mobile electronic communications networks, which is 28.33% more than in 2021.

Increasing trend in an average Internet traffic achieved by users via mobile networks on a monthly level is given in the following graphic:



1.6.3. Internet penetration

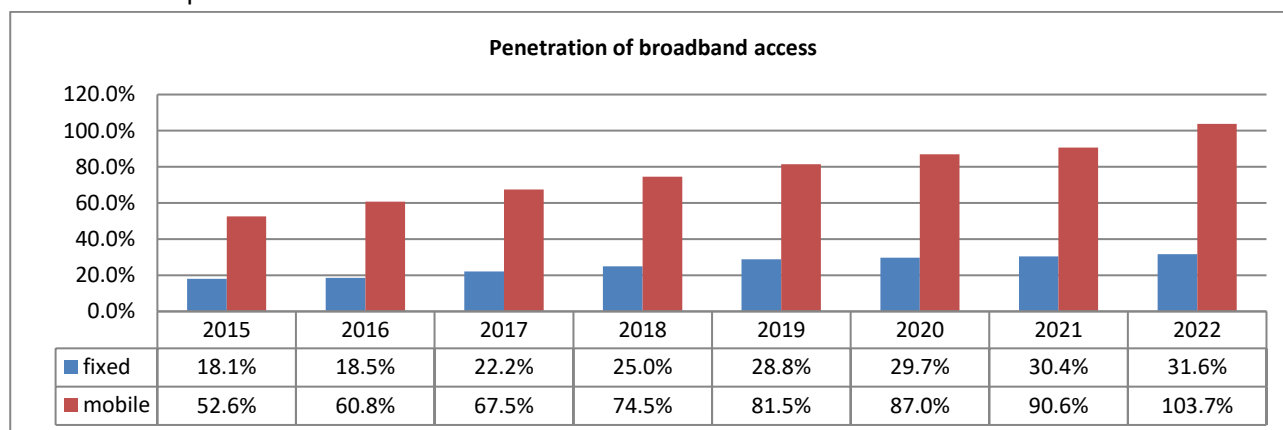
Based on the research of the use of ICT in Montenegro carried out by Zavod za statistiku Crne Gore (Bureau of Statistics of Montenegro) - MONSTAT in October 2022, 82.4% of population used Internet in the last three months, which is 0.2 percentage points more than in 2021. The chart below shows trend in Internet use in the period 2015-2022.



At the end of 2022, penetration of fixed broadband access (users of xDSL, FTTH/B, cable distribution systems, WiMAX, leased lines etc.) was 31.6% being 1.2 percentage points more than in 2021. Penetration in relation to number of households amounted to 100.7% which is an increase of 4 percentage points in comparison with 2021.

Penetration of mobile broadband access, i.e. number of users who accessed Internet via mobile networks in December 2022 amounted 103.7% and in relation to the same period of the last year means an increase of 13.1%.

Chart below shows a trend in penetration of broadband access (fixed and mobile) in relation to population number in the period 2015 – 2022.



As we can see, during 2022 continued an upward trend in the number of Montenegro population who access Internet, and also an upward trend in penetration of fixed and mobile broadband access.

1.6.4. Prices of broadband Internet access in Montenegro and comparison with neighbouring countries

Comparison of the prices of broadband Internet access at retail level with operators in Montenegro, with the prices of operators in other countries is hard to make due to different packages offered by operators in different countries, related to the number of services included in the packages, Internet access speed, quantity of data included in monthly subscription fee etc.

Comparison of package prices of fixed broadband Internet access is done as follows:

- 1.6.4.1. Comparison of the prices of packages of fixed broadband Internet access in the countries of the Region, according to the criterion - Internet access speed for *standalone*, *duo*, *trio* and *quadro* packages;
- 1.6.4.2. Comparison of the prices of packages of fixed broadband Internet access in the European countries according to the criterion – Internet access speed for *standalone*, *duo*, *trio* and *quadro* packages.

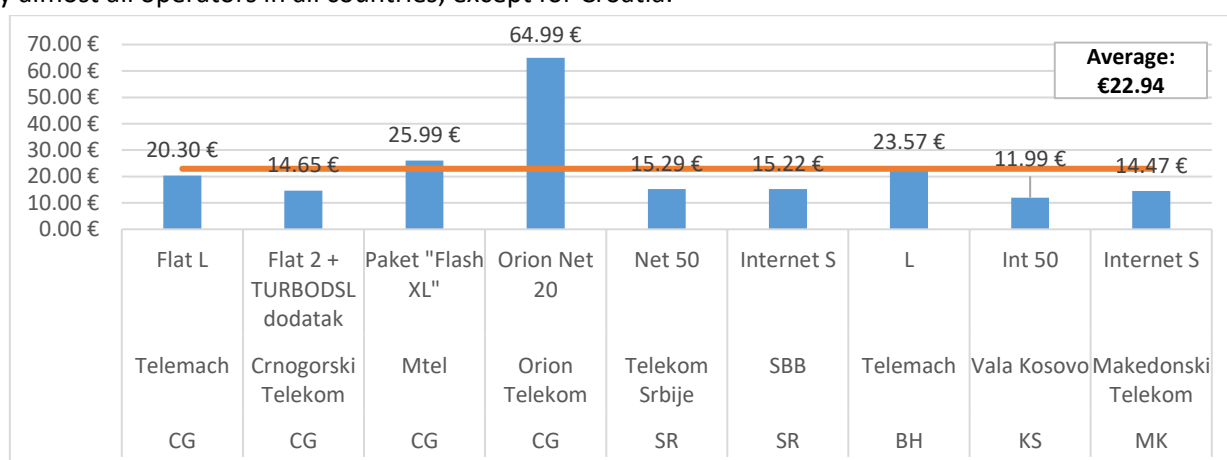
1.6.4.1. Comparison of package prices of fixed broadband Internet access in the countries of the Region, according to criterion – Internet access speed for standalone, duo, trio and quadro packages

Standalone, *duo*, *trio* and *quadro* packages in the fixed broadband Internet access in the countries of the Region (Montenegro, Serbia, Macedonia, Kosovo, Croatia and Bosnia and Herzegovina) were compared in the analysis. Selection of packages is the assessment of the developers based on available data. Prices of 311 different packages were analyzed.

1.6.4.1.1 Standalone packages in the countries of the Region

Comparison of prices standalone package of up to 50 Mbps in the countries of the Region

Standalone packages (only Internet) in fixed broadband access with the speed of up to 50 Mbps are offered by almost all operators in all countries, except for Croatia.

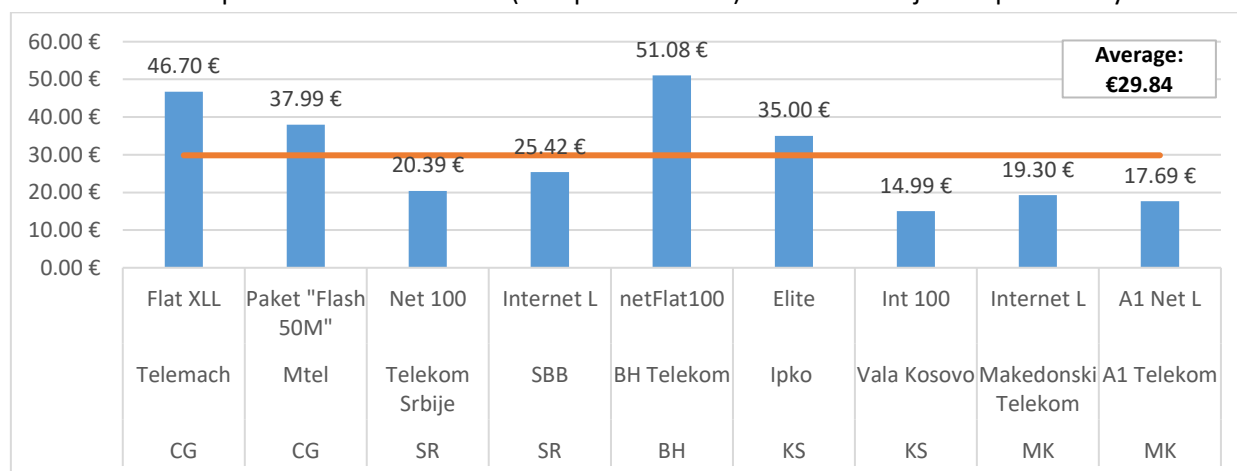


Comparative overview of a standalone package of the operator, with a speed of 50 Mbps in the countries of the Region

- Average price of *standalone* package with the speed of up to 50 Mbps in the countries of the Region is €22.94.
- As it is presented in the chart, prices of *standalone* packages with the speed of up to 50 Mbps are from €11.99 for Int 50 package provided by Vala Kosovo to €64.99 for Orion Net 20 package provided Orion Telekom.
- Average price of these packages in the neighboring countries amounts to €22.94 and it is 13.01% higher than the price of Flat L package offered by Telemach, while the same average price is 56.60% higher than the price of ADSL FI@T 2 + dodatak Turbodsl package offered by Crnogorski Telekom, 11.73 % lower than the price "Flash XL" package offered by Mtel and 64.70% lower than price of Orion Net 20 package offered by Orion Telekom.

Comparison of standalone packages of up to 100 Mb/s in the countries of the Region

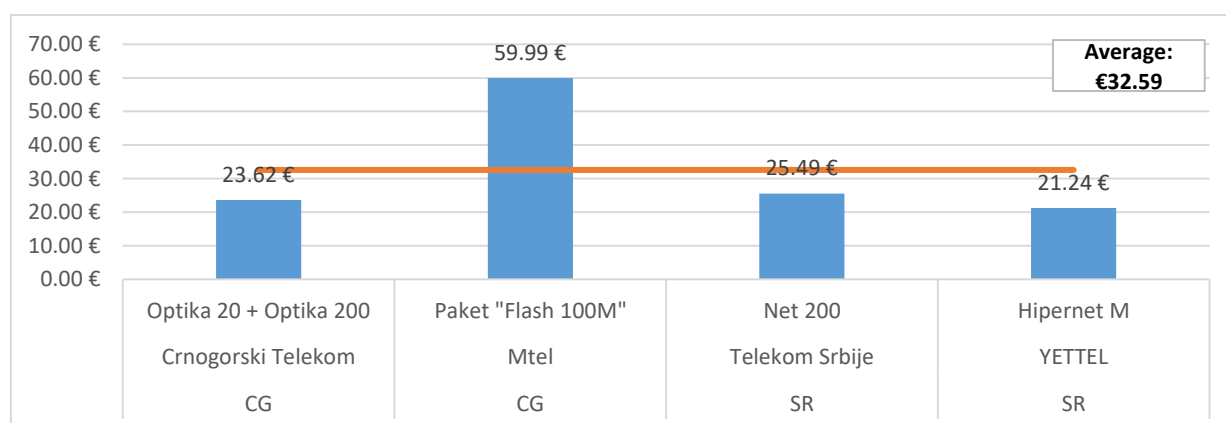
Standalone packages (only Internet) in fixed broadband access with the speed of up to 100 Mbps are in the offer of almost all operators in all countries (except for Croatia) which are subject of price analysis.



Comparative overview of standalone packages of the operators, with the speed of up to 100 Mb/s in the countries of the Region

- Average price of standalone packages with the speed of up to 100 Mbps in the countries of the Region amounts to €29.84.
- As it is evident from the chart, prices of *standalone* packages with the speed of up to 100 Mbps in the broadband access provided at a fixed location is from €14.99 for Int 100 package provided by Vala Kosovo up to €51.08 for netFlat 100 package provided by BH Telekom of Bosnia and Herzegovina.
- Average price of these packages in the neighbouring countries amounts to €29.84, which is 36.10% lower in relation to the price offered by Telemach for Flat XLL package, while the same average price is 21.45% lower than the price of "Flash 50M" package offered by Mtel.

Comparison of standalone packages with the speed from 100 to 200 Mbps in the countries of the Region



Comparative overview of standalone packages of the operators, with the speed from 100 to 200 Mbps in the countries of the Region

- Average price of *standalone* packages with the speed from 100 to 200 Mbps in the countries of the Region is €32.59.

- As it is presented in the chart, prices of *standalone* packages with the speed from 100 to 200 Mbps in the broadband access provided at a fixed location are from €21.24 for Hipernet M package provided by Yettel from Serbia, up to €59.99 for "Flash 100M" package provided by Mtel.
- Average price these packages in the neighbouring countries amounts to €32.59, which is 37.96% more than the price of Optika 20 + Optika 200 package offered by Crnogorski Telekom, while the same average price is 45.68% lower than the price of "Flash 100M" package offered by Mtel.

Comparison of standalone packages with the speed from 200 Mbps in the countries of the Region

Standalone packages with the speed from 200 Mb/s offered by Crnogorski Telekom Optika 20 + Optika 200, Mtel package Flash 100 M and Telekom Srbija Net 200. Average price of these three packages is €36.37.

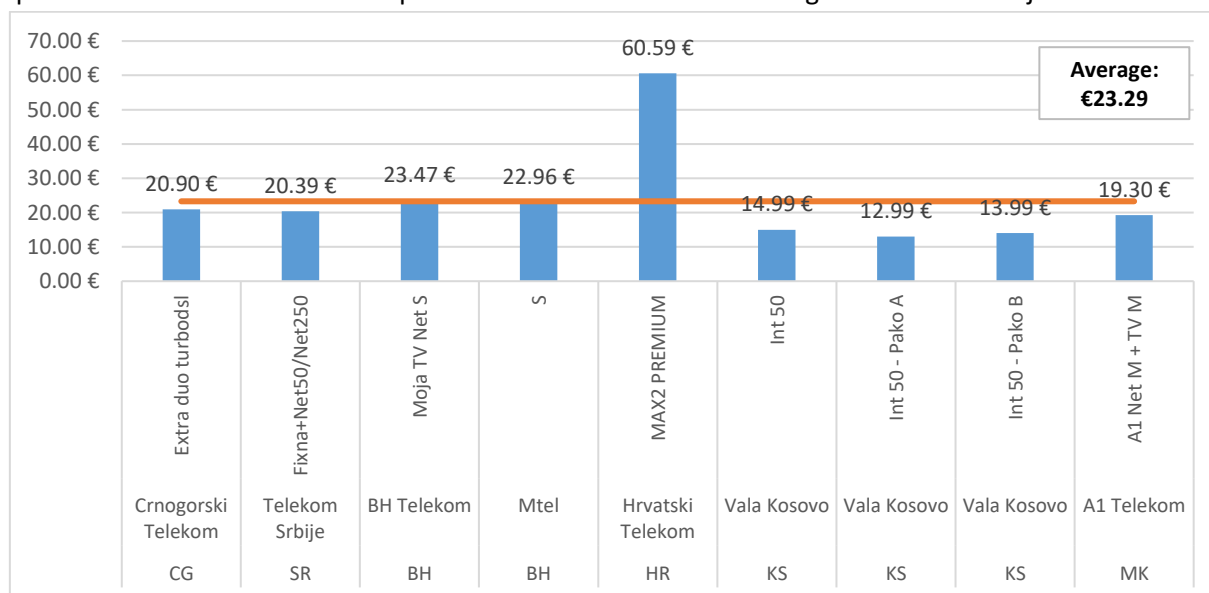
Comparison of standalone packages with the speed from 400 to 600 Mbps in the countries of the Region

Standalone packages with the speed from 400 to 600 Mbps are offered by Telekom Srbija Net 400 at the price of €29.74 and Crnogorski Telekom Optika 20 + Optika 500 at the price of €25.62. Average price of these two packages is €27.68, which is 16.09% more than the price of packages offered by Crnogorski Telekom.

1.6.4.1.2 Duo packages in the countries of the Region

Comparison of duo packages with 50 Mbps in the countries of the Region

Duo packages (internet + fixed telephony or TV) in the fixed broadband access with the speed of up to 50 Mbps are in the offer of almost all operators in the countries of the Region which are subject of this Analysis.



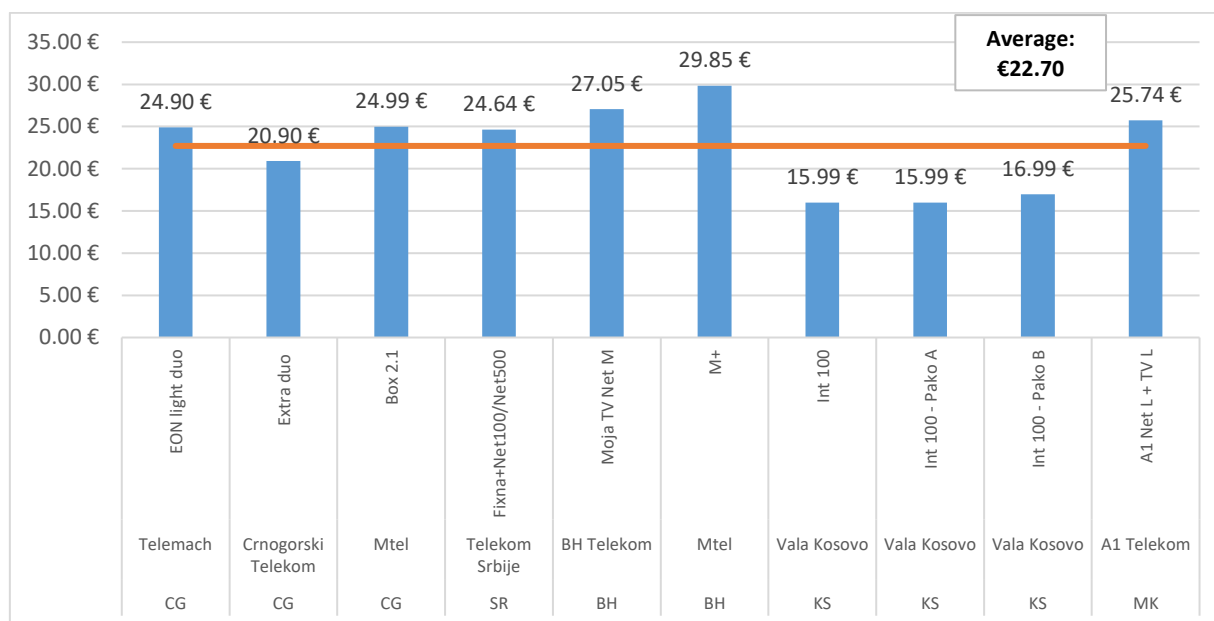
Comparative overview of duo packages of the operators with the speed of up to 50 Mbps in the countries of the Region

- Average price of *duo* package with the speed of up to 50 Mb/s in the countries of the Region amounts to €23.29.
- Average price of *duo* package with the speed of up to 50 Mb/s amounts to €23.29 and it is 11.42% higher than the price of Extra duo turbodsl package offered by Crnogorski Telekom.

- In the chart is shown that the price of *duo* packages with the speed of up to 50 Mbps in the broadband access provided at a fixed location from €12.99 for Int 50 – Pako A package offered by Vala Kosovo up to €60.59 for MAX2 Premium package offered by Hrvatski Telekom.

Comparison of duo package of up to 100 Mbps in the countries of the Region

Duo packages (internet + fixed telephony or TV) in the fixed broadband access with the speed of up to 100 Mbps are offered by almost all operators in the countries of the Region which are subject of this Analysis.

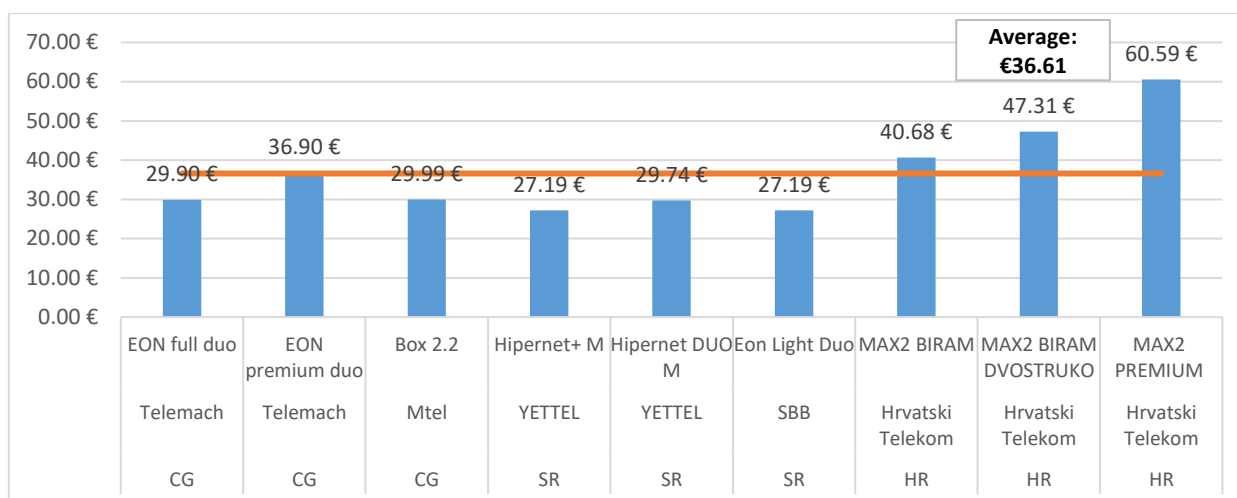


Comparative overview of duo packages with the speed of up to 100 Mbps of the operators in the countries of the Region

- Average price of *duo* packages with the speed of up to 100 Mbps in the countries of the Region amounts to €22.70.
- It is evident from the chart that the prices of *duo* packages with the speed of up to 100 Mbps in the broadband access provided at a fixed location are from €15.99 for Int 100 and Int 100 –Pako A package offered by Vala Kosovo up to €29.85 for M+ paket offered by Mtel from Bosnia and Herzegovina.
- Average price of *duo* packages with the speed of up to 100 Mbps amounts to €22.70, which is 8.63% more than the price of the package offered by Extra Duo package of Crnogorski Telekom, while the same average price for 8.82% lower than the price of EON light *duo* package offered by Telemach and 9.15% lower than the price of Box 2.1 package offered by Mtel.

Comparison of duo packages with the speed from 100 do 200 Mbps in the countries of the Region

Duo packages (internet + fixed telephony or TV) with the speed from 100 to 200 Mbps are offered by the operators in Montenegro, Srebia and Croatia.

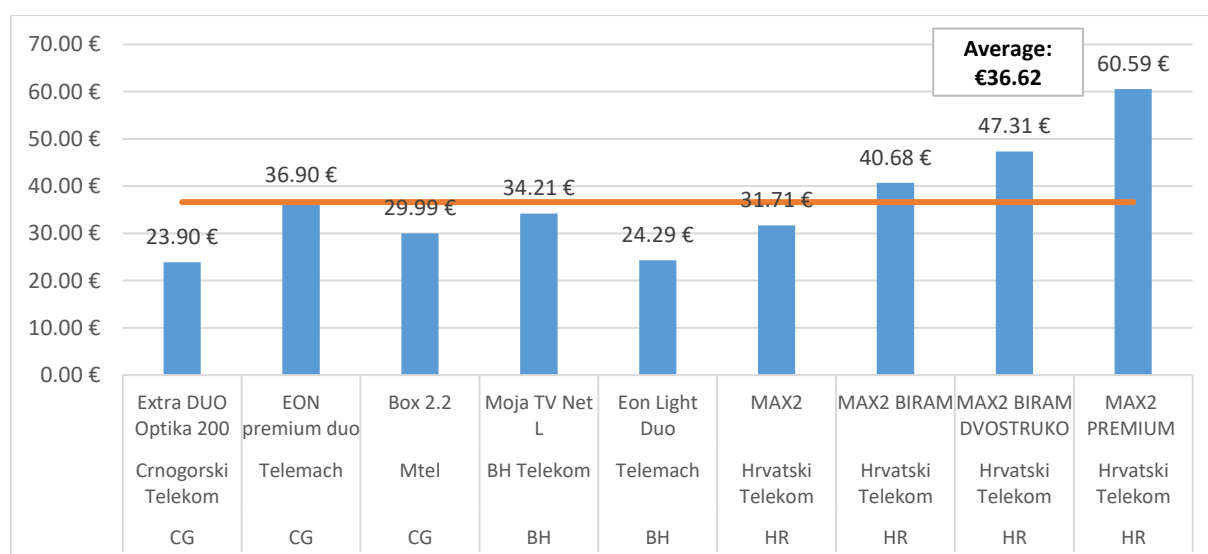


Comparative overview of duo packages of the operators with the speed from 100 to 200 Mbps in the countries of the Region

- Average price of *duo* packages with the speed from 100 to 200 Mbps in the countries of the Region amounts to €36.61.
- It is evident from the chart that the prices of *duo* packages with the speed from 100 to 200 Mbps in the broadband access provided at a fixed location are from €27.19 offered by Yettel Srbija up to €60.59 for MAX2 Premium package of Hrvatski Telekom.
- Average price of these packages in the Region amounts to €36.61 which is at the level of EON Premium Duo package offered by Telemach, and the same average price is 22.44% higher than the price of EON Full Duo Telemach and 22.08% higher than the price of Box 2.2 package offered by Mtel.

Comparison of duo packages with the speed of up to 200 Mbps in the countries of the Region

Duo packages (Internet + fixed telephony or TV) with the speed of up to 200 Mbps are in the offer of six operators in the countries of the Region.

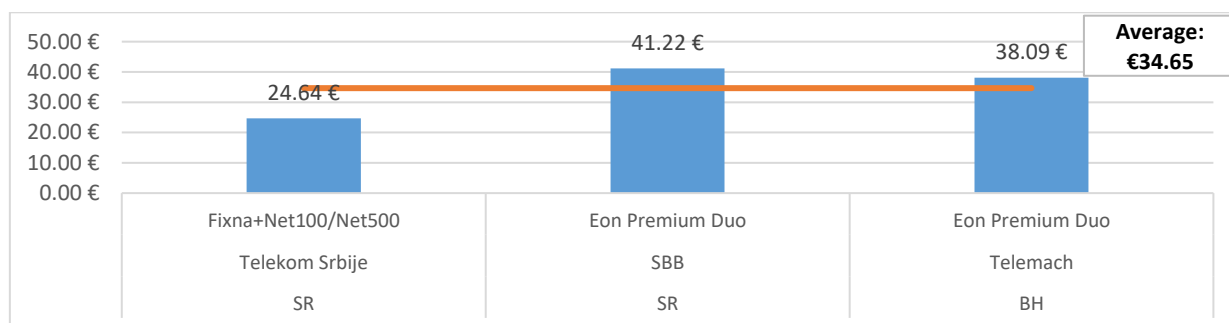


Comparative overview of duo packages with the speed of up to 200 Mbps of the operators in the countries of the Region

- Average price of *duo* packages with the speed of up to 200 Mbps in the countries of the Region amounts to €36.62.
- It is evident from the chart thatn the prices of *duo* packages with the speed of up to 200 Mbps in the broadband access provided at a fixed location are from €23.90 offered by Crnogorski Telekom up to €60.59 of MAX2 Premium package of Hrvatski Telekom.
- Average price of these packages in the Region amounts to €36.62, being at the level of EON Premium Duo package offered by Telemach, while the same average price is 53.22% higher than the price of Extra DUO Optika 200 package in the offer of Crnogorski Telekom and is 22.10% higher than the price of Box 2.2 package offered by Mtel.

Comparison of duo packages with the speed from 400 to 600 Mbps in the countries of the Region

Duo packages (Internet + fixed telephony or TV) with the speed from 400 to 600 Mbps are in the offer of three operators in the neighbouring countries.



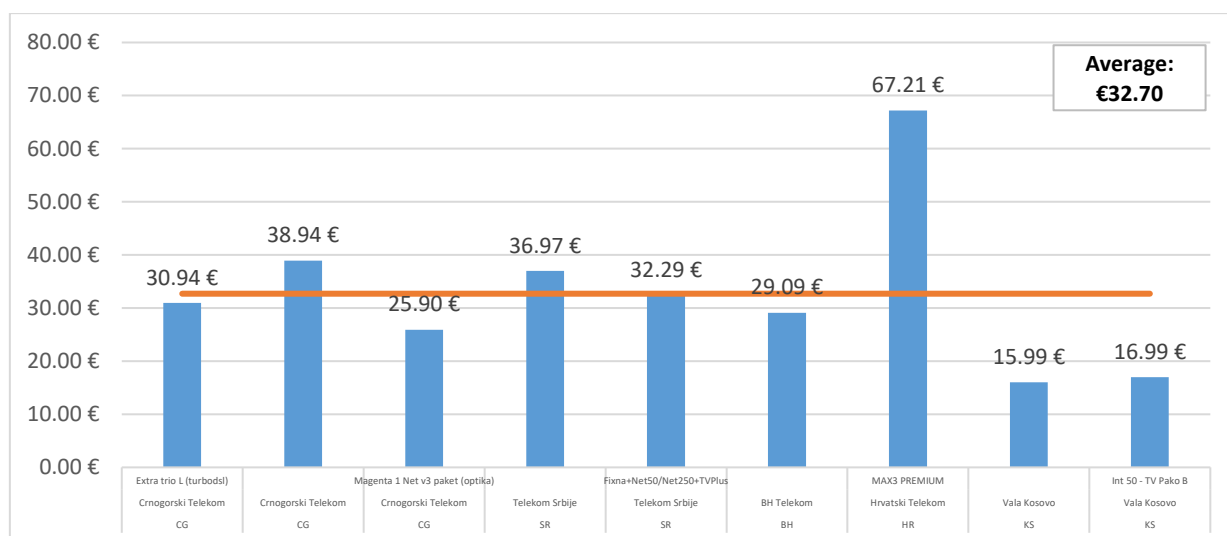
Comparative overview of duo packages with the speed from 400 to 600 Mbps of the operators in the countries of the Region

- Duo packages with the speed from 400 to 600 Mbps are in the offer of the operators in Serbia and Bosnia and Herzegovina. Average price in these countries is €34.65.

1.6.4.1.3 Trio packages in the countries of the Region

Comparison of trio packages up to 50 Mbps in the countries of the Region

Trio packages (Internet + fixed telephony + TV) in the fixed broadband access are in the offer of each operator in the countries of the Region, which are the subject of this Analysis.

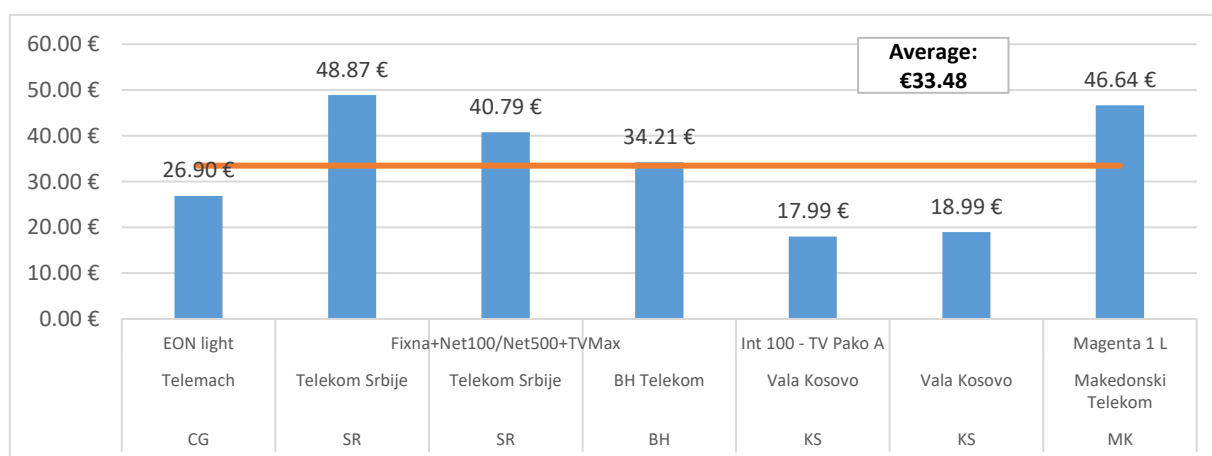


Comparative overview of trio packages with the speed of up to 50 Mbps of the operators in the Region

- Average price of *trio* packages with the speed of up to 50 Mbps in the countries of the Region amounts to €32.70.
- Average price of trio packages is €32.70, which is 16.02% lower than the price of Extra Trio XL (turbodsl) package offered by Crnogorski Telekom, and the same average price is 5.70% higher than price of Extra Trio L (turbodsl) package offered by Crnogorski Telekom and 26.26% higher than the price of Magenta 1 Net v3 package of Crnogorski Telekom.
- It is evident from the chart that the price of trio package with the speed of up to 50 Mbps in the broadband access provided at a fixe location is from €15.99 for the package offered by Vala Kosovo up to €67.21 for MAX3 Premium package offered by Hrvatski Telekom.

Comparison of trio packages of up tp 100 Mbps in the countries of the Region

Trio packages (Internet + fixed telephony + TV) in the fixed broadband access with the speed of up to 100 Mbps is in the offer of each operator in the countries of the Region being the subject of the Analysis.

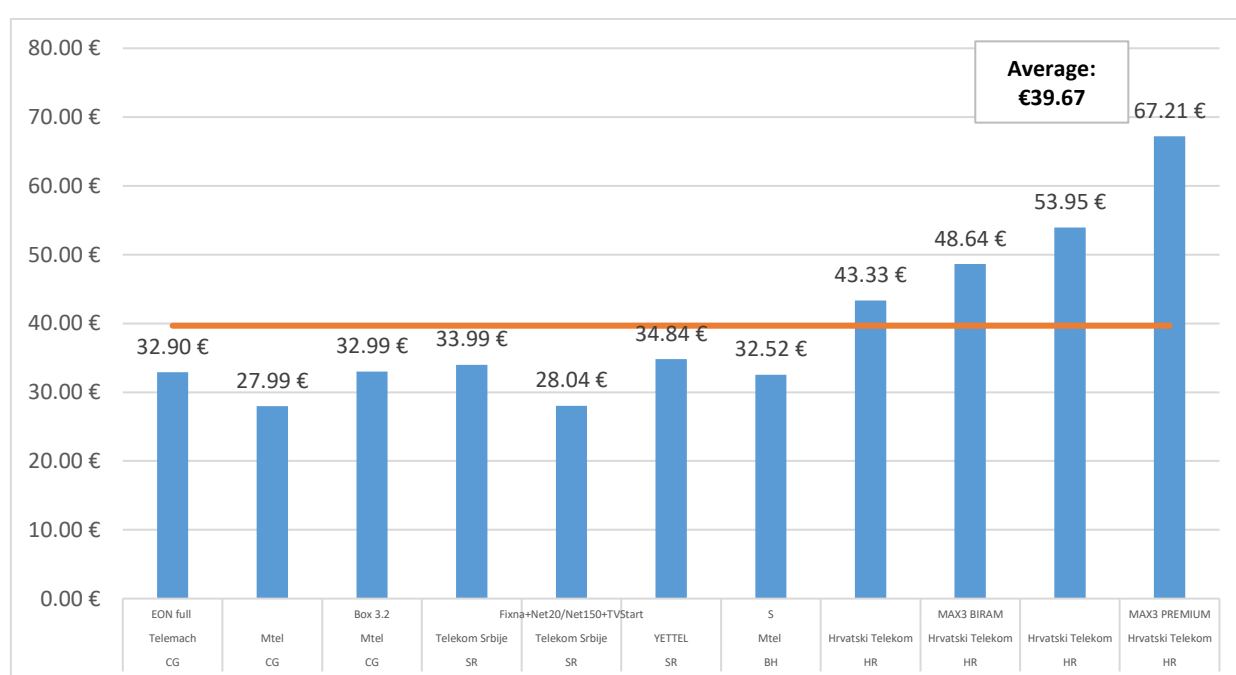


Comparative overview of trio packages of the operators with the speed of up tp 100 Mbps in the countries of the Region

- Average price of *trio* packages with the speed of up to 100 Mbps in the countries of the Region is €33.48
- We see from the chart that the prices of *trio* packages with the speed of up to 100 Mbps in the broadband access provided at a fixed location are from €17.99 for the package offered by Vala Kosovo up to €48.87 for Fixna+Net100/Net500+Soko lite package offered by Telekom Srbija.
- Average price of *trio* packages is €33.48 and it is 24.47% higher than the price of EON light package offered by Telemach.

Comparison of *trio* packages with the speed from 100 to 200 Mbps in the countries of the Region

Trio packages (Internet + fixed telephony + TV) with the speed from 100 to 200 Mbps nude operators in each country of the Region.

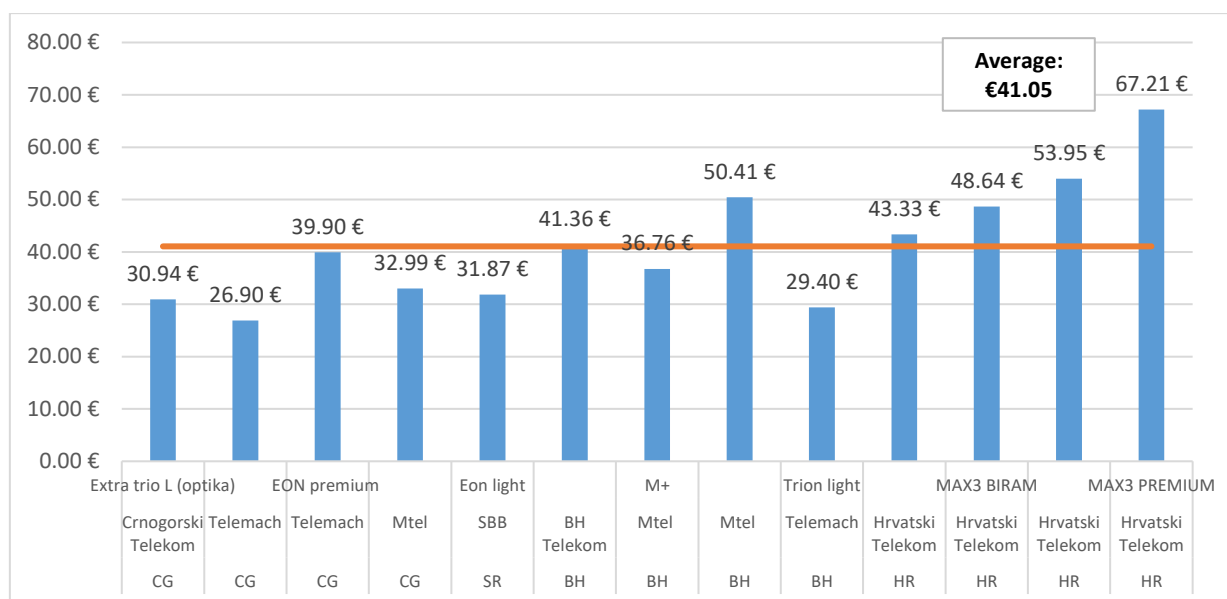


Comparative overview of *trio* packages of the operators with the speed from 100 to 200 Mbps in the countries of the Region

- Average price of *trio* packages with the speed from 100 to 200 Mbps in the countries of the Region is €39.67.
- It is evident from the chart that the prices of *trio* packages with the speed from 100 to 200 Mbps in the broadband access provided at a fixed location are from €27.99 for Box 3.1 offered by Mtel to €67.21 which is the price of MAX3 Premium package of Hrvatski Telekom;
- Average price of *trio* package amounts to €39.67 and is 41.74% higher than the price of Box 3.1 package offered by Mtel and the same average price is 20.59% higher than the price of EON full and 20.26% higher than the price of Box 3.2 package offered by Mtel.

Comparison of *trio* packages with the speed of up to 200 Mbps in the countries of the Region

Trio packages (Internet + fixed telephony + TV) with the speed of up to 200 Mbps are in the offer of each operator in the neighbouring countries except for Makedonski Telekom.

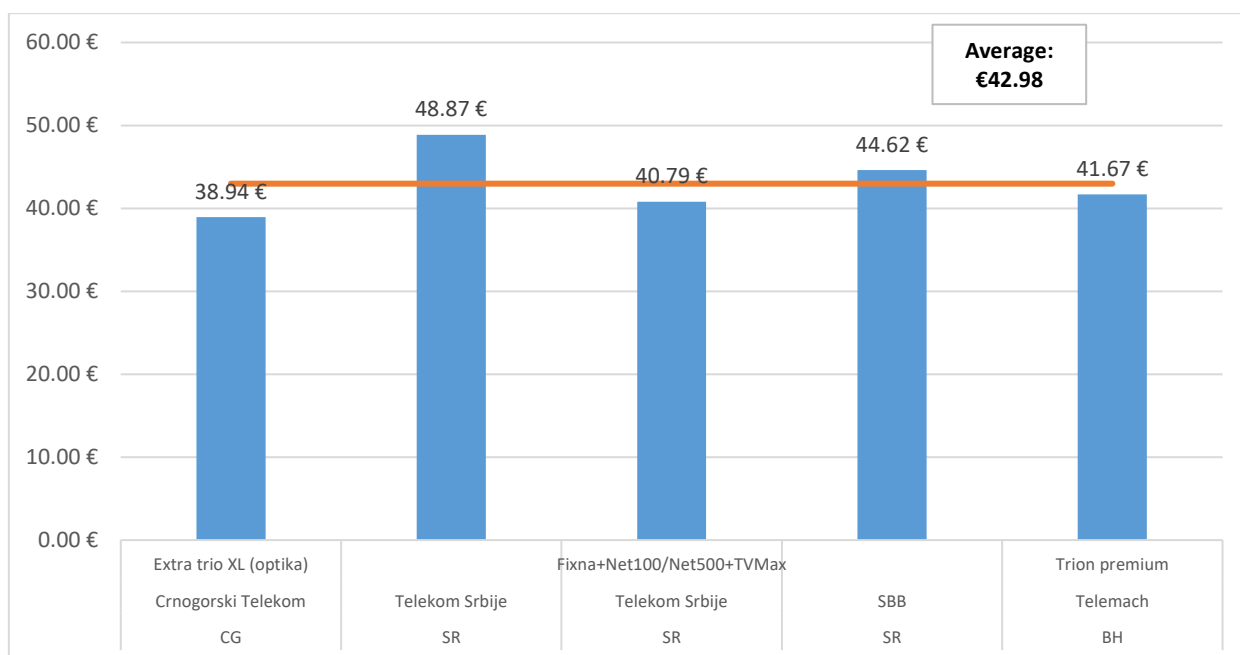


Comparative overview of trio packages of the operators with the speed of up to 200 Mbps in the countries of the Region

- Average price of *trio* package with the speeds of the access up to 200 Mbps in the countries of the Region amounts to €41.05.
- It is clear from the chart that the prices of *trio* packages with the speed of up to 200 Mbps in the broadband access provided at a fixed location are from €26.90 for EON light package offered by Telemach up to €67.21 for MAX3 PREMIUM package offered by Hrvatski Telekom.
- Average price of *trio* package with the access speed of up to 200 Mbps is €41.05 and is 2.89% higher than the price of EON Premium package offered by Telemach, while the average price is higher than the price of Extra Trio L (optical package of Crnogorski Telekom, 32.68% higher, 52.61% is higher than the price of EON light package of Telemach and is 24.44% higher than the price of Box 3.2 package offered by Mtel.

Comparison of trio packages with the speed from 400 to 600 Mbps in the countries of the Region

Trio packages (Internet + fixed telephony + TV) with the speed from 400 to 600 Mbps are in the offer of the operators in Montenegro, Serbia and Bosnia and Herzegovina.



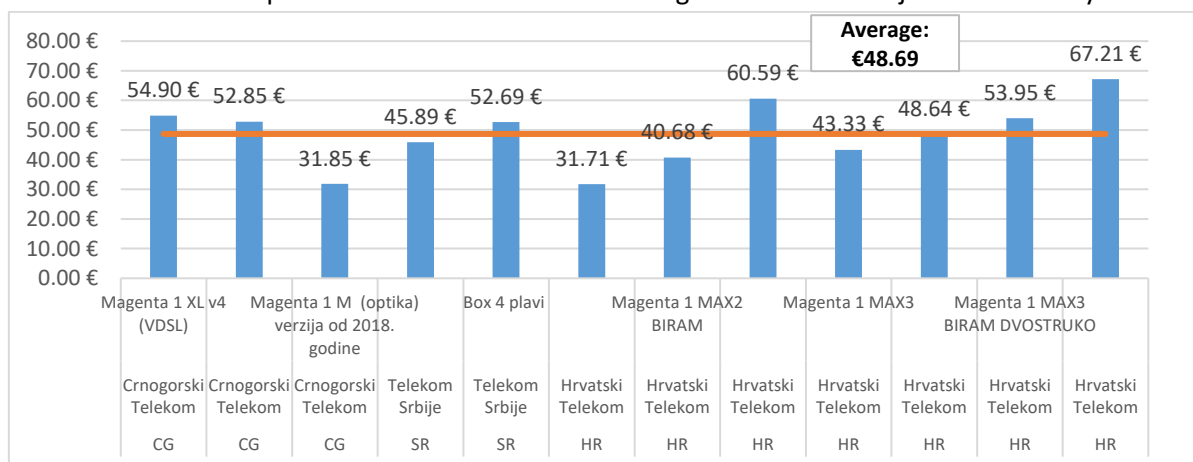
Comparative overview of trio packages of the operators with the speed from 400 to 600 Mbps in the countries of the Region

- Average price of *trio* packages with the speed from 400 to 600 Mbps in the Region amounts to €42.98.
- As seen from the chart, prices of *trio* packages with the speed from 400 to 600 Mbps are from €38.94 to €48.87.
- Average price of the Region is 10.37% higher than the price of Extra Trio XL (optika) packages offered by Crnogorski Telekom.

1.6.4.1.4 Quadro packages in the countries of the Region

Comparison of quadro packages of up to 50 Mbps in the countries of the Region

Quadro packages (Internet + fixed telephony + TV + mobile telephony) in the fixed broadband access is in the offer of the most of the operators in the countries of the Region which are subject of this Analysis.

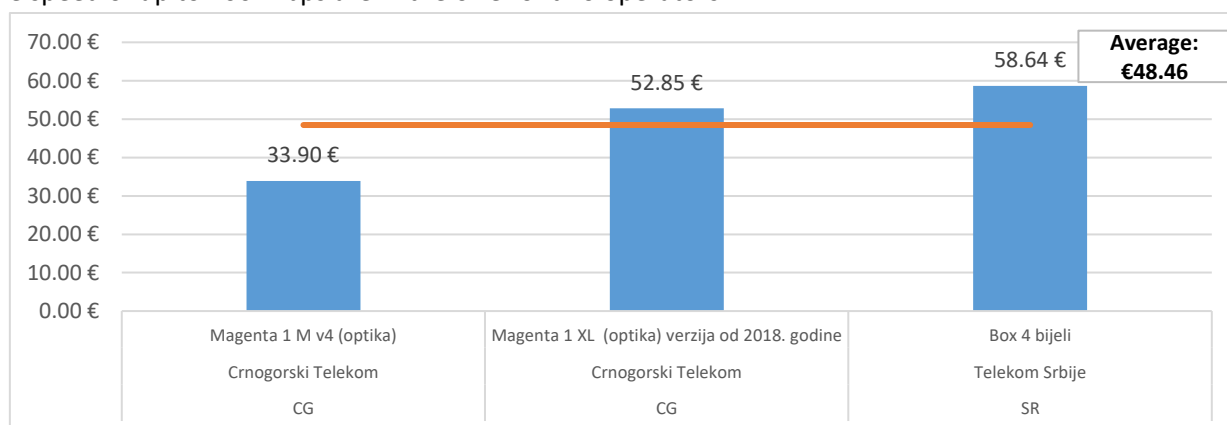


Comparative overview of quadro package of the operators with the speed of up to 50 Mbps in the countries Region

- Average price of *quadro* packages with the speed of up to 50 Mbps in the countries of the Region is €48.69.
- Average price of *quadro* packages in the countries of the Region is €48.69 which is 52.88% more than the price of the package of Magenta 1M (optika) version from 2018 of Crnogorski Telekom, and the same average price is 11.31% lower than the price of Magenta 1XL v4 (VDSL) and 7.87% lower than the price of Magenta 1XL (VDSL) version from 2018 offered in the package of Crnogorski Telekom.
- It is evident from the chart that the price of *quadro* package with the speed of 50 Mbps in the broadband access offered at a fixed location are from €31.85 for Magenta 1M (optika) version from 2018 offered by Crnogorski Telekom up to €67.21 for Magenta 1 MAX3 Premium offered by Hrvatski Telekom.

Comparison of quadro package of up to 100 Mbps in the countries of the Region

Quadro packages (Internet + fixed telephony + TV + mobile telephony) in the fixed broadband access with the speed of up to 100 Mbps are in the offer of two operators.

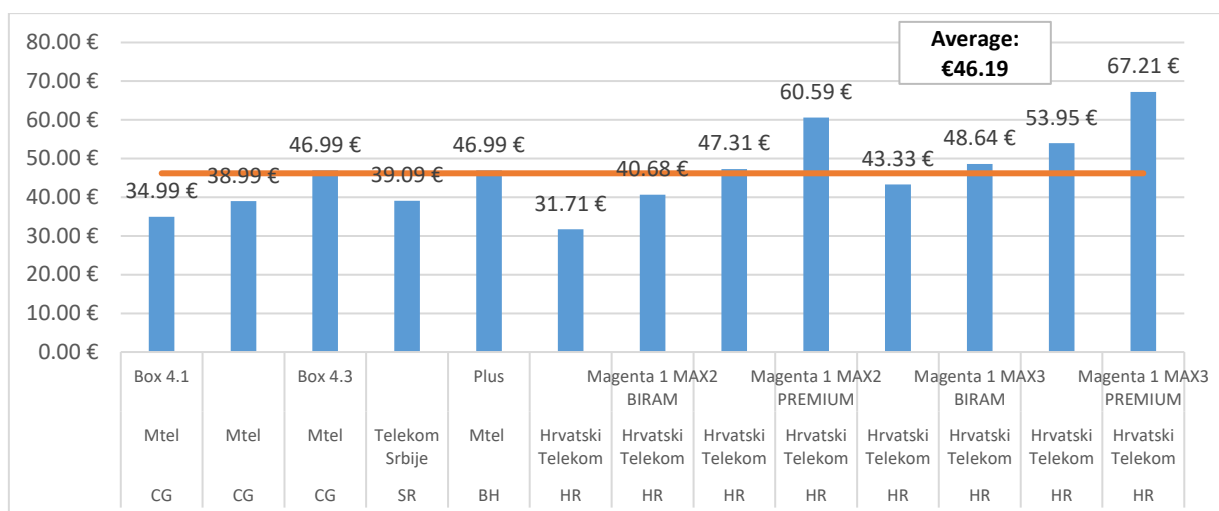


Comparative overview of quadro packages of the operators with the speed of up to 100 Mbps in the countries of the Region

- Average price of *quadro* package with the speed of up to 100 Mbps in the countries of the Region is €48.46
- It is evident from the chart that *quadro* package with the speed of up to 100 Mbps in the broadband access provided at a fixed location are from €33.90 for Magenta 1M v4 (optika) up to €58.64 for Box 4 bijeli offered by Telekom Srbija.
- Average price of *quadro* packages in the countries of the Region amounts to €48.46, being 42.96% higher than the price of Magenta 1 M v4 (optika) package offered by Crnogorski Telekom, and 8.30% lower than the price of Magenta 1XL (optika) package, 2018 version of Crnogorski Telekom.

Comparison of quadro package with the speed from 100 to 200 Mbps in the countries of the Region

Quadro packages with the speed from 100 to 200 Mbps are in the offer of operators in each country of the Region.

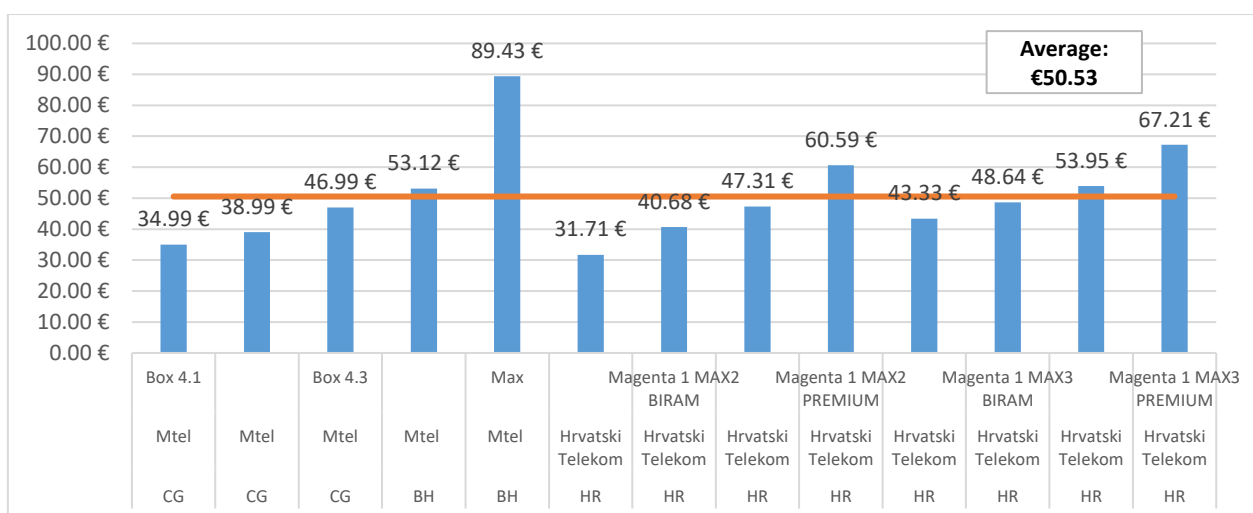


Comparative overview of quadro packages with the speed from 100 to 200 Mbps of the operators in the u countries of the Region

- Average price of *quadro* packages with the speed from 100 to 200 Mbps in the countries of the Region amounts to €46.19.
- It is evident from the chart that the prices of *quadro* package with the sa speed from 100 to 200 Mbps in the broadband access provided at a fixed location are from €31.71 which is the price of Magenta 1 MAX2 of Hrvatski Telekom up to €67.21 which is the price of Magenta 1 MAX3 Premium of Hrvatski Telekom.
- Average price of these packages in the countries of the Region is €46.19 higher than the price of Box 4.1 package of Mtel (32.01%), 18.47% higher than Box 4.2 whereas an average price in the region is 1.70% lower than Box 4.3 package of Mtel .

Comparison of quadro packages with the speed of up to 200 Mbps in the countries of the Region

Quadro packages (Internet + fixed telephony + TV + mobile telephony) in the fixed broadband access with the speed of up to 200 Mbps are in the offer of three operators.

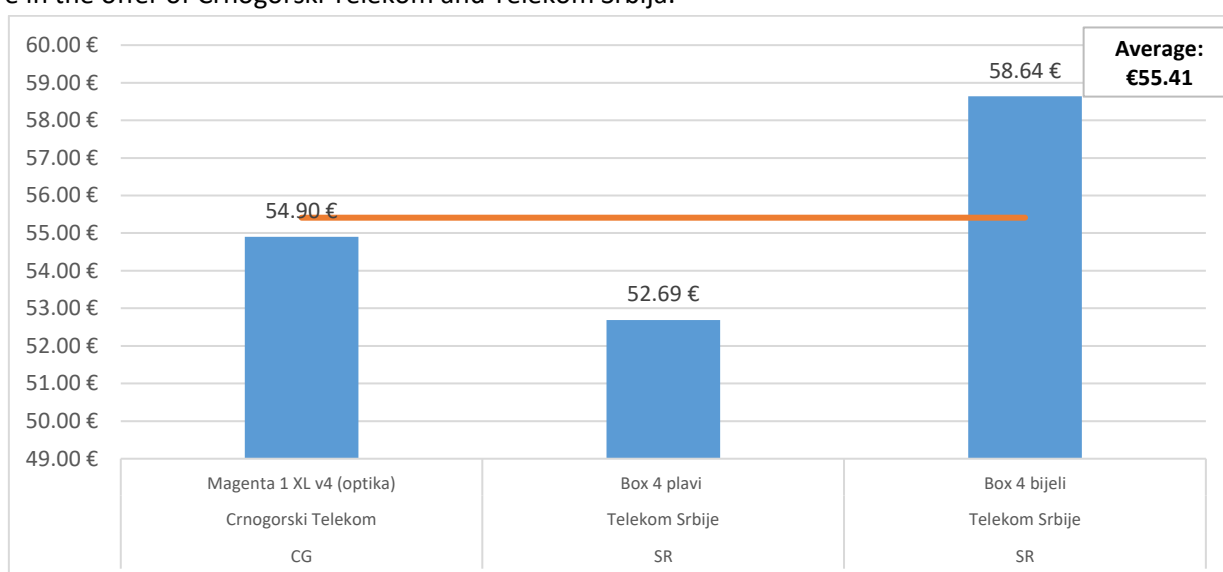


Comparative overview of quadro package with the speed of up to 200 Mb/s of the operators in the countries of the Region

- Average price of *quadro* package with the speed of up to 200 Mbps in the countries of the Region is €50.53.
- It is evident from the chart that the prices of *quadro* package with the speed of up to 200 Mbps in the broadband access provided at a fixed location are from €31.71 for Magenta 1 MAX2 offered by Hrvatski Telekom up to €89.43 of Max offered by BH Telekom.
- Average price of *quadro* package in the countries of the Region amounts to €50.53 and is 41.74% higher than the price of Box 4.1 package while the same average price is 29.61% higher than the price of Box 4.2 and 7.54 % higher than the price of Box 4.3 package offered by Mtel.

Comparison of quadro packages with the speed from 400 to 600 Mbps in the countries of the Region

Quadro packages (Internet + fixed telephony + TV + mobile telephony) with the speed from 400 to 600 Mbps are in the offer of Crnogorski Telekom and Telekom Srbija.



Comparative overview of quadro packages with the speed from 400 to 600 Mbps of the operators in the countries of the Region

- Average price of *quadro* packages with the speed from 400 to 600 Mbps in the countries of the Region amounts to €55.41.
- Prices of *quadro* packages with the speed from 400 to 600 Mbps are from €52.69 for Box 4 blue package of Telekom Srbija up to €58.64 for Box 4 white package of Telekom Srbija.
- Package of Crnogorski Telekom Magenta 1XL v4 (optika) is €54.90 and its average is €55.41.

Packages of broadband access to Internet provided at a fixed location with the speed up to 1000 Mbps in the countries of the Region

Broadband Internet access with the speed of up to 1000 Mb/s is in the offer of Telekom Srbija standalone package Net1000 (at €76.49) and quadro package of Telekom Srbija Box4 zlatni Quadro (at €84.99).

In Montenegro, Telemach offers a speed of up to 1000 Mbps only at three locations: Bar, Podgorica and Nikšić (as addition to Neon package).

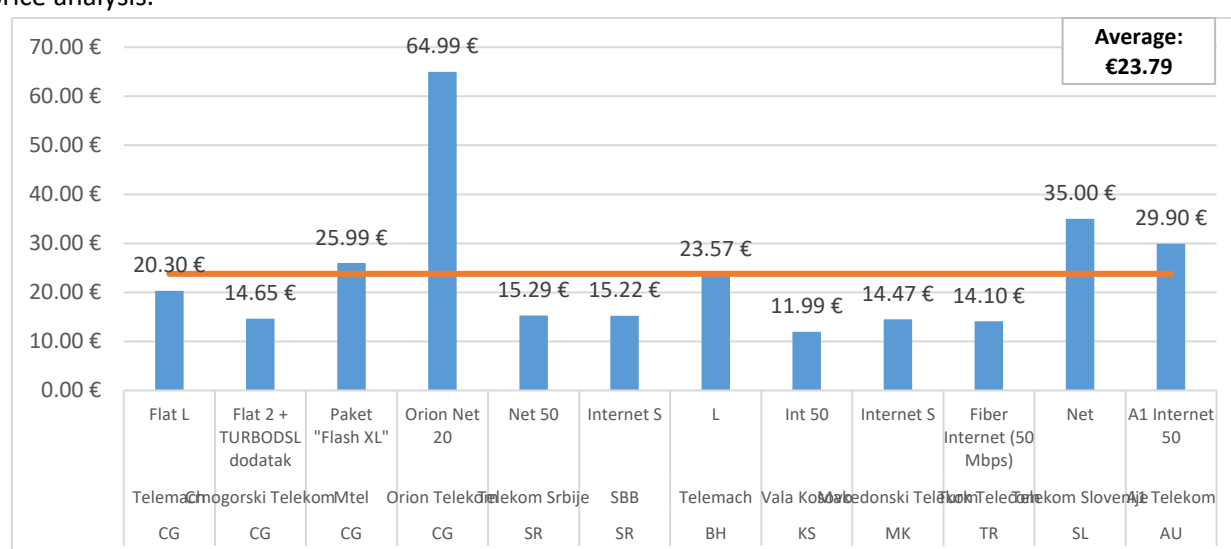
1.6.4.2. Price comparison of the packages of fixed broadband Internet access in the countries of Europe according to the criterion – Internet access speed for standalone, duo, trio and quadro packages

In the Analysis were included *standalone packages, duo, trio and quadro* in the fixed broadband Internet access in the countries of the Region (Montenegro, Serbia, Macedonia, Kosovo, Croatia and Bosnia and Herzegovina) and in the observed European countries (Turkey, Albania, Slovenia, Hungary, Germany, Norway, Poland, Sweden, Austria, Bulgaria, Czech Republic and Denmark), according to the criterion of Internet access speed. Packages are selected upon the developer assessment based on available data. The prices of 501 different packages were analysed.

1.6.4.2.1 Standalone packages in the European countries

Comparison of standalone packages up to 50 Mbps in the European countries

Standalone package (only Internet) in the fixed broadband access with the speed up to 50 Mbps are in the offer of almost each operator in selected countries of Europe (except for Croatia) which are subject of the price analysis.

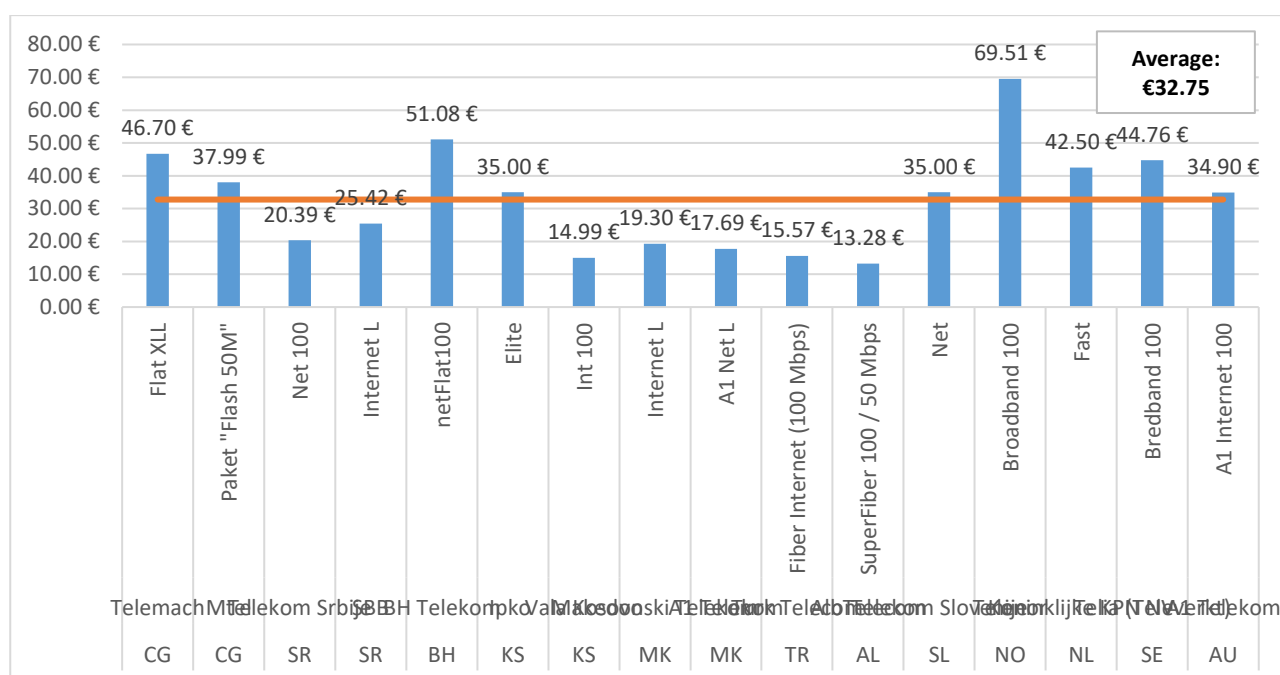


Comparative overview of standalone packages with the speed up to 50 Mbps of the operators in the European countries

- Average price of *standalone* package with the speed of up to 50 Mbps in the European countries amounts to €23.79.
- As it is evident from the chart, prices of *standalone* package with the speed of up to 50 Mbps in the broadband access is provided at a fixed location is from €14.10 for Fiber Internet (50 Mbps) package provided by Turk Telekom from Turkey up to €64.99 for Orion Net 20 package provided by Orion Telekom.
- Average price of these packages in the European countries is €23.79 being 17.19% higher than the price of Flat L package offered by Telemach, while the same average price is 62.39% higher than the price of ADSL FI@T 2 + dodatak Turbodsl package offered by Crnogorski Telekom, 63.40% lower than the price of Orion Net 20 package offered by Orion Telekom and 8.47% lower than the price of "Flash XL" package offered by Mtel.

Comparison of standalone packages of up to 100 Mbps in the European countries

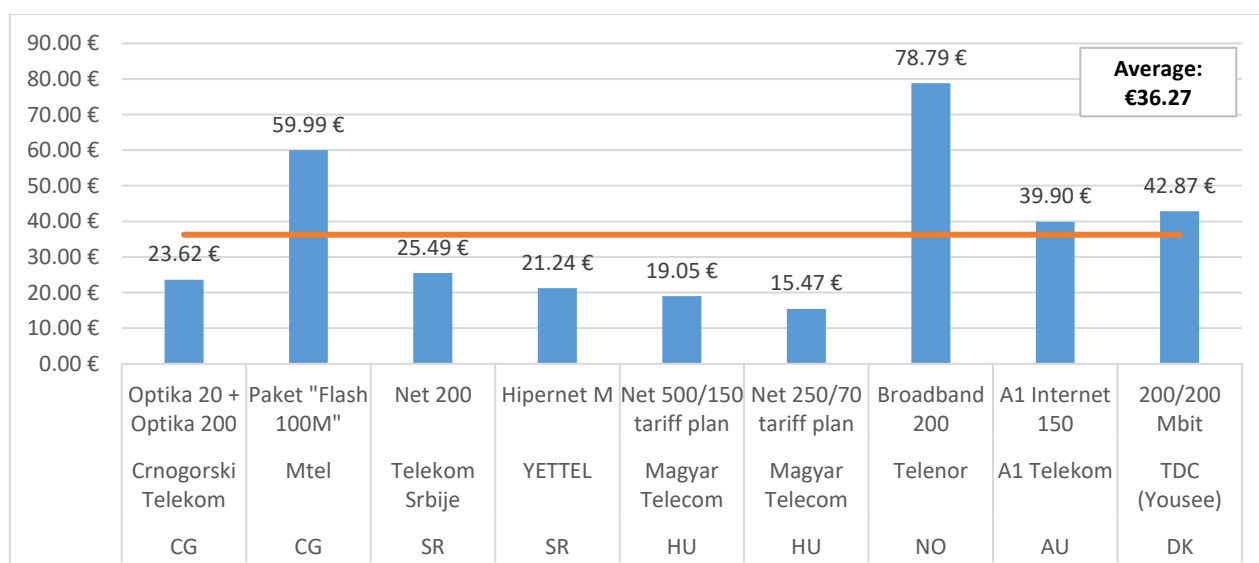
Standalone packages (only Internet) in fixed broadband access with the speed of up to 100 Mbps are offered by almost each operator in selected European countries, which are subject of this Analysis.



Comparative overview of standalone packages with the speed of up to 100 Mbps of the operators in the European countries

- Average price of *standalone* packages with the speed of up to 100 Mbps in the European countries is €32.75.
- As it is evident from the chart, prices of *standalone* packages with the speed of up to 100 Mbps in the broadband access provided at a fixed location are from €13.28 for SuperFiber 100 / 50 Mbps package provided by AlbTelekom from Albania to €69.51 for Broadband 100 package provided by Telenor from Norway.
- Average price of these packages in the European countries amounts to €32.75 which is 29.86% lower than the price offered by Telemach for Flat XLL package, and the same average price is 13.78% lower than the price of "Flash 50M" package offered by Mtel.

Comparison of standalone packages with the speed from 100 to 200 Mbps in the European countries

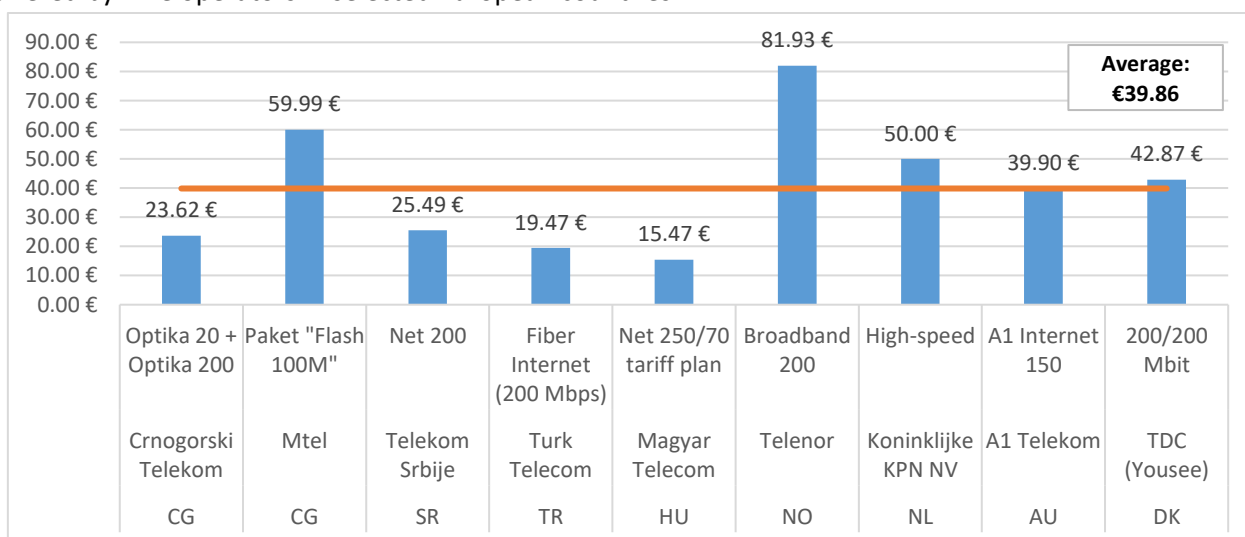


Average overview of standalone packages with the speed from 100 to 200 Mbps of the operators in the European countries

- Average price of *standalone* packages with the speed from 100 to 200 Mbps in the European countries is €36.27.
- As it is evident from the chart, prices of *standalone* packages with the speed from 100 to 200 Mbps in the broadband access provided at a fixed location are from €15.47 for Net 250/70 tariff plan package provided by Hungarian Telekom up to €78.79 for Broadband 200 package which is provided by Norway Telenor.
- Average price of these packages in the European countries is €36.27, being 53.55% more than the price of Optika 20 + Optika 200 package offered by Crnogorski Telekom, while the same average price is 39.54% lower than the price of "Flash 100M" package offered by Mtel.

Comparison of standalone packages with the speed of up to 200 Mbps in the European countries

Standalone packages (only Internet) in the fixed broadband access with the speed of up to 200 Mb/s are offered by nine operators in selected European countries.

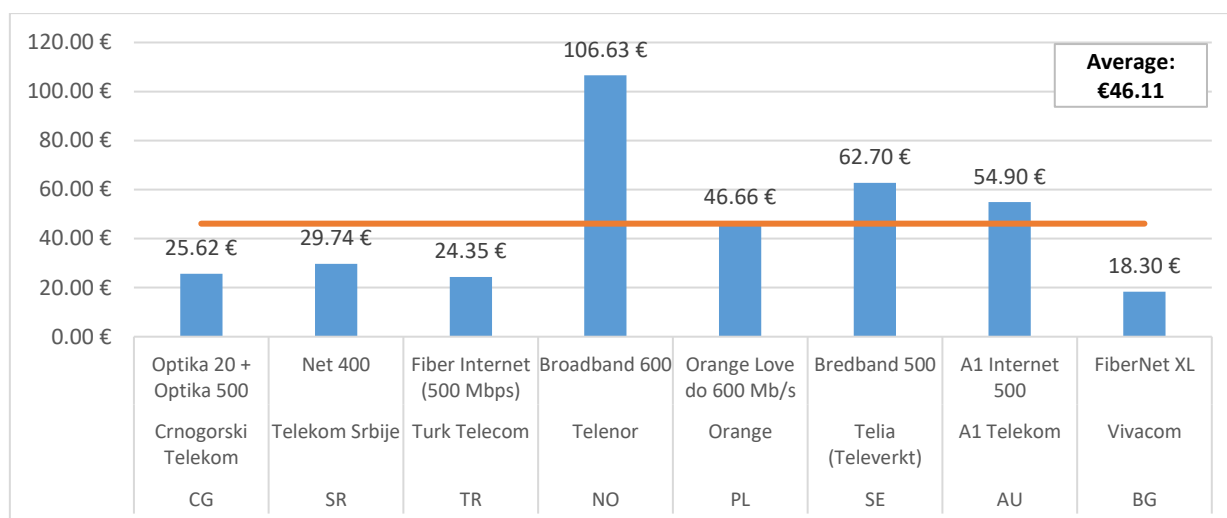


Comparative overview of standalone packages with the speed of up to 200 Mbps of the operators in the European countries

- Average price of *standalone* packages with the speed of up to 200 Mbps in the European countries is €39.86.
- *Standalone* packages with the speed of up to 200 Mbps are in the offer of Net 250/70 tariff plan from Hungary, with the lowest price of €15.47, up to Telenor from Norway with the price of €81.93.
- Average price of these packages in the European countries amounts to €39.86 and it is 68.76% higher than the price of Optika 20 + Optika 200 package offered by Crnogorski Telekom which is 33.55% lower than the price of Flash 100M package offered by Telemach.

Comparison of standalone packages with the speed from 400 to 600 Mbps in the European countries

Standalone packages (only Internet) in the fixed broadband access with the speed from 400 to 600 Mbps are in the offer of nine operators in selected European countries.



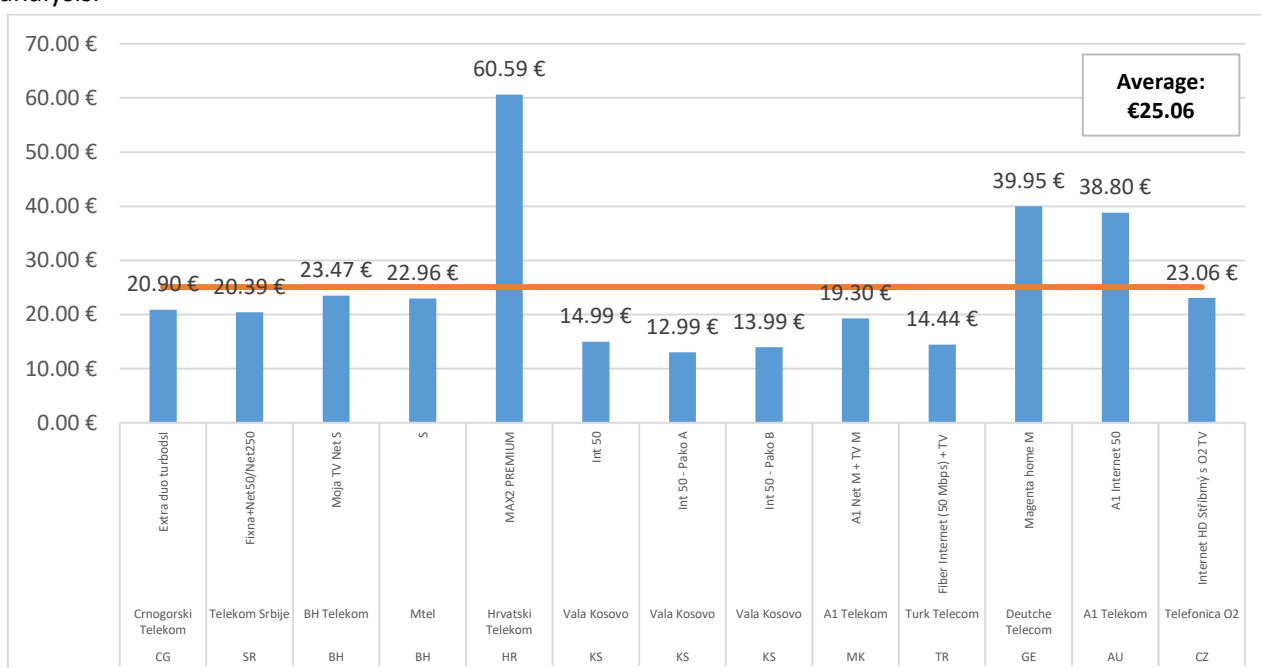
Comparative overview of standalone packages with the speed from 400 to 600 Mbps of the operators in the European countries

- Average price of *standalone* packages with the speed from 400 to 600 Mbps in the European countries is €46.11.
- As it is evident from the chart, prices of *standalone* packages with the speed from 400 to 600 Mbps are from €18.30 to €106.63.
- Average price of *standalone* packages in the European countries is €46.11, and is 79.99% higher than the prices of Optika 20 + Optika 500 package in the offer of Crnogorski Telekom.

1.6.4.2.2. Duo packages in the European countries

Comparison of duo packages of up to 50 Mbps in the European countries

Duo packages (Internet + fixed telephony or TV) in the fixed broadband access with the speed of up to 50 Mbps are in the offer of almost each operator in the European countries which are subject of the price analysis.

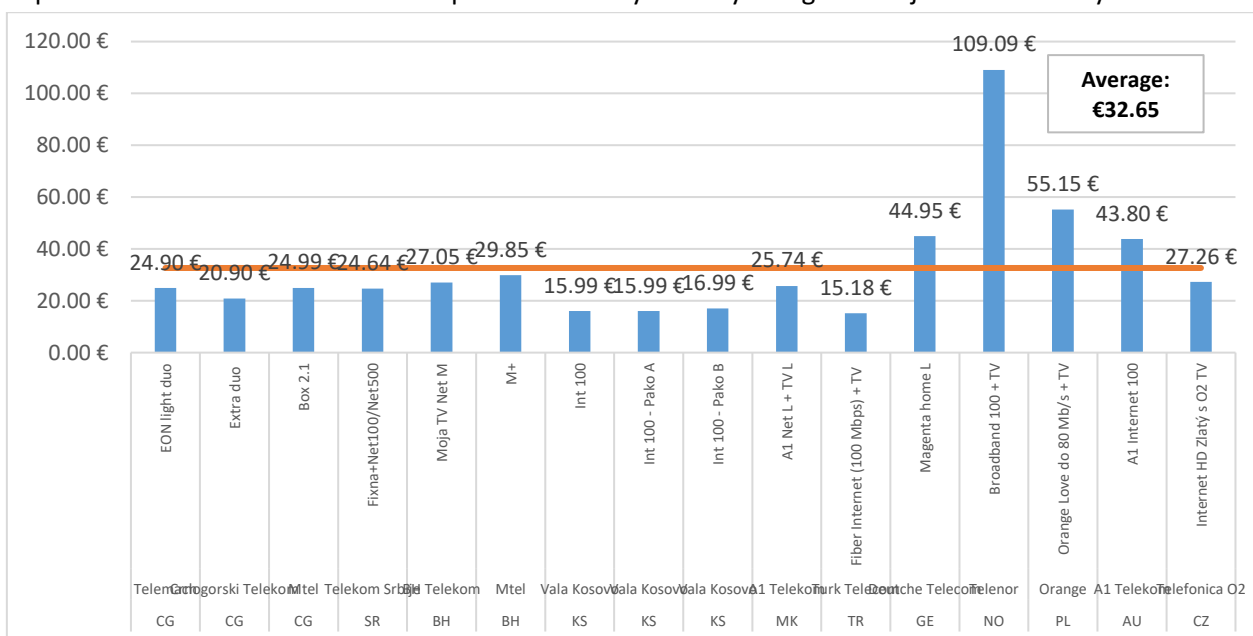


Comparative overview of duo packages with the speed of up to 50 Mbps of the operators in the European countries

- Average price of *duo* packages with the speed of up to 50 Mbps in the European countries amounts to €25.06.
- From the chart we see that the prices of *duo* package with the speed of up to 50 Mbps in the broadband access provided at a fixed location are from €12.99 for Int 50 - Pako A package provided by Vala Kosovo from Kosovo up to €60.59 for MAX2 Premium package which is in the offer of Hrvatski Telekom.
- Average price of *duo* package with the speed of up to 50 Mbps is €25.06 and is 19.92% higher than price of Extra duo turbodsl package offered by Crnogorski Telekom.

Comparison of duo packages of up to 100 Mbps in the European countries

Duo packages (Internet + fixed telephony or TV) in the fixed broadband access with the speed of up to 100 Mbps are in the offer of almost each operator of every country being the subject of this analysis.

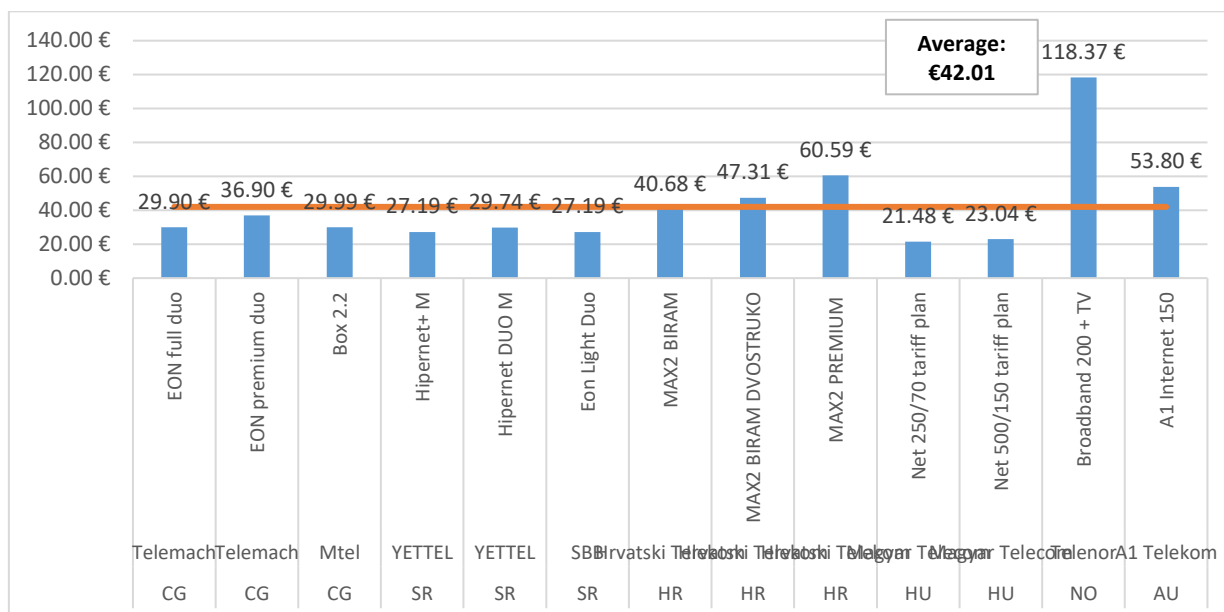


Comparative overview of duo packages with the speed of up to 100 Mbps of the operators in the European countries

- Average price of *duo* packages with the speed of up to 100 Mbps in the European countries amounts to €32.65.
- We see from the chart that the prices of *duo* packages with the speed of up to 100 Mbps in the broadband access provided at a fixed location are from €15.15 for Fiber Internet (100 Mbps) + TV package provided by Turk Telekom from Turkey up to €109.09 for Broadband 100 +TV package in the offer of Telenor from Norway.
- Average price of *duo* packages with the speed of up to 100 Mbps amounts to €32.65, being 56.24% more than the price of Extra Duo package offered by Crnogorski Telekom, while the same average price is 31.14% higher than the price of EON light duo package offered by Telemach and is 30.67% higher than the price of Box 2.1 package offered by Mtel.

Comparison of duo packages with the speed from 100 to 200 Mbps in the European countries

Duo packages (Internet + fixed telephony or TV) in the fixed broadband access with the speed from 100 to 200 Mbps are in the offer of eight operators in the European countries which are subject of this Analysis.

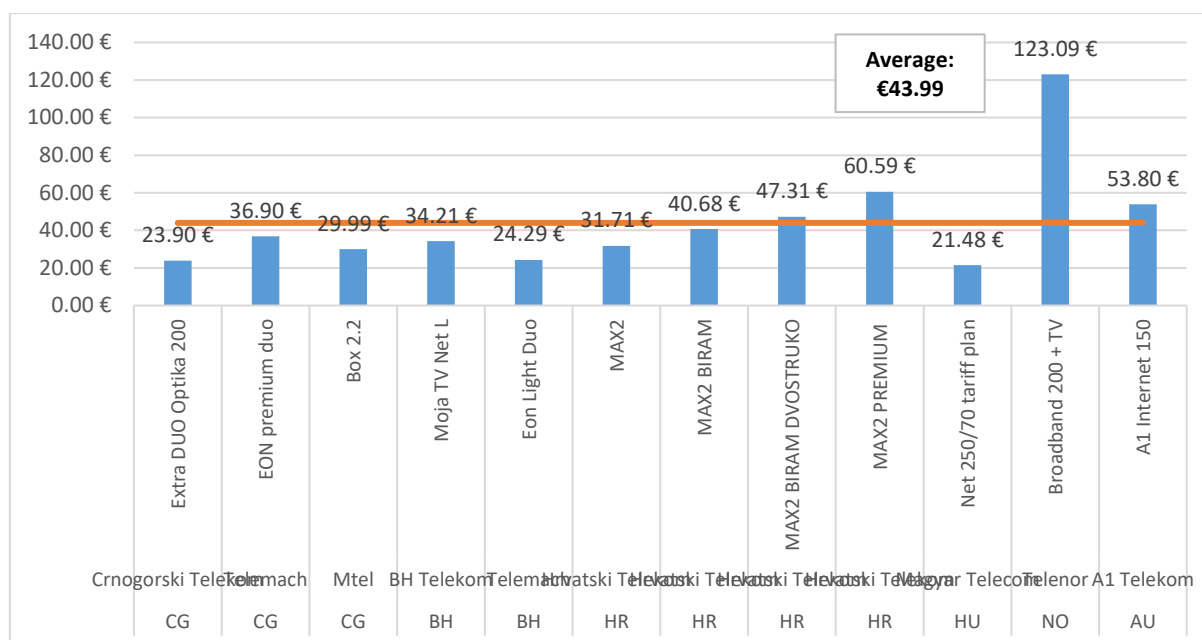


Comparative overview of duo packages with the speed from 100 to 200 Mbps of the operators in the European countries

- Average price of *duo* packages with the speed from 100 to 200 Mbps in the European countries amounts to €42.01.
- It is evident from the chart that *duo* package with the speed from 100 to 200 Mbps in the broadband access provided at a fixed location are from €21.48 offered by Yettel Hungarian Telekom up to €118.37 which is the amount that needs to be paid for Broadband 200 + TV package of Telenor from Norway.
- Average price of *duo* package with the speed from 100 to 200 Mbps amounts to €42.01 being 40.51% higher than the price of EON full duo package offered by Telemach, while the same average price is 13.86% higher than the price of EON Premium Duo package of Telemach and 40.09% higher than the price of Box 2.2 package offered by Mtel.

Comparison of duo packages with the speed of up to 200 Mbps in the European countries

Duo packages (Internet + fixed telephony or TV) with the speed of up to 200 Mbps are in the offer of three operators in the neighbouring countries and operators in the European countries.

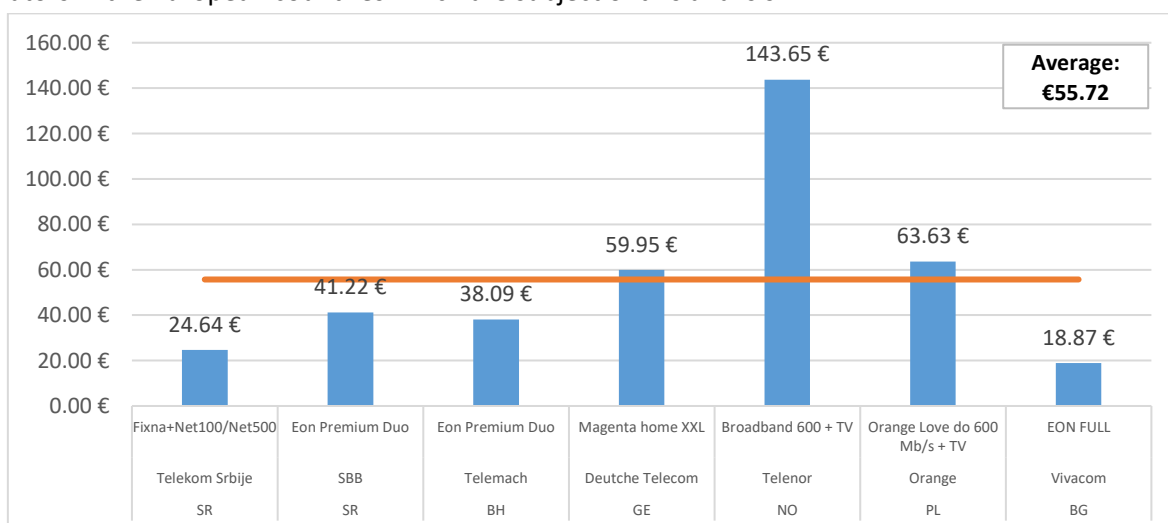


Comparative overview of duo packages with the speed of up to 200 Mbps for the operators in the European countries

- Average price of *duo* packages with the speed of up to 200 Mbps in the European countries amounts to €43.99.
- It is evident from the chart that the prices of *duo* packages with the speed of up to 200 Mbps in the broadband access provided at a fixed location are from €21.48 in the offer of Hungarian Telekom, up to €123.09 which is the price of Broadband 200 + TV package of Telenor from Norway.
- Average price of *duo* packages in the European countries is €43.99, being 84.08% higher than the package price of Extra DUO Optika 200 offered by Crnogorski Telekom, while an average price in Europe is 19.23% higher than the price of EON light duo package of Telemach and 46.70% higher than the price of Box 2.2 package offered by Mtel.

Comparison of duo packages with the speed from 400 to 600 Mbps in the European countries

Duo package (Internet + fixed telephony or TV) with the speed from 400 to 600 Mbps is in the offer of 7 operators in the European countries which are subject of this analysis.



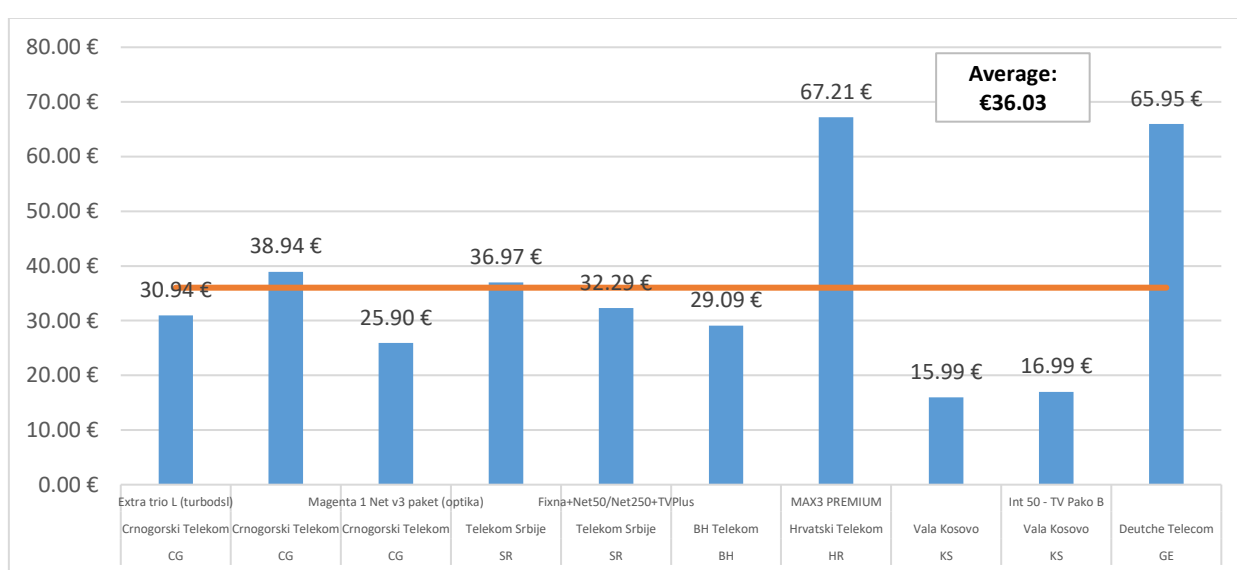
Comparative overview of duo packages with the speed from 400 to 600 Mbps of the operators in European countries

- Average price of *duo* packages with the speed from 400 to 600 Mbps in the European countries amounts to €55.72.
- Duo packages with the speed from 400 to 600 Mbps are offered by operators of Serbia and Bosnia and Herzegovina and by 4 operators in Europe.

1.6.4.2.3 Trio packages in the European countries

Comparison of trio packages of up to 50 Mbps in the European countries

Trio packages (Internet + fixed telephony + TV) in the fixed broadband access is in the offer of each operator in every country being the subject of this analysis.

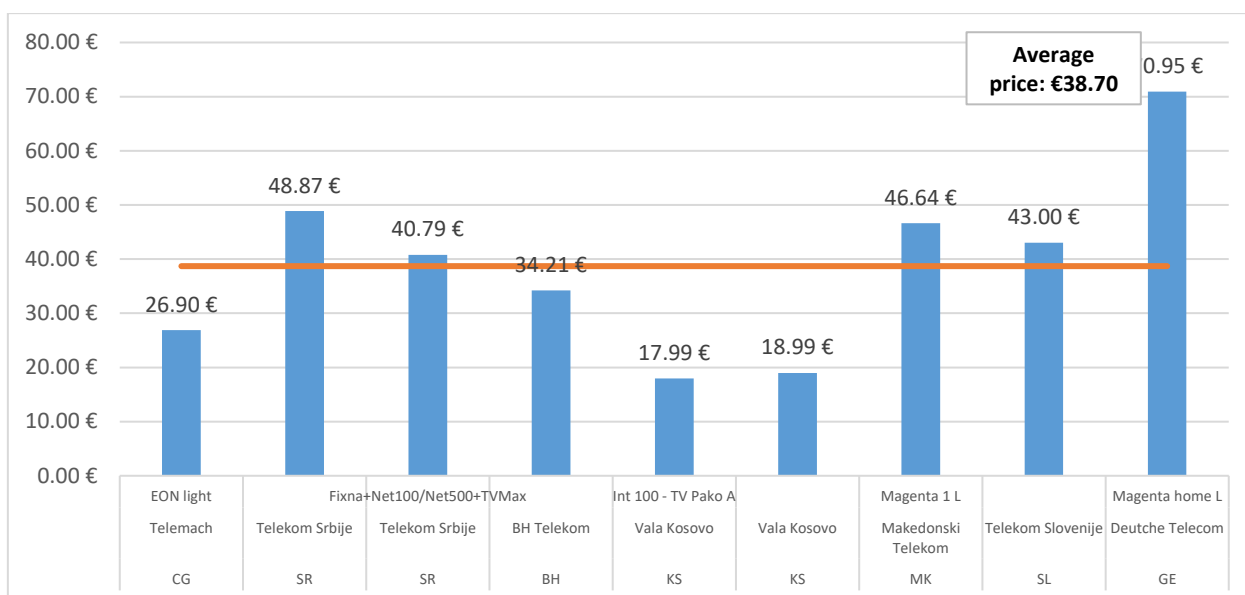


Comparative overview of trio packages with the speed of up to 50 Mbps of the operators in the European countries

- Average price of *trio* packages with the speed of up to 50 Mbps in the European countries is €36.03.
- It is evident from the chart that the prices of *trio* packages with the speed of up to 50 Mbps in the broadband access provided at a fixed location are from €15.99 for the package offered by Vala Kosovo up to €67.21 for MAX3 Premium package offered by Hrvatski Telekom.
- Average price of *trio* package amounts to €36.03 and it is 7.48% lower than the price of Extra trio XL (turbodsl) package offered by Crnogorski Telekom, while the same average price is 16.44% higher than the price of Extra trio L (turbodsl) package offered by Crnogorski Telekom and 39.10% higher than the price of Magenta 1 Net v3 package of Crnogorski Telekom.

Comparison of trio packages of up to 100 Mbps in the European countries

Trio packages (Internet + fixed telephony + TV) in the fixed broadband access with the speed of up to 100 Mbps are in the offer of the operators in almost each country being the subject of this analysis.

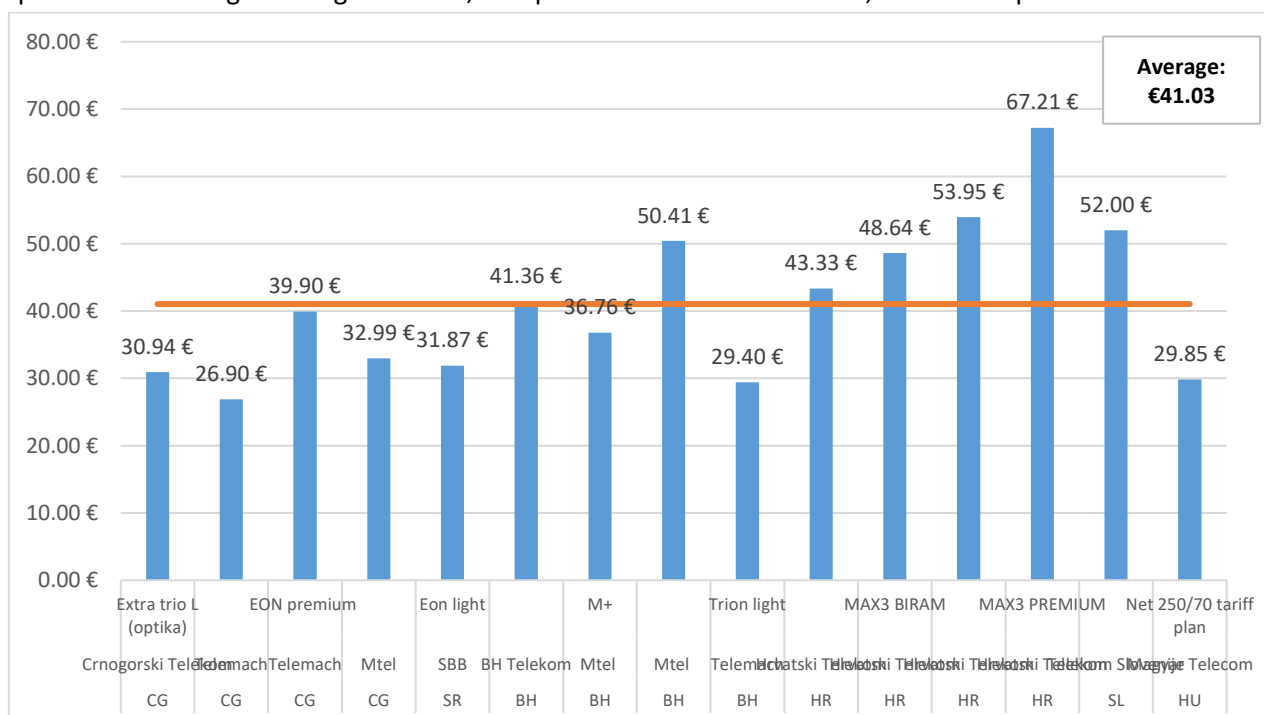


Comparative overview of trio packages with the speed of up to 100 Mbps of the operators in the European countries

- Average price of *trio* packages with the speed of up to 100 Mbps in the European countries is €38.70.
- It is evident from the chart that the prices of *trio* packages with the speed of up to 100 Mbps in the broadband access provided at a fixed location are from €17.99 for Int 100 - TV Pako A package offered by Vala Kosovo from Kosovo up to €70.95 for Magenta home L package offered by Deutsche Telekom from Germany.
- Average price of *trio* package amounts to €38.70 and it is 43.88% higher than the price of EON light package offered by Telemach.

Comparison of trio packages with the speed of up to 200 Mbps in the European countries

Trio packages (Internet + fixed telephony + TV) with the speed of up to 200 Mbps are in the offer of each operator in the neighbouring countries, except for Macedonian Telekom, and in Europe.

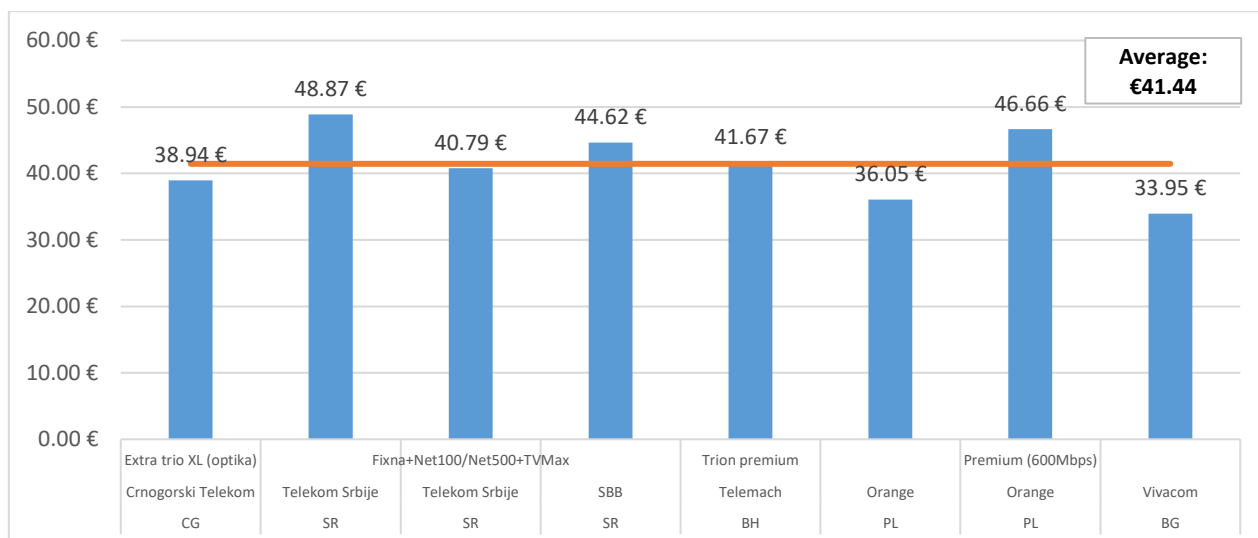


Comparative overview of trio packages with the speed of up to 200 Mbps of the operators in the European countries

- Average price of *trio* packages with the access speed of up to 200 Mbps in the European countries is €41.03.
- It is evident from the chart that the prices of *trio* packages with the speed of up to 200 Mbps in the broadband access provided at a fixed location are from €26.90 for EON light package offered by Telemach, up to €67.21 for MAX3 PREMIUM package offered by Hrvatski Telekom.
- Average price of *trio* packages with the speed of up to 200 Mbps is €41.03 which is 2.84% more than the price of EON premium package offered by Telemach, while an average price in Europe is 32.63% higher than the price of Extra Trio L (fiber) package of Crnogorski Telekom, 52.54% higher than the price of EON light package of Telemach and 24.38% higher than price of Box 3.2 package offered by Mtel.

Comparison of trio packages with the speed from 400 to 600 Mbps in the European countries

Trio packages (Internet + fixed telephony + TV) with the speed from 400 to 600 Mbps are offered by the operators in Montenegro, Serbia and Bosnia and Herzegovina, and by two operators from the European countries.

**Comparative overview of trio packages with the speed from 400 to 600 Mbps of the operators in the European countries**

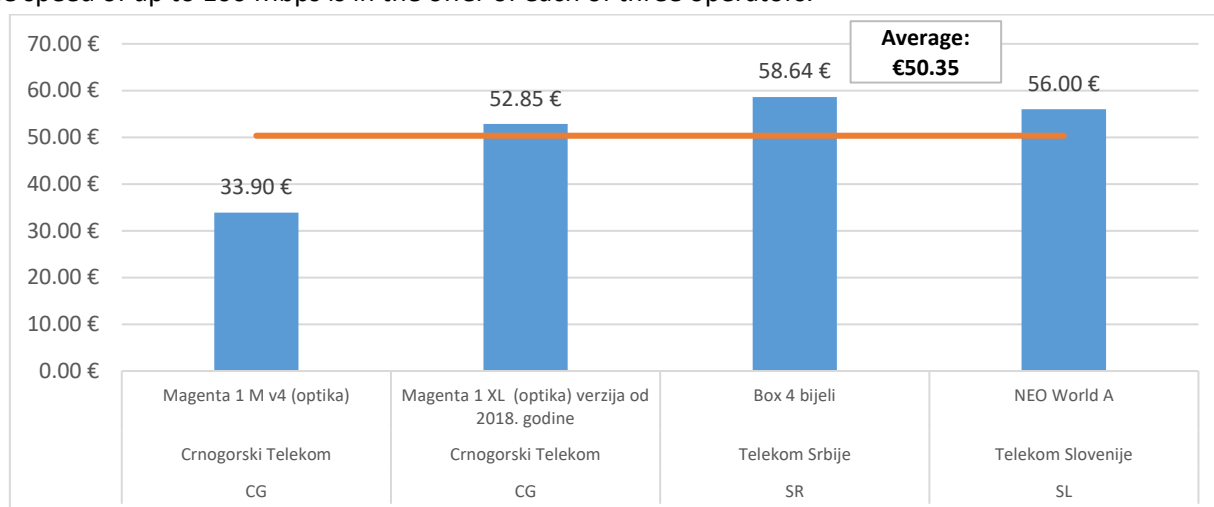
- Average price of *trio* packages with the speed from 400 to 600 Mbps in the European countries amounts to €41.44;
- As it is evident from the chart, prices of *trio* packages with the speed from 400 to 600 Mbps are from €33.95 to €48.87;
- Average price of *trio* packages in the European countries amounts to €41.44 and is 6.43% higher than the price of Extra trio XL (fiber) package in the offer of Crnogorski Telekom.

1.6.4.2.4. Quadro packages in the European countries

Comparison of quadro packages with the speed of up to 50 Mbps in the fixed broadband access is in the offer of the operators in selected European countries, so it was not possible to compare the prices.

Comparison of quadro packages of up to 100 Mbps in the European countries

Quadro packages (Internet + fixed telephony + TV + mobile telephony) in the fixed broadband access with the speed of up to 100 Mbps is in the offer of each of three operators.

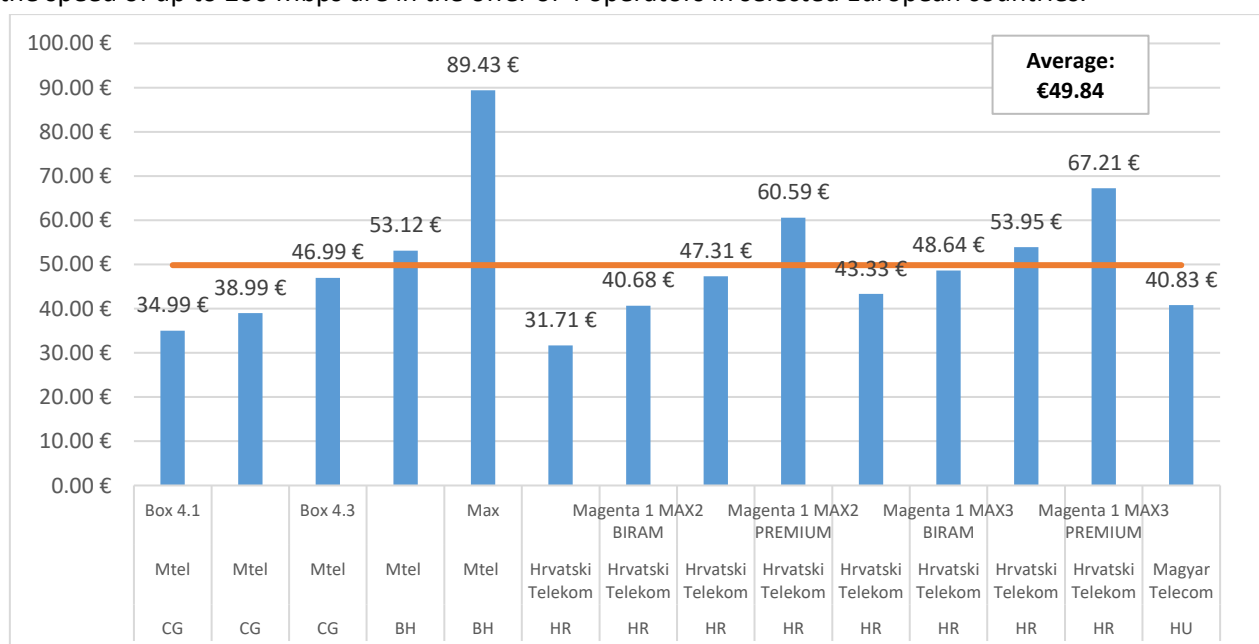


Comparative overview of quadro packages of the operators with the speed of up to 100 Mbps in the European countries

- Average price of *quadro* packages with the speed of up to 100 Mbps in the Europe amounts to €50.35.
- It is clear from the chart that the prices of *quadro* packages with the speed of up to 100 Mbps in the broadband access provided at a fixed location are from €33.90 for Magenta 1M v4 (fiber) up to €58.64 for Box 4 white offered by Telekom Srbija.
- Average price of *quadro* packages in the European countries is €50.35, being 48.52% higher than the price of Magenta 1 M v4 (fiber) package offered by Crnogorski Telekom, and 4.73% lower than the price of Magenta 1XL (fiber) package of Crnogorski Telekom.

Comparison of quadro packages with the speed of up to 200 Mbps in the European countries

Quadro packages (Internet + fixed telephony + TV + mobile telephony) in the fixed broadband access with the speed of up to 200 Mbps are in the offer of 4 operators in selected European countries.



Comparative overview of quadro packages with the speed of up to 200 Mb/s in the European countries

- Average price of *quadro* packages with the speed of up to 200 Mbps in the European countries is €49.84.
- We can see from the chart that the prices of *quadro* packages with the speed of up to 200 Mbps in the broadband access provided at a fixed location are from €25.06 for Magenta 1 MAX2 in the offer of Hrvatski Telekom up to €89.43 for Max which is offered by BH Telekom.
- Average price of *quadro* packages in the European countries is €49.84, that is 42.44% more than the price of BOX 4.1 package, while an average price in Europe is 27.83%, higher than the price of Box 4.2, and 6.07% more than the price of BOX 4.3 package in the offer of Mtel.

Comparison of quadro packages with the speed from 400 to 600 Mbps in the European countries

Quadro packages with the speed from 400 to 600 Mbps are in the offer of Crnogorski Telekom and Telekom Srbija.

Packages of broadband Internet access provided at a fixed location with the speed of up to 1000 Mbps in the European countries

Broadband Internet access with the speed of up to 1000 Mbps are in the offer of Telekom Srbija for standalone package Net1000 (at the price of €76.49) and quadro package of Telekom Srbija Box4 zlatni Quadro (at the price of €84.99).

In Montenegro, Telemach offers the package with access speed of up to 1000 Mbps, only at three locations: Bar, Podgorica and Nikšić (as addition to Neon package). In some European countries, the operators offer the speed of up to 1000 Mbps, but these are mostly *bundle* packages (*trio* and *quadro* packages).

1.6.4.3. Comparison of package prices of fixed Internet broadband access in Montenegro (standalone, duo, trio and quadro packages) according to the criterion – Internet access speed

Internet broadband access services are offered in Montenegro market by: Crnogorski Telekom, Mtel and Telemach. In the offer of Crnogorski Telekom are *standalone*, *duo*, *trio* and *quadro* packages with download speed from 2 Mbps (ADSL FI@T 2 package) up to 500 Mbps (Magenta 1 XL v4). Details of package offer of Crnogorski Telekom are given in the Table below.

Overview of all Internet packages (standalone, duo, trio and quadro) of Crnogorski Telekom

Package name + addition	Speed	Price
Standalone packages		
ADSL FI@T 2	Up to 2 Mbps / 256 kbps	€11.66
Optika 20	Up to 20 Mbps / 1 Mb/s	€20.67
ADSL FI@T 2 + dodatak Turbodsl	Speed up to 40/5 Mbps	11.66 + 2.99 = €14.65
Optika 20 + Optika 200	Speed up to 200/10 Mbps	20.67 + 2.95 = €23.62
Optika 20 + Optika 500	Speed up to 500/50 Mbps	20.67 + 4.95 = €25.62
Extra Duo package (Internet + fixed telephony)		
Extra duo	Speed up to 100/20 Mbps	€20.90
Extra DUO Optika 200	Speed up to 200/20Mbps	€23.90
Extra Trio packages (Internet + fixed telephony+Extra TV)		

Extra Trio M	ADSL: up to 4/1 Mbps Hybrid: ADSL + 200 GB VDSL: up to 40/2 Mbps Fiber: up to 100/10 Mbps	€26.94
Extra Trio L	ADSL: do 5/1 Mbps Hybrid: ADSL + 200 GB VDSL: up to 40/4 Mbps Fiber: up to 200/20 Mbps	€30.94
Extra Trio XL	ADSL: up to 10/1 Mbps Hybrid: ADSL + 200 GB VDSL: up to 40/4 Mbps Fiber: do 500/50 Mbps	€38.94
Quadro packages (Internet + fixed telephony+Extra TV+mobile telephony)		
Magenta 1 M	ADSL: 4 /1 Mbps turboDSL: 20/2 Mbps or Fiber: 40/4 Mbps	€31.85
Magenta 1 L	ADSL: 5/1 Mb/s ili turboDSL: 20/2 Mb/s ili Fiber: 60/20 Mbps	€38.85
Magenta 1 XL	ADSL: 10/1 Mbps turboDSL: 40/2 Mbps or Fiber: 100/30 Mbps	€52.85
Magenta 1 M v4	ADSL: 4/1 Mbps turboDSL: 20/2 Mbps Fiber: 100/10 Mbps	€33.90
Magenta 1 L v4	ADSL: 5/1 Mbps turboDSL: 20/2 Mbps Fiber: 300/30 Mbps	€40.90
Magenta 1 XL v4	ADSL: 10/1 Mbps turboDSL: 40/4 Mbps Fiber: 500/50 Mbps	€54.90

In Mtel offer are *standalone*, *duo*, *trio* and *quadro* packages with *download speed* from 40 Mbps (FLASH L package) up to 200 Mbps (BOX 4.3). Details of Mtel package offer are given in the Table below.

Overview of all Internet packages (standalone, duo, trio and quadro) of Mtel

Package name	Speed	Monthly subscription for 12 months	Monthly subscription for 24 months
Standalone packages			
FLASH L	40 Mbps / 2 Mbps or 50 Mbps / 3 Mbps	€23.99	€21.99
FLASH XL	50 Mbps / 3 Mbps or 60 Mbps / 4 Mbps	€27.99	€25.99
FLASH 50M	100 Mbps / 10 Mbps	€39.99	€37.99
FLASH 100M	120 Mbps / 10 Mbps or 200 Mbps / 20 Mbps	€61.99	€59.99
BOX duo packages (Internet and TV)			
BOX 2.1	100/4 Mbps or 120/4 Mbps	€28.99	€24.99
BOX 2.2	120/4 Mbps or 160/6 Mbps	€33.99	€29.99
BOX trio packages (Internet, TV and fixed telephony)			

BOX 3.1	120/4 Mbps or 140/4 Mbps	€32.99	€27.99
BOX 3.2	140/4 Mbps or 180/6 Mbps	€37.99	€32.99
BOX all paket (Internet + fixed telephony + TV + mobile telephony)			
BOX 4.1	140/6 Mbps or 200/20 Mbps	€49.89	34.99 €
BOX 4.2	140/6 Mbps or 200/20 Mbps	€53.89	38.99 €
BOX 4.3	140/6 Mbps or 200/20 Mbps	€67.89	46.99 €

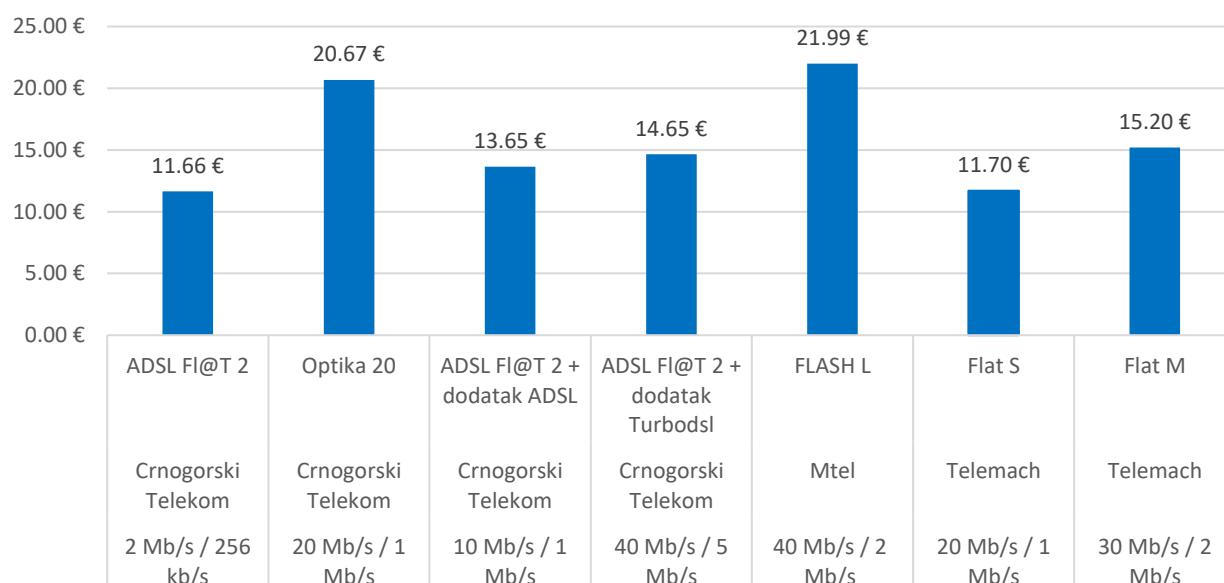
In the offer of Telemach are standalone, duo and trio packages with download speed from 20 Mbps (Flat S package) up to 200 Mbps (EON Premium). Details of package offer of Telemach are given in the Table below.

Overview of all Internet packages (standalone, duo and trio) of Telemach

Package name	Speed	Flow	Price
Standalone packages			
Flat S	20 Mbps / 1 Mbps	Flat	€11.70
Flat M	30 Mbps / 2 Mbps	Flat	€15.20
Flat L	50 Mbps / 3 Mbps	Flat	€20.30
Flat XL	80 Mbps / 5 Mbps	Flat	€33.50
Flat XXL	100 Mbps / 6 Mbps	Flat	€46.70
EON DUO packages (Internet and TV)			
EON LIGHT DUO	100 Mbps / 3 Mbps	Flat	€24.90
EON FULL DUO	120 Mbps / 4 Mbps	Flat	€29.90
EON PREMIUM DUO	150 Mbps / 5 Mbps	Flat	€36.90
EON packages (Internet, TV and fixed telephony)			
EON LIGHT	100 Mbps / 4 Mbps	Flat	€26.90
EON FULL	150 Mbps / 6 Mbps	Flat	€32.90
EON PREMIUM	200 Mbps / 10 Mbps	Flat	€39.90

Telemach offers the speed of 1 Gbps in Bar, Podgorica and Nikšić, and the speed of up to 200 Mbps in other towns. Speed of 1 Gbps is still not available as an official offer in the whole territory of Montenegro.

Comparison of the prices of standalone packages with maximum speed of up to 50 Mbps in Montenegro

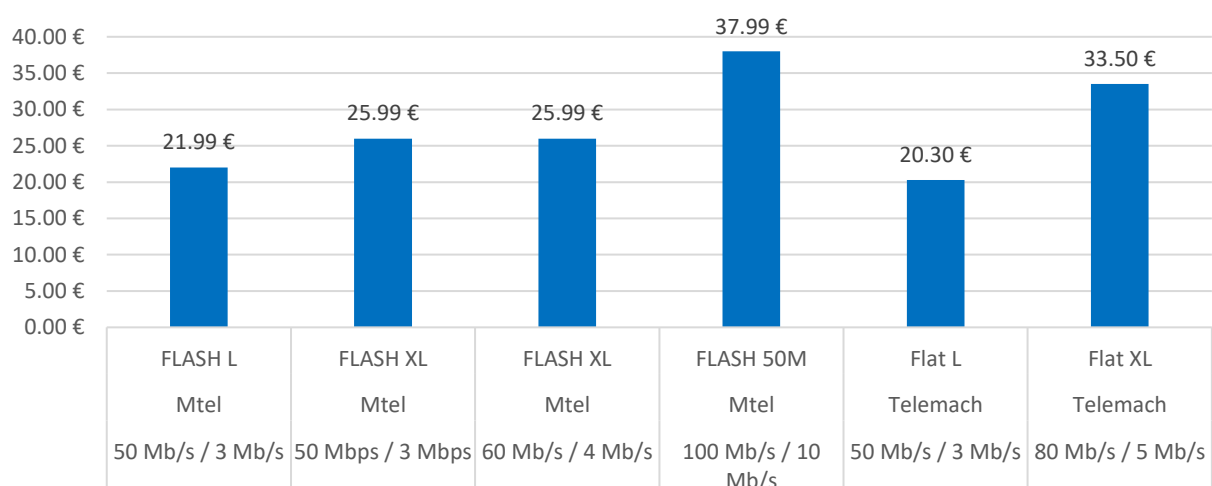


Comparative overview of the prices of *standalone* packages with maximum speed of up to 50 Mbps in Montenegro

Average price of *standalone* packages with maximum speed of up to 50 Mbps in Montenegro amounts to €15.64.

Crnogorski Telekom offers Optika 20 package at the price of €20.67 with *download* speed of 20 Mbps, and the price of Telemacha Flat S package with the same *download* speed is 43.40% lower than Optika 20 package from the offer of Crnogorski Telekom. Mtel offers Flash L package with *download* speed of 40 Mbps almost at the same price as it is the price of Crnogorski Telekom within the package of Optika 20 which has a twice lower *download* price.

Comparison of the prices of *standalone* packages with maximum speed from 50 to 100 Mbps in Montenegro

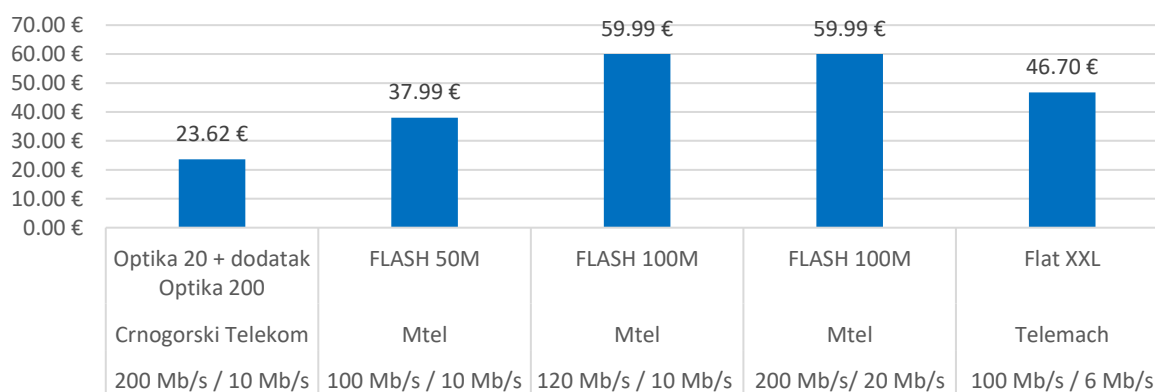


Comparative overview of the prices of *standalone* packages with maximum speed from 50 to 100 Mbps in Montenegro

Average price of *standalone* packages with maximum *download* speed from 50 to 100 Mbps in Montenegro amounts to €27.63.

Telemach offers Flat L package with *download* speed of 50 Mbps at the price of €20.30 which is 21.89% lower than Flash XL package from Mtel offer, and the package includes the same *download* speed. Flat L from Telemach offer is the most affordable package in the category of *standalone* package with maximum speed from 50 to 100 Mbps at €20.30.

Comparison of the price of *standalone* packages with maximum speed higher than 100 Mbps in Montenegro

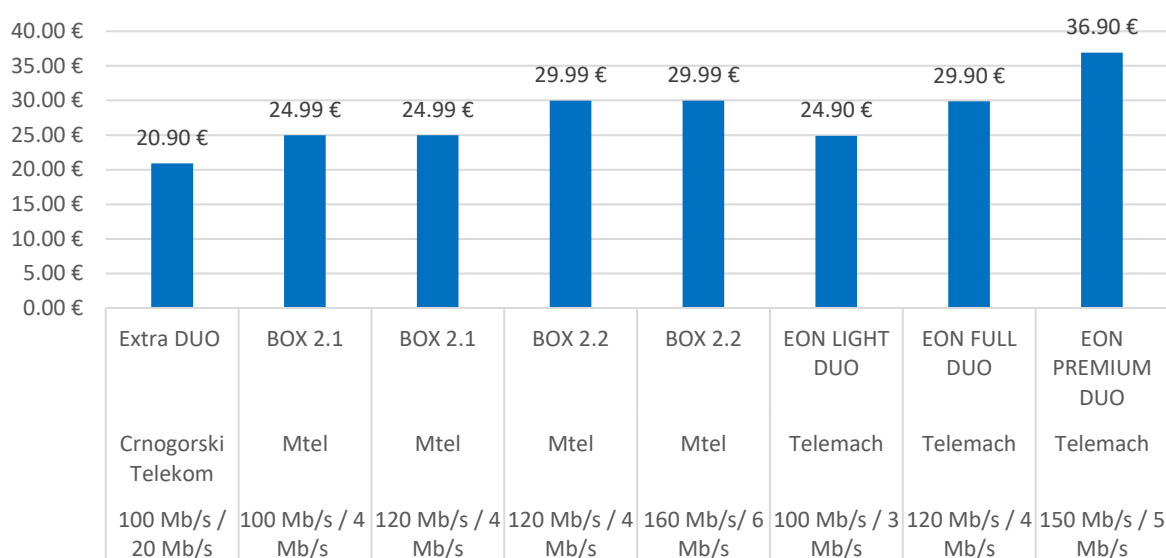


Comparative overview of the the price of *standalone* packages with maximum speed higher than 100 Mbps in Montenegro

Average price of *standalone* package with maximum *download* speed higher than 100 Mbps in Montenegro

Package of Crnogorski Telekom of Optika 20 + dodatak Optika 200 with *download* speed of 200 Mbps at €23.62 is the cheapest package in the category of *standalone* packages with maximum speed higher than 200 Mbps and offers 60.63% lower price than the price of Flash 100M package with the same speed from Mtel offer.

Comparison of the price of *duo* packages with maximum speed higher than 100 Mbps in Montenegro



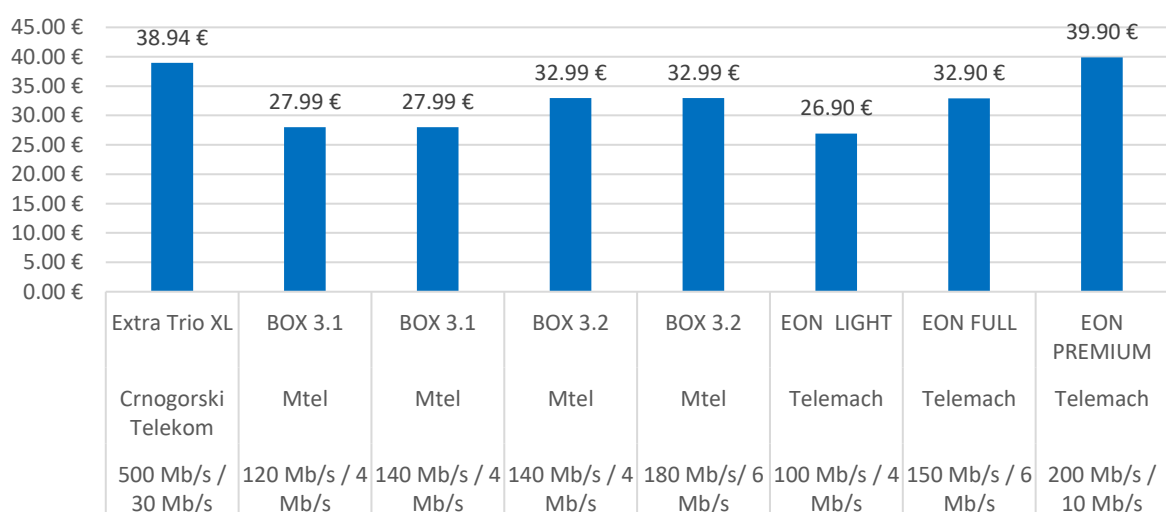
Comparative overview of the price of *duo* packages with maximum speed higher than 100 Mbps in Montenegro

Average price of *duo* packages with maximum *download* speed higher than 100 Mbps in Montenegro amounts to €27.82.

Extra DUO package of Crnogorski Telekom with *download* speed of 100 Mbps at €20.90 is the cheapest package in the category of *duo* packages with maximum speed higher than 100Mbps.

Extra DUO of Crnogorski Telekom with maximum speed higher than 100 Mbps at €20.90 is in the offer at 16.37% lower price than the price of package BOX 2.1 from Mtel offer which includes the same *download* speed, and 16.06% lower price than the price of EON LIGHT DUO package from Telemach offer with the same *download* price.

Comparison of the price of *trio* packages with maximum speed higher than 100 Mbps + in Montenegro

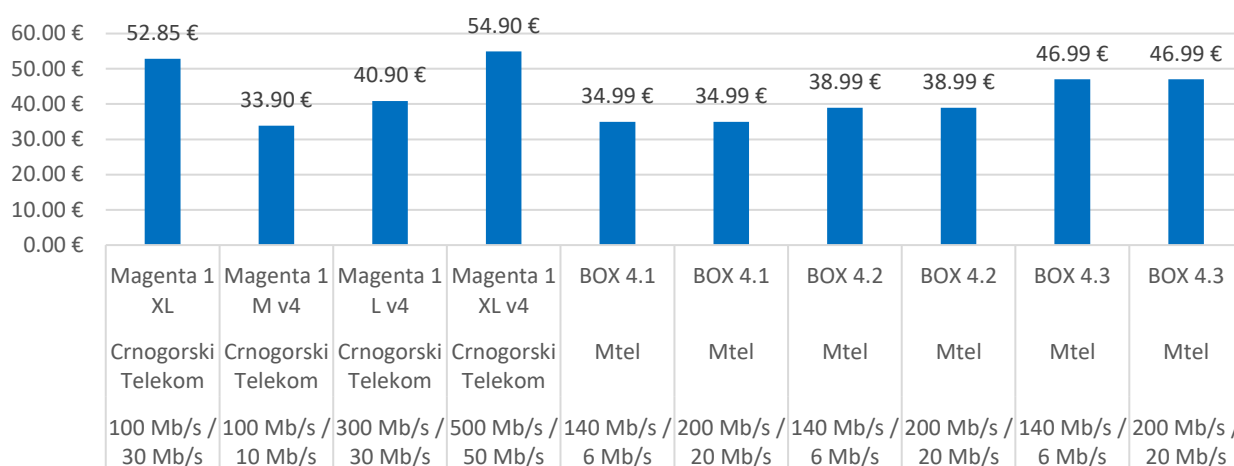


Comparative overview of the price of *trio* packages with maximum speed higher than 100 Mbps + in Montenegro

Average price of *trio* package with maximum *download* speed higher than 100 Mbps in Montenegro amounts to €32.58. Extra EON LIGHT package of Telemach with download speed of 100 Mbps at €26.90 is the cheapest package in the category of *trio* packages with maximum speed higher than 100 Mbps.

EON LIGHT package of Telemach with maximum speed higher than 100 Mbps at €26.90 offers a 3.89% lower price than BOX 3.1 package from Mtel offer which offers higher speeds i.e. the speeds from 120 Mbps or 140 Mbps (depending on technology availability) at slightly higher price.

Average price of *quadro* packages with maximum speed higher than 100 Mbps + in Montenegro



Comparative overview of *quadro* packages with maximum speed higher than 100 Mbps in Montenegro

Average price of *quadro* packages with maximum download speed higher than 100 Mbps in Montenegro amounts to €42.45.

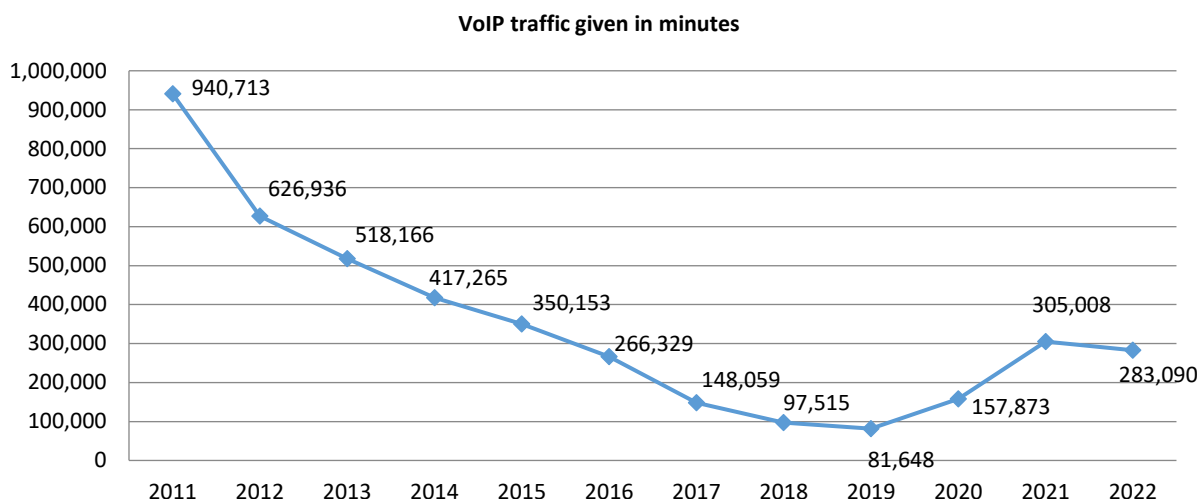
Extra Magenta 1 M v4 package of Crnogorski Telekom with *download* speed of 100 Mbps at €33.90 is the cheapest package in the category of *quadro* packages with maximum speed higher than 100 Mbps.

Extra Magenta 1 M v4 package of Crnogorski Telekom with *download* speed of 100 Mbps at €33.90 offers 3.12% lower price than BOX 4.1 from Mtel offer, while mentioned package offers the speed of 140 Mbps or 200 Mbps (depending on technology availability) at slightly higher price.

1.7. VoIP service market

During 2022, VoIP services (*Voice over Internet Protocol*) was provided by IPMont. At the end of 2022 IPMont had 15 users. Through IPMont 283.090 minutes of traffic was realized, which is 7.20% less in relations to VoIP traffic in 2021. Out of total traffic 1.93% was realized to international destinations, and 98.07% was national traffic. IPMont leased Internet link of 525Mb/s from Mtel and 10Mb/s from Akton.

In the following graph is presented VoIP traffic generated in the period 2011-2022.



1.8. Market of leased lines

Leased lines are significant public electronic communications service, especially for business users. These lines are intended for connecting locations of business users, whether they are in the country or in several countries, through leased lines of constant and symmetric capacity. Besides, leased lines are the basis for development of alternative operators which directly or indirectly compete with incumbent operator.

In 2022, leased line services at the market of Montenegro were provided by the following operators of public electronic communications services:

- Crnogorski Telekom,
- Mtel,
- Radio-difuzni centar,
- One Crna Gora,
- IPmont.

Except for Radio-difuzni centar which provides leased line service through microwave links, for the provision of leased line services, other operators mostly use optic fibres as physical transmission medium. That is why these operators are able to meet the requests for great capacities of leased lines, both in that country and to other countries.

In most of European countries, the operators which are developed within electricity and railway companies are highly competitive with the incumbent operator. The operator which is registered for providing services of leased lines in Montenegro is Crnogorski elektroprenosni sistem (CGES) which laid optical cables and installed broadcasting system equipment, but still hasn't started the provision of leased line services.

1.8.1. Prices of leased line services

During 2022, there were no changes in the prices of leased lines at retail level of Crnogorski Telekom which is the operator with the highest capacities for the provision of leased line services at the market. Applicable prices of leased lines at retail level, which during 2012, upon request of the Agency, applied Crnogorski

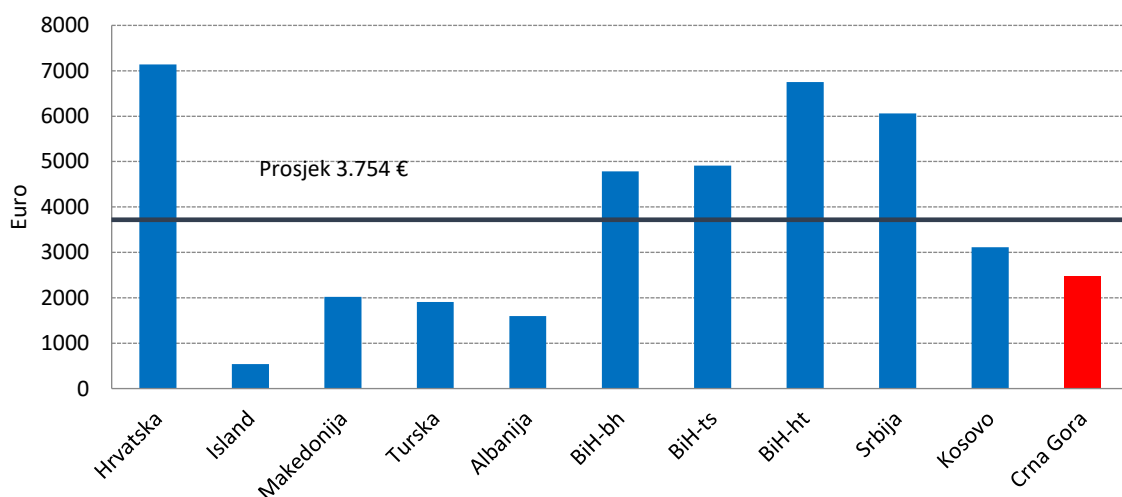
Telekom, as the leader in delivering that service with regard to the number of leased lines and total capacities of leased lines, were also applicable in 2022.

As for the wholesale level of leased lines in the same respective period, there have been changes in the prices of these services (for certain capacities of leased lines). Crnogorski Telekom, as an operator with significant market power at the relevant wholesale market of high quality approach provided at fixed location, started to apply lower prices of the services of leased lines at the wholesale level, for the mentioned capacities. New prices are 20% lower than previously applicable prices of these services.

For comparing the prices of leased lines with the prices in the neighbouring countries, data from Report IV were used: Supply of services in monitoring regulatory and market developments for electronic communications and information society services in Enlargement Countries, February 2014. This Report is prepared by consultant company Cullen International for the needs of the European Commission and is the last comparative report with the prices of leased line services in the countries of the region. Comparative prices prove annual prices of leased lines at retail level and do not include VAT and one-time fees.

In the chart below is given a comparative overview of the prices of leased lines of 2Mbps capacity, 2 km long:

Annual prices of leased line services of 2Mbps capacity, with 2km

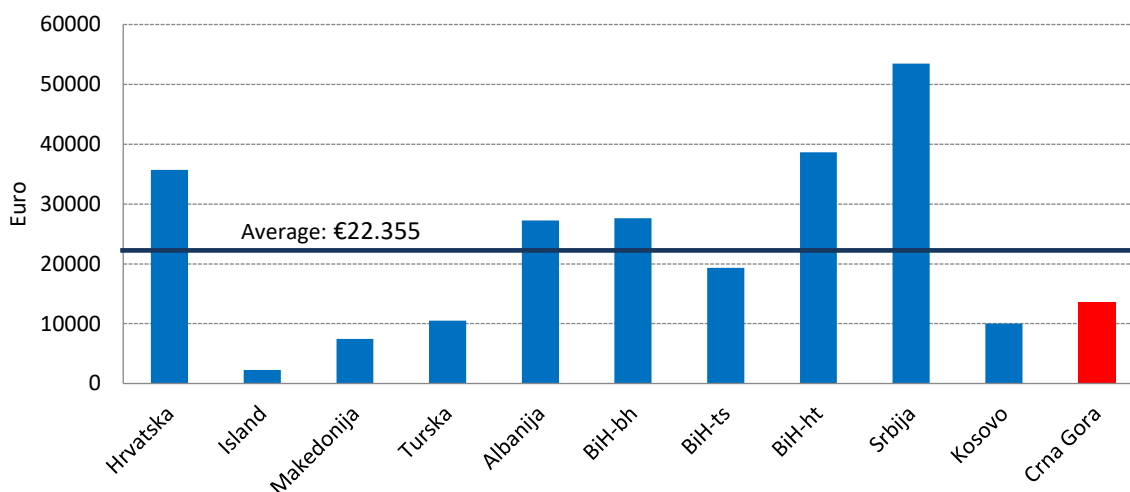


Source: Report 4 - Supply of services in monitoring regulatory and market developments for electronic communications and information society services in Enlargement Countries - February 2014

From the above chart it is evident that the prices of leased lines of 2 Mbps capacity, 2 km long, in Montenegro, at retail level, are lower than the price of the same service with most of the operators in neighboring countries. The price of mentioned service in Montenegro amounts to €2.472, and is significantly lower than the average price of that type of leased line in the countries observed in the subject Report, and which amounts to €3.754.

The chart below gives a comparative overview of the prices of leased line capacities of 34Mbps, 2 km long:

Annual prices of leased line capacities of 34Mbps, 2 km long



Source: Report 4 - Supply of services in monitoring regulatory and market developments for electronic communications and information society services in Enlargement Countries - February 2014

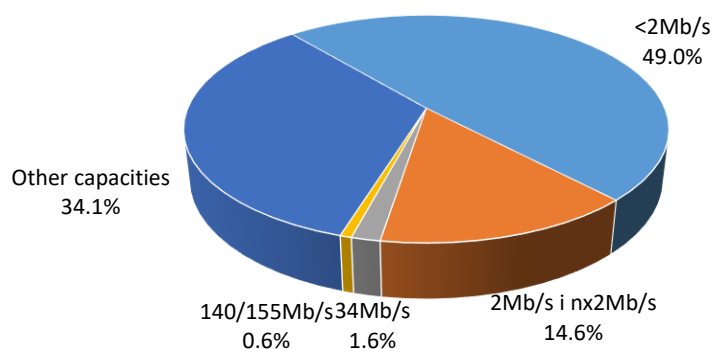
We see from the above chart that the prices of the service of leased lines with the capacities of 34 Mbps, 2km long, at the retail level in Montenegro, are lower than the prices of the same service of the most of the operators in the surrounding countries. The price of the mentioned service in Montenegro amounts to €13.680 and is significantly lower than an average price of that type of leased lines service in the neighboring countries, being the subject of the mentioned report, which amounts to €22.355.

1.8.2. Market structure

Total number of leased lines at the end of 2022 amounted to 308. This figure covers national and international leased lines of all capacities. Furthermore, it includes leased lines at retail and wholesale level.

At the end of 2022, structure of leased lines, per capacity, is given in the following pie-chart:

Structure of the number of leased lines, per capacity - 2022



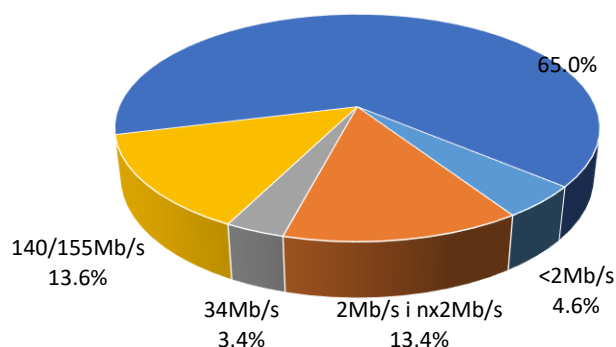
In relation to the end of 2021, number of leased lines was 0.3% higher. At the end of kraju 2021 total number of leased lines was 307. It should be noted that there was a significant decrease in the number of leased lines in relation to the previous year, in the category of leased lines of 2Mbps and nx2Mbps capacities (a 15%

decrease), while there was a significant rise in the number of leased lines of the lowest capacities (a 11% increase).

Total income accrued from the provision of services of leased lines in 2022 amounted to €1.048.542. That income includes the income accrued from the provision of national and international leased lines of all capacities. That also includes an income accrued from leased lines at retail level and income accrued from leased lines at the wholesale level. With regard to 2021, total income accrued from the leased line services decreased by 14.5%. In 2021, total income accrued from leased line services amounted to €1. 225.671.

Income structure, per capacity of leased lines in u 2022 is given in the following pie-chart:

Income structure, per capacity of leased lines in 2022



During 2022, a 0.3% increase has been reached in the number of leased lines, which led to a 14.5% decrease in the income of operators at the leased lines market. The largest income share (~65%) in the provision of leased line services was accrued from the so-called other capacities, that mostly include Ethernet leased lines

1.9. Distribution market of audiovisual media contents (radio and television programs) to end users

In 2022, for the provision of distribution of audiovisual media (AVM) contents to end users in Montenegro, 5 operators were registered for the provision of AVM contents through one of the following platforms:

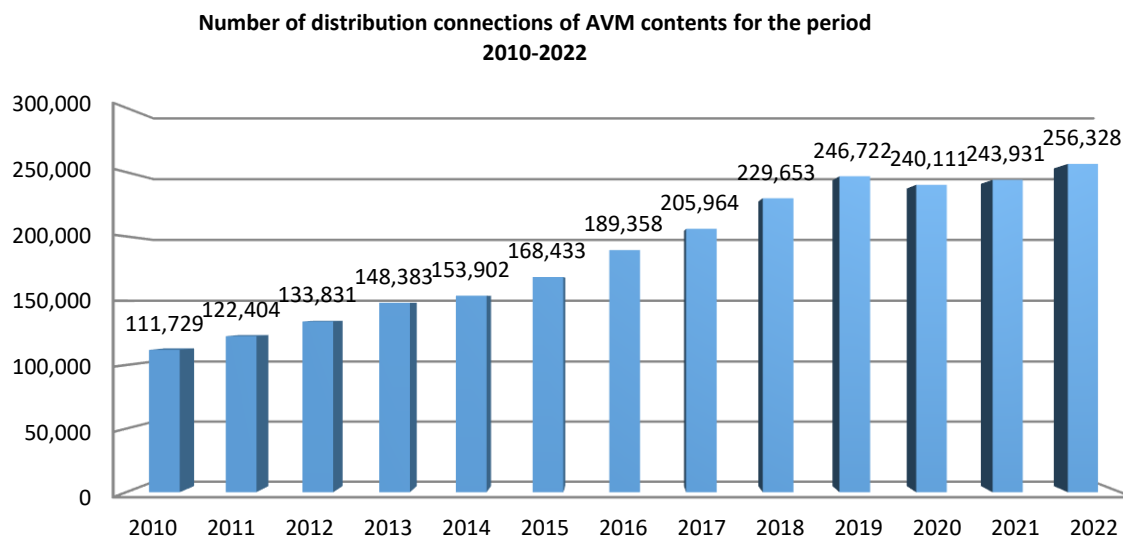
- Mtel and Telemach provided their services via KDS (cable distribution networks which include both analogue and digital KDS),
- Crnogorski Telekom, Telemach and Orion Telekom provided their services via IPTV (public fixed electronic communications networks),
- Through DTH (satellite distribution networks) were provided the services of Telemach (via Total TV platform) and Mtel (via m:SAT platform),
- Radio-difuzni centar provided its services via DVB-T2 (terrestrial digital video broadcasting).

Crnogorski Telekom, Mtel (via m:SAT platform), Telemach (via DTH platform) and Radio-difuzni centar provide that service at the whole territory of Montenegro, while Orion Telekom, Telemach (via KDS and IPTV platform) and Mtel (via KDS platform) deliver that service on local or regional level, i.e. develop their systems at the territory of one or several municipalities, according to the following:

- Telemach via KDS platform at the territory of the following municipalities: Bar, Bijelo Polje, Budva, Herceg Novi, Kotor, Nikšić, Pljevlja, Podgorica and Tivat, and via IPTV platform in the municipality of: Bar, Herceg Novi, Nikšić and Podgorica;

- Mtel at the territory of each municipality, except for the municipality of Plav and Šavnik;
- Orion Telekom at the territory of municipalities: Bar, Berane, Budva, Cetinje, Danilovgrad, Herceg Novi, Kotor, Nikšić, Pljevlja, Podgorica, Rožaje, Tivat and Tuzi.

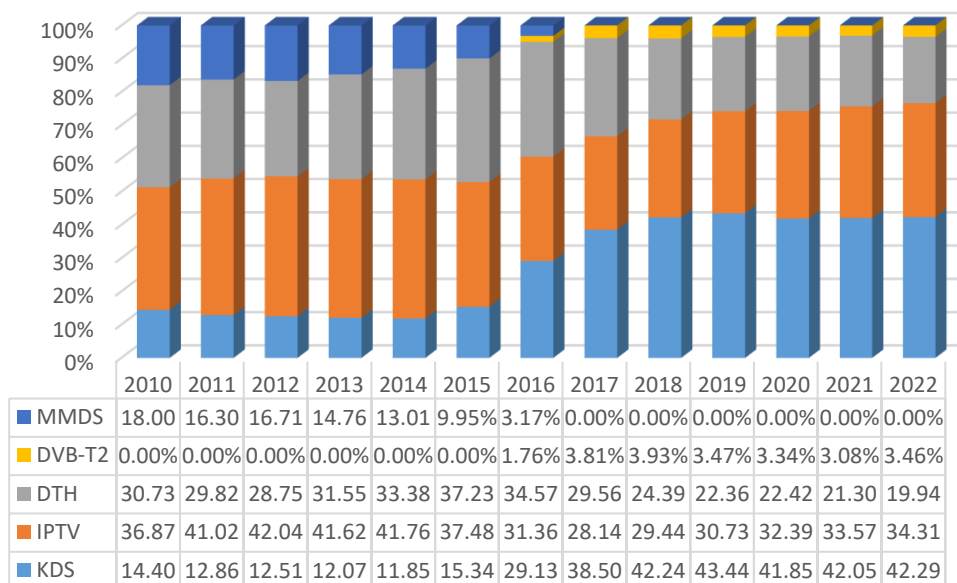
Number of distribution connections of AVM contents at the end of 2022 amounted to 256,328. Overview of the trend in the number of connections for the period 2010-2022 is given in the following chart:



Out of total number of connections (256.328), there were 244,692 (95.46%) connections which refer to physical persons. According to data of the Zavod za statistiku Crne Gore (Statistical Office of Montenegro) (2011 Census – Source: Monstat "Census of Population, Households and Dwellings 2011"), the number of households in Montenegro amounts to 194,795. Therefore, penetration of cable TV in relation to the number of households is 125.62%.

The operators delivering the service of distribution of AVM contents have recorded a continuous increase in the number of connections, while the level of penetration varies among the platforms. In the chart below is given the share of individual platforms in the period 2010-2021.

Share per platform in the period 2010-2022



From the structure of distribution connections of AVM contents to end users through various platforms, it becomes clear that overall structure is dominated by KDS, DTH and IPTV users, with market share higher than 96%.

In their offer, the operators usually have Basic Package and various additional packages. The number of TV channels in the Basic Package is 117 TV channels, on average (minimum 18, and maximum 265 TV channels). In 2022, for monthly subscription to Basic Package, the users paid €11.90 (minimum €5.95 and maximum €15.99).

Throughout the process of follow-up and analysis of AVM contents distribution in Montenegro, there has been a continuous development and it is to be expected that the trend of quality improvement and raise in the number of services offered by the operators, will continue.

1.10. Interconnection and operator access

The Agency did not have any significant activities during 2022 in the field of regulation adoption in the field of access and interconnection, since the Agency implemented the obligations required by the Law on Electronic Communications (ZEK) regarding creation of an adequate regulatory framework. In fact, the most important activities of the Agency in the field of interconnection and access had been already realized by implementing the Rulebook on Access and Interconnection (Official Gazette of Montenegro, No. 24/14). The Rulebook was adopted pursuant to Article 57, paragraph 3 of the Law on Electronic Communications. Given the fact that the issues of access and interconnection are of great importance for the development of competition and the interests of end-users, and keeping in mind that the law does not fully define the procedures for obtaining access and interconnection, subject to Article 11 of ZEK, the Agency adopted the Rulebook precisely defining procedures related to these matters. This Rulebook on access and interconnection is, in the part that is applicable, in accordance with the relevant EC Directives (Directive 2002/19/EC and Directive 2009/140/EC). The Rulebook prescribes in detail the main objectives and

requirements for obtaining interconnection and access. In addition, the Rulebook prescribes the procedure for submitting requests and responses to the request, their contents, time limits for acting in certain stages of the procedure of implementation of access and interconnection, as well as the conditions when the access and interconnection can be restricted. The Rulebook also defines the way in which the Agency shall handle operators' requests, and the principles on which its decisions will be based upon.

During 2022, the Agency completed the procedure of five relevant markets at the wholesale level, and after that, following the analysis results, it imposed relevant regulatory measures to SMP operators at those markets.

During 2022, the price of the call termination service in the fixed network for all operators with significant market power was reduced to the level of 0.35 €cent/min. The previously valid price of the call termination service to the fixed network of operators with significant market power was 0.44 € cents/min. Also, in the course of 2022, there was a reduction in the price of the call termination service to mobile networks of operators with significant market power, to the level of 0.52 €cent/min. The previously valid price of the call termination service to the mobile network of operators with significant market power was 0.62 €cent/min.

The regulatory measures undertaken will further improve the conditions for strengthening efficient and sustainable competition on the market, both through strengthening the position of existing operators and through the entry of new operators into the Montenegrin market. The aforementioned strengthening of efficient and sustainable competition on the market should lead to the creation of benefits for end users, through lowering the retail prices of services and increasing the quality of service provision.

Conclusion of the agreements on the access and interconnection between the operators in Montenegro, was realized in 2022 in accordance with the provisions of those agreements and the Law on Electronic Communications.

1.10.1. Prices of interconnection services

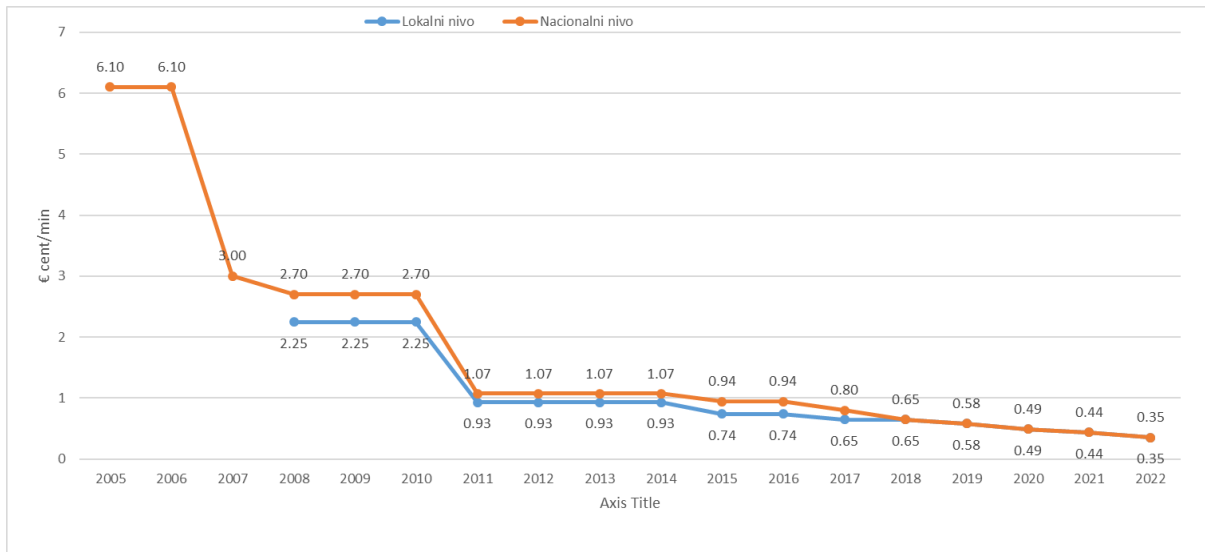
1.10.1.1. Prices of call termination on the fixed networks

During 2022, there was a decrease in the price of call termination on the fixed network of incumbent operator – Crnogorski Telekom. The price of the service of call termination on the fixed network of Crnogorski Telekom applicable as of 1 August 2022, amounts to 0.35 €cent/min.

The prices of call termination on the fixed network of Mtel, Telemach and One Crna Gora, as SMP operators at the relevant market are defined in accordance with the Analysis of relevant market of call termination on individual public telephone networks and provided at fixed location – wholesale level, as symmetric in relation to the price of that service implemented by Crnogorski Telekom, and amounts to 0.35 €cent/min.

The graph below shows a price trend of call termination on fixed network of Crnogorski Telekom in the period 2005-2022.

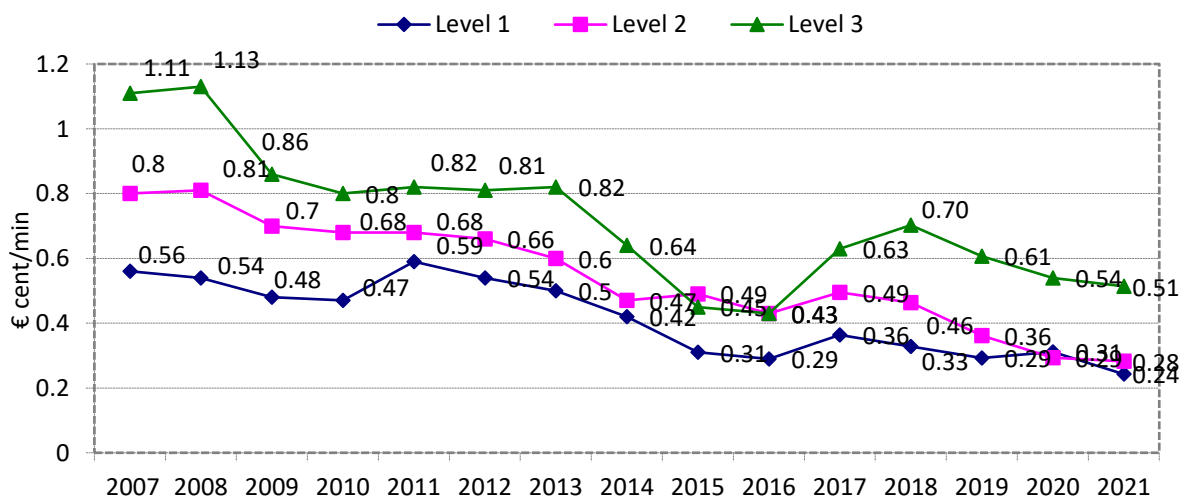
Prices of the services of call termination on the network of Incumbent fixed operator in Montenegro



From the above chart it is clear that prices of the service of call termination on the fixed network of incumbent operator were significantly lower in the observed period. Total decrease rate of call termination service on fixed network of Crnogorski Telekom in the period from 2005 till the end of 2022 was 94.3%, for national level of call termination. Due to implementation of a new technology and change of the architecture of public fixed electronic communications network of Crnogorski Telekom, termination of calls on local level, previously in the offer of Crnogorski Telekom, is not available any more.

The following graph shows a trend in an average price of call termination on fixed networks of incumbent operators in Europe.

Average price of the services of call termination on the fixed network of incumbent operator in Europe



Source: Digital Agenda Scoreboard 2011 - Electronic communications market indicators - May 2011; BoR (21) 159 - Termination rates at European level 30 June 2021 - December 2021

Relying on available data from 30 June 2021, the above graph shows a decreasing trend in average price for Level 1⁽⁷⁾, Level 2 and Level 3 of call termination on fixed network of incumbent operators in the European countries during 2021. This is mostly due to the fact that there is only one call termination level with most of incumbent operators, thus only one regulated price of call termination. Besides, only in 5 European countries there are call termination prices for Level 2, and only in 3 countries for Level 3. By comparing average price of call termination of different categories, we see that an average price of call termination for Level 2 in European countries is 16% higher than call termination price for Level 1, while an average price for Level 3 of call termination is 117% higher from the price for Level 1 call termination, in European countries.

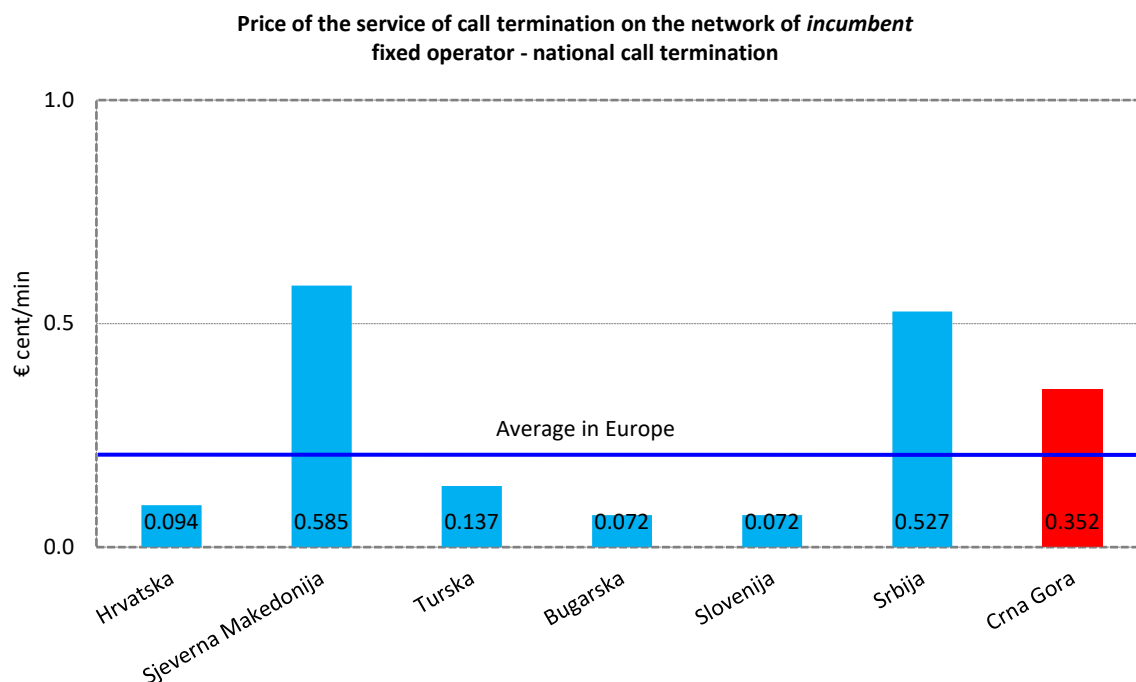
For comparing the prices of call termination services on fixed networks, with the prices in neighboring countries, data from BEREC Report on termination rates at European level ('BEREC') 'BoR (21) 159 - Termination rates at European level 30 June 2021', were used, which was published in December 2021. That Report contains call termination rates on fixed networks, valid on 30 June 2021.

On 18 December 2020, the European Commission adopted Regulation⁷ on setting a single maximum Union-wide fixed voice termination rate (FTR) and mobile voice termination rate (MTR), without the need to transpose it into national law.

On 17 January 2021, the European Commission published the correction of the relevant document determining 31 December 2021 as the date of a maximum price level of the service of call termination on the fixed network (FTR) of 0.07€cent/min

The chart below shows prices of the service of call termination on fixed network of incumbent operator for the category of national call termination (i.e. the price of the highest level of call termination) for the neighbouring countries (the price is given per minute, and is an average price of the first three minutes of call in the period of expensive traffic, so-called peak-time). There is a steady increase in the number of European countries where a single rate for call termination on the fixed network of incumbent operator is applied. This price of call termination, for the countries of its validity, has been compared with the price of Level 1 of call termination (national call termination) of *incumbent* operators in Montenegro. Furthermore, in some countries all three types of fee have been applied, depending on the category of call termination (Level 1, Level 2 and Level 3), which is not the case in Montenegro, due to network architecture. In the chart below is given an average price value for call termination Level 1 for 37 European countries, amounting to 0.2427 €cent/min (an average price for call termination Level 1 for the EU countries (28) is 0.197 €cent/min) (Source: Body of European Regulators for Electronic Communications (BEREC) 'BoR (21) 159 - Termination rates at European level 30 June 2021' – published in December 2021).

⁷ COMMISSION DELEGATED REGULATION (EU) of 18.12.2020 supplementing Directive (EU) 2018/1972 of the European Parliament and of the Council by setting a single maximum Union-wide mobile voice termination rate and a single maximum Union-wide fixed voice termination rate



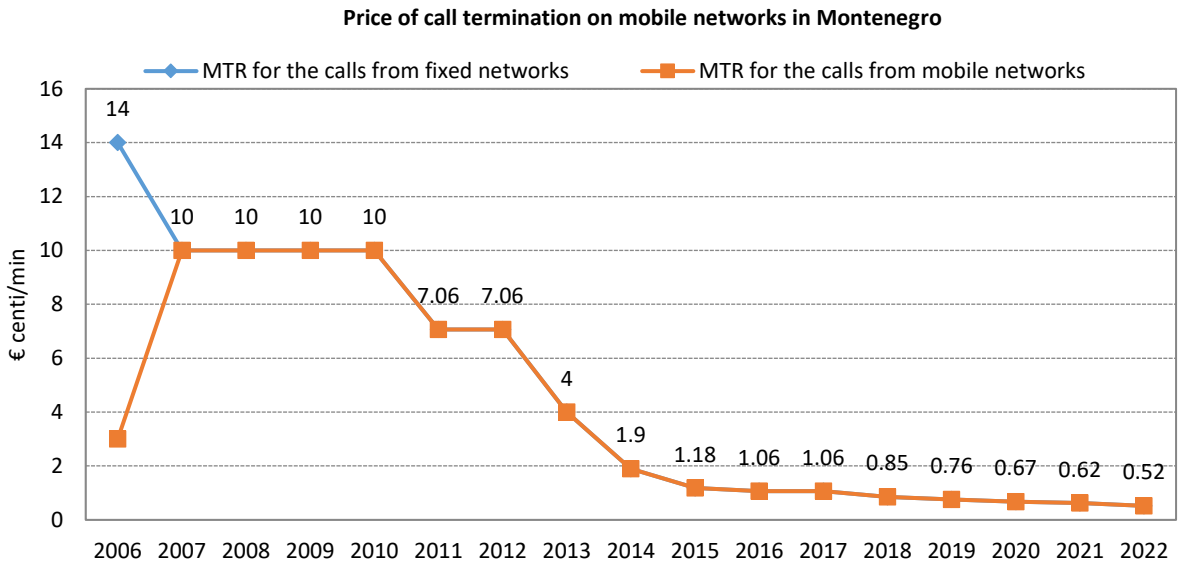
Source: BEREC 'BoR (21) 159 - Termination rates at European level 30 June 2021' - December 2021

From the above chart we see that despite a great decrease in the last several years, price level of the service of call termination on the fixed network of Crnogorski Telekom is above an average of the prices of these services in the surrounding countries. Prices of this service in Montenegro are even much higher than an average price of these services in the EU member countries, and higher than the average price at the European level.

1.10.1.2. Prices of call termination on mobile networks

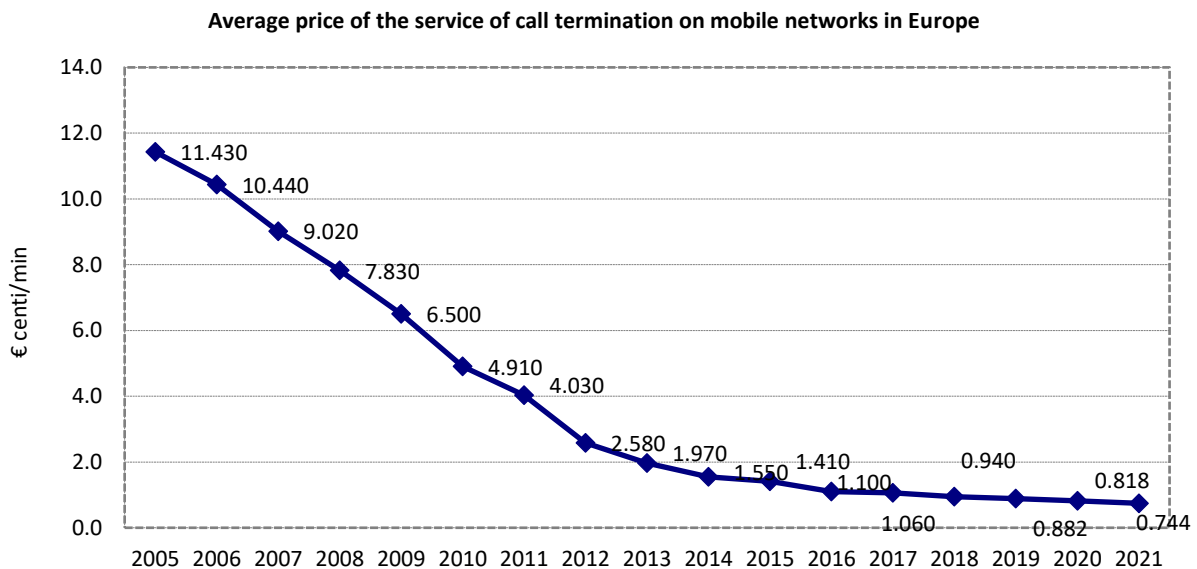
In the last several years, the Agency considerably reduced prices of call termination services on mobile networks, by introducing several regulatory measures and applying cost model results. In 2021 was reduced call termination price on mobile networks as of 01.08.2022, and amounts to 0.52 €centi/min, being 16.13% lower than previously applied price.

The chart below gives a trend in the services of call termination in mobile networks in Montenegro in the periodu from 2006 till the end of 2022.



As presented in the graph, the price of call termination on mobile networks in Montenegro varied depending on whether the call initiated in fixed network or in mobile network. This rather discriminatory practice was removed in 2007, and since that time the price has remained the same for the calls terminating on mobile networks in Montenegro, regardless of electronic communications network the call originated from in Montenegro. There should be also mentioned that from 2012 till the end of 2022, the price of call termination on mobile networks in Montenegro was 92.6% lower.

In the European countries has continued a decreasing trend in the service of call termination on mobile networks which is illustrated in the graph below:



Izvor: BEREC 'BoR (21) 159 - Termination rates at European level 30 June 2021' - December 2021

As it is clear from the above graph, price of call termination on mobile networks of the operators in European countries was 9% lower than in the previous year. However, the prices of that service still significantly vary among the Member States, from 0.1686 €cent/min in Sweden to 2.7611 €cent/min in Switzerland. Although

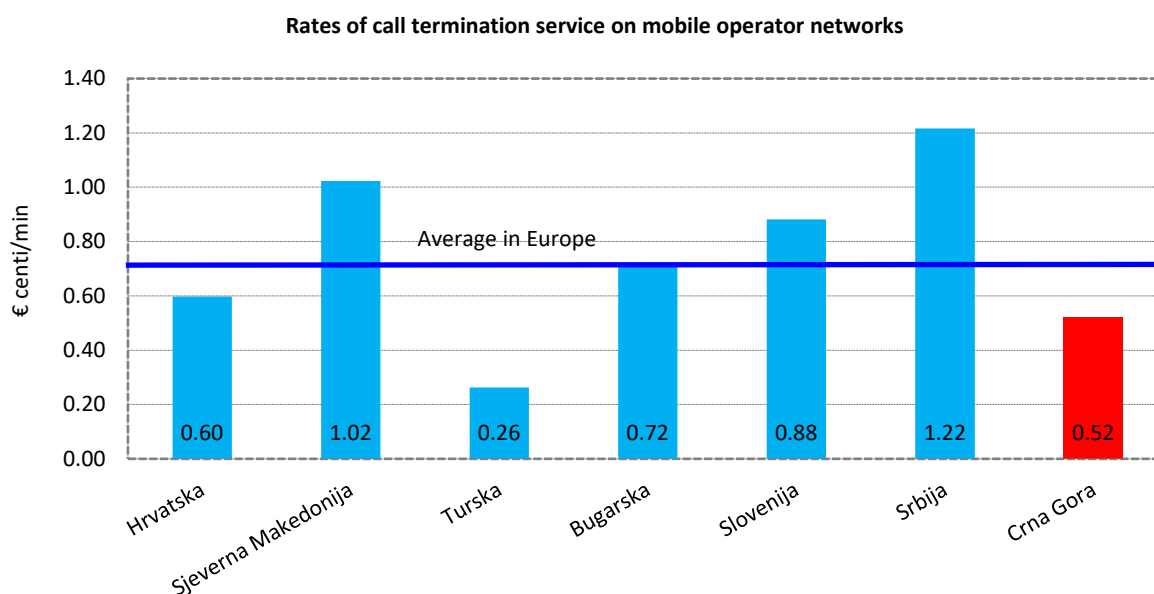
the prices of call termination on mobile networks have had permanent downward trend, they are still higher compared to the prices of call termination on fixed networks.

For comparing the prices of call termination on mobile networks with the prices in the surrounding countries, data from 'BEREC Report on Termination rates at European level 30 June 2021 (BoR (21) 159)' were used, and they were published in December 2021.

On 18 December 2020, the European Commission adopted Regulation⁸ on setting a single maximum Union-wide fixed voice termination rate (FTR) and mobile voice termination rate (MTR), without the need to transpose it into national law.

According to mentioned Regulation a single maximum Union-wide mobile voice termination rate (MTR) is 0.2 €cent/min and will be gradually applied by each operator in the EU states until 2024, by applying glide-path, i.e. a three-year price decrease.

In the event that asymmetric call termination prices are applied in a country, then the call termination price is given as a weighted average of call termination prices in individual mobile networks, in relation to the number of users. In Montenegro are applied symmetric prices of call termination services on mobile networks. The following chart shows comparative data for mobile call termination rates for neighbouring countries, based on the first three minutes of calls in high price intervals, so called *peak-time*.



Source: BEREC 'BoR (21) 159 - Termination rates at European level 30 June 2021' - December 2021

Mobile voice termination rate of 0,52 €cent/min with the operators in Montenegro for 2022 was below an average price of this service in European countries, which at 2021 amounted to 0.7442 €cent/min. The price of this service with the operators in Montenegro was lower than the level of weighted average price of this service in the EU countries, as referred to data given in BEREC Report 'BoR (21) 159 - Termination rates at European level 30 June 2021' - December 2021.

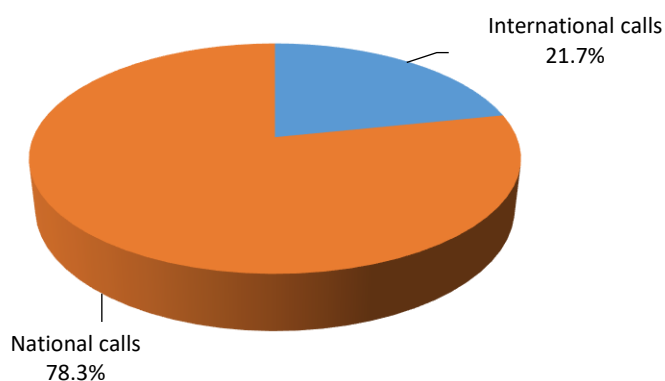
⁸ COMMISSION DELEGATED REGULATION (EU) of 18.12.2020 supplementing Directive (EU) 2018/1972 of the European Parliament and of the Council by setting a single maximum Union-wide mobile voice termination rate and a single maximum Union-wide fixed voice termination rate

1.10.2. Market of call termination

1.10.2.1. Market of call termination of fixed networks

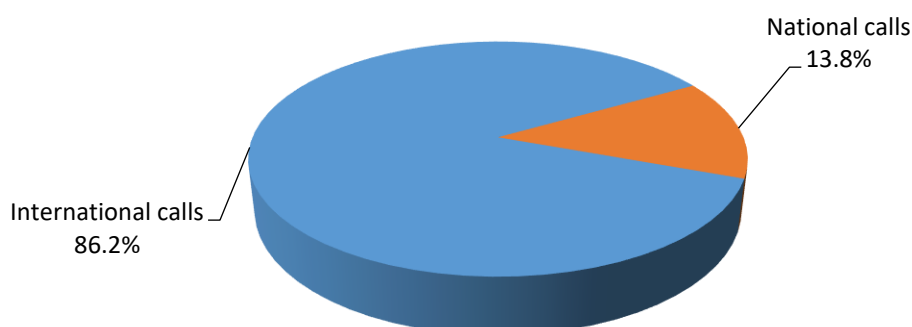
Total traffic volume termination on fixed networks in Montenegro in 2022 amounted to 25,430,424 minutes, which is a decrease of 14.7% in relation to 2021. In the category of terminated national calls there was a decrease in traffic volume of 12.77% in relation to 2021, while there was a decrease of 21.08% in category of terminated international calls, in relation to 2021. The structure of terminated calls is given in the pie-chart below:

Structure of volume of terminated calls on fixed networks in Montenegro in 2022



Income generated from call termination on fixed network of operators in Montenegro in 2022 amounted to €613,707, being 27.67% lower in relation to 2021. Income structure of call termination on fixed networks is given in the pie-chart below.

Income structure of terminated calls on fixed networks in 2022

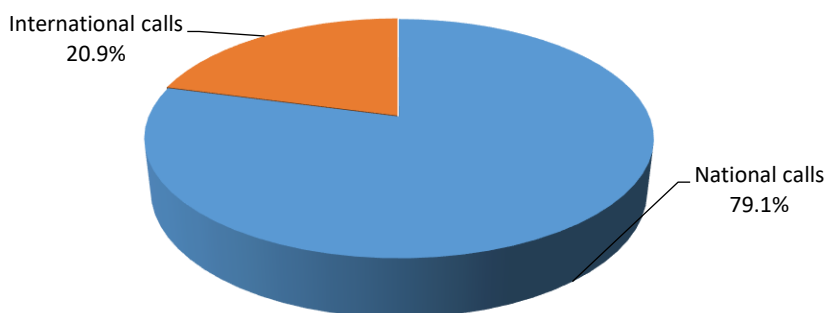


There was a 18.1% decrease in relation to 2021 and a 29% decrease in income generated from termination of international calls was noticed in the same reporting period.

1.10.2.2. Market of call termination on mobile networks

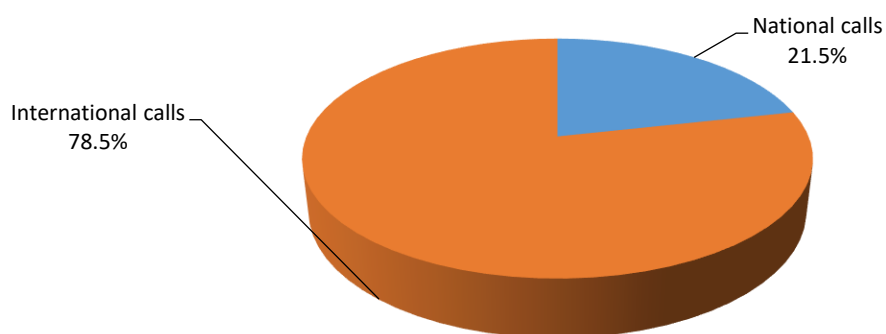
In 2022, total volume of traffic terminated on mobile networks in Montenegro was 652,784,088 minutes, being a decrease of 7.34% in relation to 2021. In relation to 2021, there was an increase of 6.12% in category of terminated national calls, and an increase of 12.27% in category of terminated international calls. The structure of terminated calls is shown in the following pie-chart.

Volume structure of terminated calls on mobile networks in 2022



In 2022, the income from call termination on mobile networks of the operators in Montenegro amounted to €13,844,213, being an increase of 10.3% in relation to 2021. Income structure of terminated calls on mobile networks is given in the pie-chart below.

Income structure of terminated calls in mobile networks - 2022



Income generated from terminated national calls decreased by 2.4% in relation to 2021, while the income from terminated international calls increased by 14.4% in relation to 2021.

1.10.3. IP interconnection

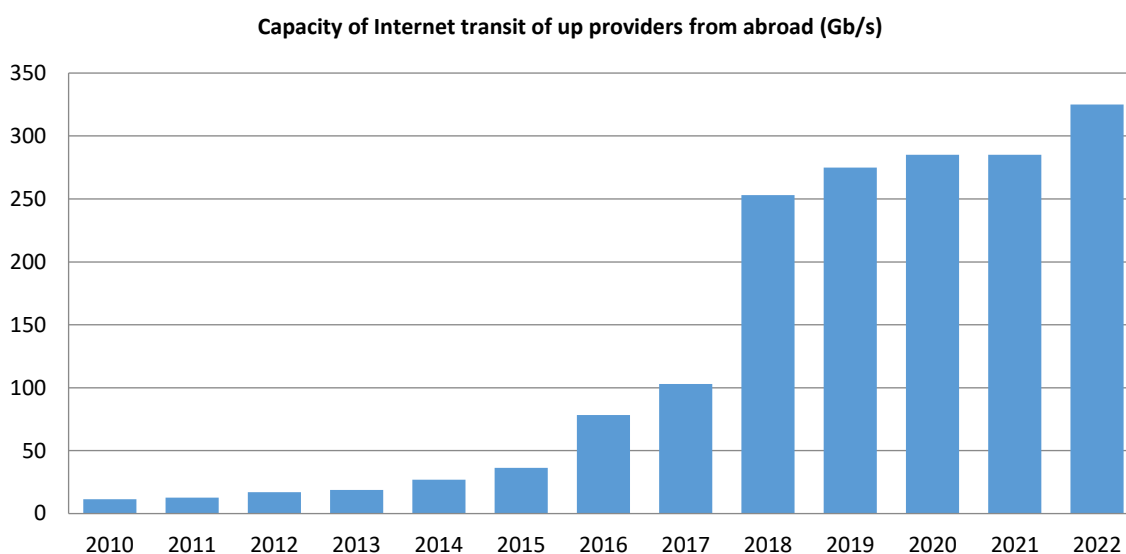
In order to make internet operative as a global network, Internet Service Providers (ISP) need to be interconnected as to be in position to make wide range of contents, services and applications accessible by its users. Connecting the ISPs and traffic exchange may be classified as transit or as peering, while one of the variances of peering is the use of Internet Exchange Point – IXP.

Transit is usually realized by virtue of bilateral agreement when one ISP (up provider) supplies the other ISP (sub provider) with complete connectivity for the transfer of *upstream* and *downstream* traffic for its users, including an obligation of traffic transfer to third parties. Transit is a wholesale service which is chargeable.

In general, peering is performed by virtue of bilateral agreement between ISPs in order to make the traffic between themselves and their users interchangeable. Most often, the peering does not include the obligation of traffic transfer to third parties. Traffic interchange is usually carried out free of charge. In addition to bilateral (private) peering, a multilateral (public peering) can be also performed, when three or more parties

decide to interconnect their networks through one point. This public interconnection point is named Internet Exchange Point-IXP.

The operators providing an internet access service (ISP) in Montenegro, deliver Internet Transit Service mostly by an operator (up provider) which is outside Montenegro. However, some operators provide Internet Transit Service by the operators in Montenegro. At the end of 2022, total leased capacity of Internet transit provided by the operators from abroad (capacity of international Internet transit) and used by the operators in Montenegro, was 325 Gb/s. Compared with the relevant period of 2021, total capacity of international internet increased by 14%. The following chart shows a trend in capacities of total international Internet transit.



For a long period of time, the only way of connectivity realized by the operators supplying with an Internet access service (ISP) in Montenegro was Internet transit. A study on establishing national Internet Exchange Point (IXP) in Montenegro, prepared by the Agency in 2013, proved that thanks to introducing an IXP, development of internet services in Montenegro would be much encouraged, the quality of internet access much improved, the prices of Internet access services would be lower, the links for global internet access would be unburdened, and the communication would be safer.

As the result of a sequence of activities, in July 2015, a MIXP (*Montenegro Internet eXchange Point*) was introduced. In addition to an Internet Service Provider (ISP), education organizations, government bodies, companies etc. can be also connected to MIXP, provided that technical conditions published on the web site: www.mixp.me, have been previously fulfilled. One of the vital technical conditions for connecting to MIXP is that interested legal entity, having its registered office in Montenegro, has been provided with computer network registered as an autonomous system (ASN), supplied with a unique AS number (ASN). Registration of AS is carried out following the procedures of competent international institution.

At the end of 2022, the following entities were connected to MIXP: Crnogorski Telekom, Mtel, One Crna Gora, Telemach and Univerzitet Crne Gore (1 Gbps links). Telecommunications network of the Government of Montenegro is also connected to MIXP, but still does not exchange the traffic with other networks, as it has not been provided with its own ASN which is technical precondition for traffic exchange. Statistics of exchanged traffic between interconnected entities throughout 2022 proves that total volume of exchanged

traffic increased in relation to previous year, yet an increasing trend can be noticed. Details gathered on traffic made by individual operators/institutions, given as an average for 2022, are as follows:

- Crnogorski Telekom: average - downstream 269.5 Mb/s; upstream 203.8 Mb/s.
- One Crna Gora: average - downstream 86.1 Mb/s; upstream 86.7 Mb/s.
- Mtel: average - downstream 199.7 Mb/s; upstream 480.9 Mb/s.
- Telemach: average - downstream 303.3 Mb/s; upstream 88 Mb/s.
- Univerzitet Crne Gore: average - downstream 8.7 Mb/s; upstream 5.6 Mb/s.
- ISC F-Root TGD1: average - downstream 58.4 kb/s; upstream 12.9 kb/s.

Relatively low volume of traffic exchanged between the entities connected to MIXP proves that the operators in Montenegro have not been directly connected to providers of contents and applications offering attractive contents, services and applications, so that their end users do not generate significant traffic volume to other operators in Montenegro.

1.11. Number portability service

Number portability is service which allows each subscriber to keep his/her number when changing the operator. A number can be ported from fixed to fixed network, and from mobile to mobile network. The procedure for providing this service is prescribed by the Law on Electronic Communications (ZEK) and the Rulebook on Number Portability ("Official Gazette of Montenegro", 28/14).

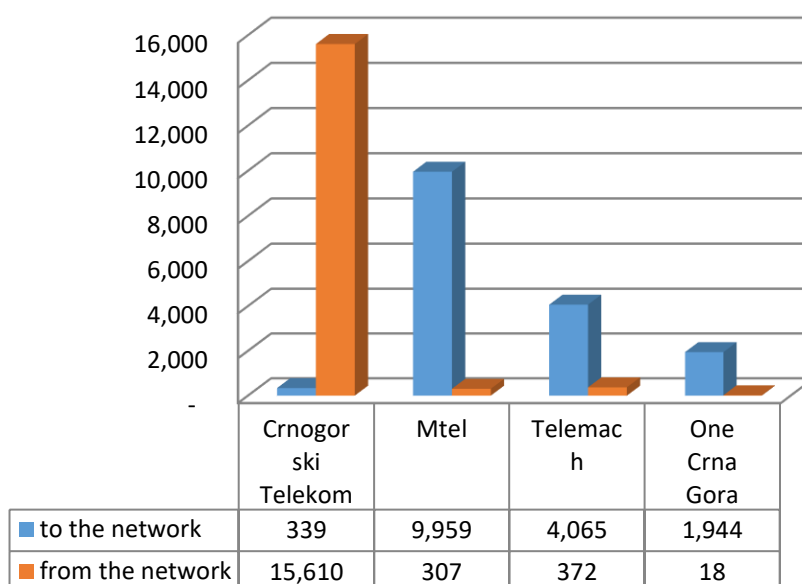
The Rulebook on number portability adopted in accordance with the Law on Electronic Communications and Directive 2009/136/EC, prescribes 3 working days for number porting. Subscriber who wants to port his/her number submits an application for number porting to the operator which receives the number (the operator to which the subscriber wants to port his/her number), and it is considered as a request for termination of the contract with the donor operator (the operator which is a contracted party with the subscriber). If all the conditions for number porting are met, subscriber gets the date for number porting which may not be longer than 3 working days upon the submission of the application. Subscriber will not be able to use the service on the date of number porting, only in the period from 13.00 to 16.00. The subscriber can port again his/her number 3 months following the latest porting. If the application for porting is denied, the subscriber may file a complaint with the Agency.

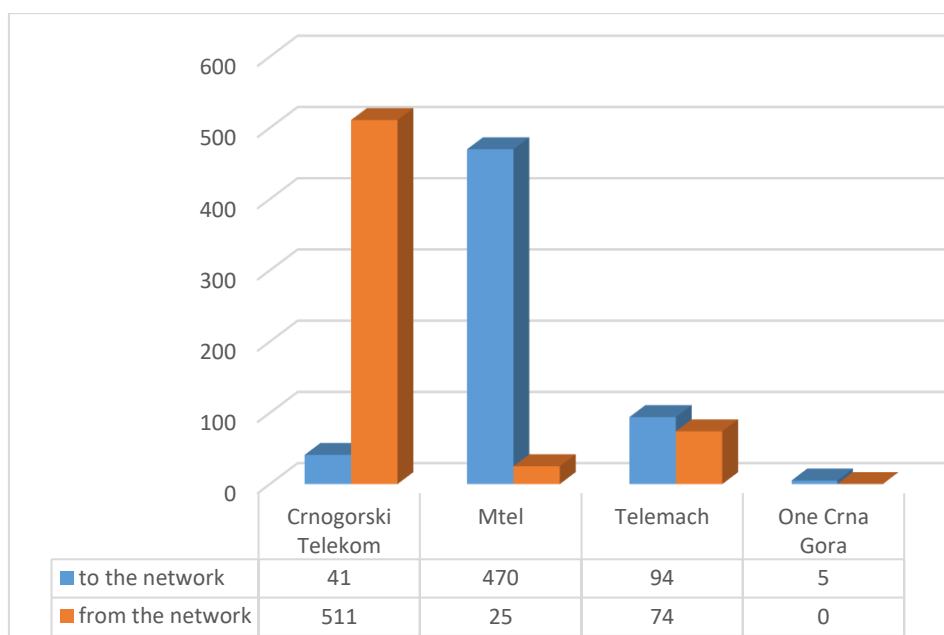
Pursuant to the Law on Electronic Communications (ZEK) and the Rulebook on number portability, the Agency issued a decision on setting one-off fee for number portability service and the way of its distribution. The prescribed fee amounts to € 3.50 and is distributed between the operator donor and the operator recipient of the telephone number in the ratio 80:20, i.e. the operator with the network to which the number is ported from, gets €2.80, and the operator with the network from which the number is ported to, gets €0.70 per ported number. For the time being, subscribers are free from paying any fee for the service of number porting, but according to the Agency's decision, the operator with the network to which the number is ported shall pay €2.80 per ported number to the operator with the network which the number is ported from.

In 2022, number portability service used 9,871 subscribers, being 36.95% less than in the previous year. During 2022, this service was mainly used by mobile subscribers, as they amounted to 9,261, while total of 610 numbers were ported to fixed telephony. In the same year, there were 5,589 rejected requests for number portability. An average time of number portability procedure was 2.44/3.47 (total number of working days /total number of days).

Out of 610 ported numbers in the fixed telephony, the greatest part was ported to Mtel (470): 421 from the fixed network of Crnogorski Telekom, 49 numbers from Telemach network. Total of 94 numbers were ported to Telemach network, as follows: 85 numbers from the fixed network of Crnogorski Telekom and 9 numbers from the fixed network of Mtel. Forty one numbers were ported to the fixed network of Crnogorski Telekom: 25 numbers from the fixed network of Telemach and 16 numbers from the fixed Mtel network, and 5 numbers were ported to the fixed network of One Crna Gora from the fixed network of Crnogorski Telekom.

From the fixed network of Crnogorski Telekom a total of 511 numbers were ported: 421 numbers to the fixed Mtel network, 85 numbers to the fixed network of Telemach and 5 numbers to the fixed network of One Crna Gora. Seventy four numbers were ported from the fixed network of Telemach: 49 to the fixed Mtel network and 25 to the fixed network of Crnogorski Telekom. From the fixed Mtel network a total of 25 numbers were ported: 16 to the fixed network of Crnogorski Telekom and 9 to the fixed network of Telemach. The overview of ported numbers per operator is given in the following chart.

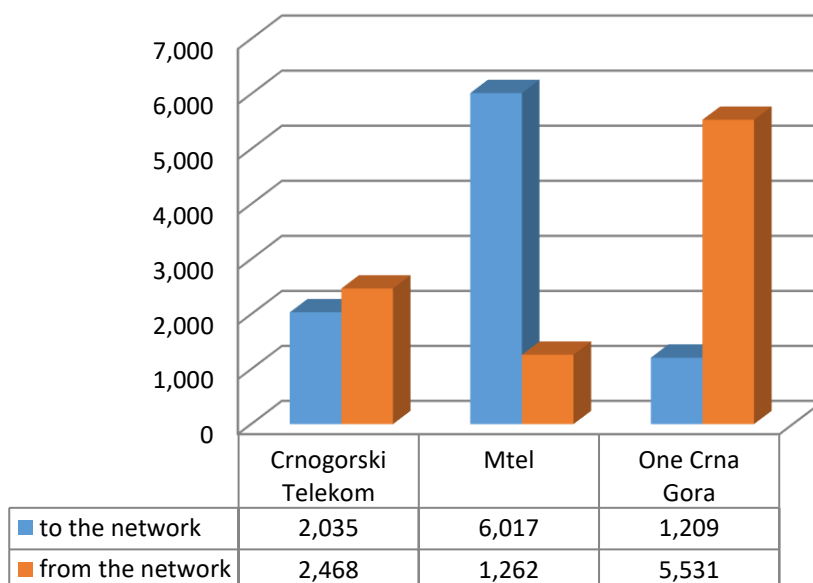




Total of numbers ported to fixed networks in 2022

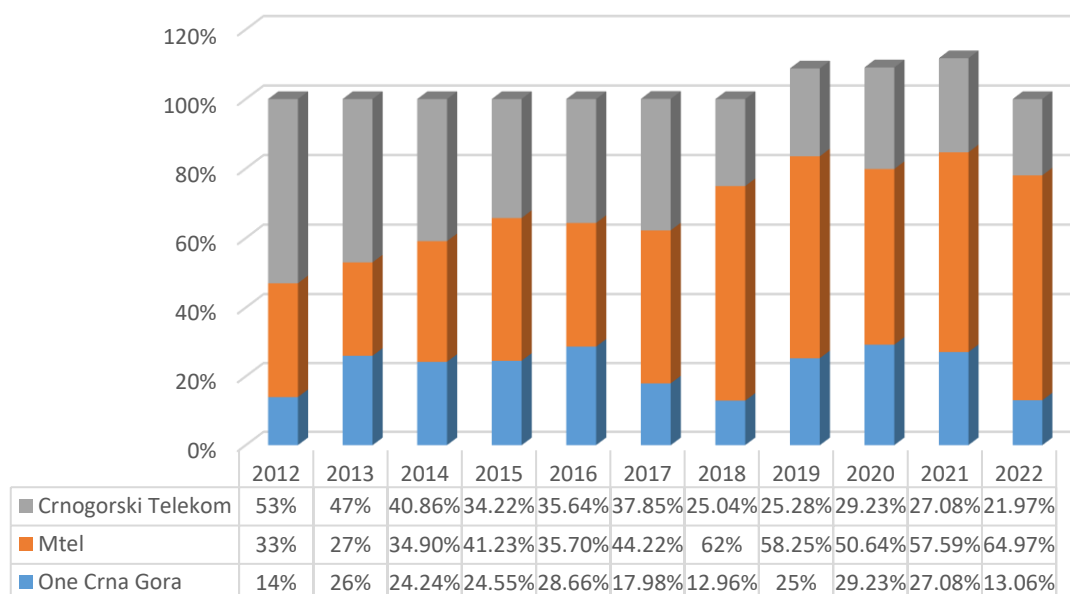
Regarding the number portability to mobile networks during 2022, major part of the numbers were ported to Mtel network. i.e. 6,017 numbers (64.97%), followed by mobile network of Crnogorski Telekom – 2,035 numbers (21.97%), while 1,209 numbers (13.06%) were ported to mobile network of One Crna Gora. The greatest part of numbers in 2022 were ported from the network of One Crna Gora: 5,531 numbers (59.72%), followe by the network of Crnogorski Telekom – 2,468 numbers (26.65%), while the lowest share was ported from Mtel network – 1,262 numbers (13.63%).

The chart below is an overview of the numbers ported to mobile networks in 2022, per operator.

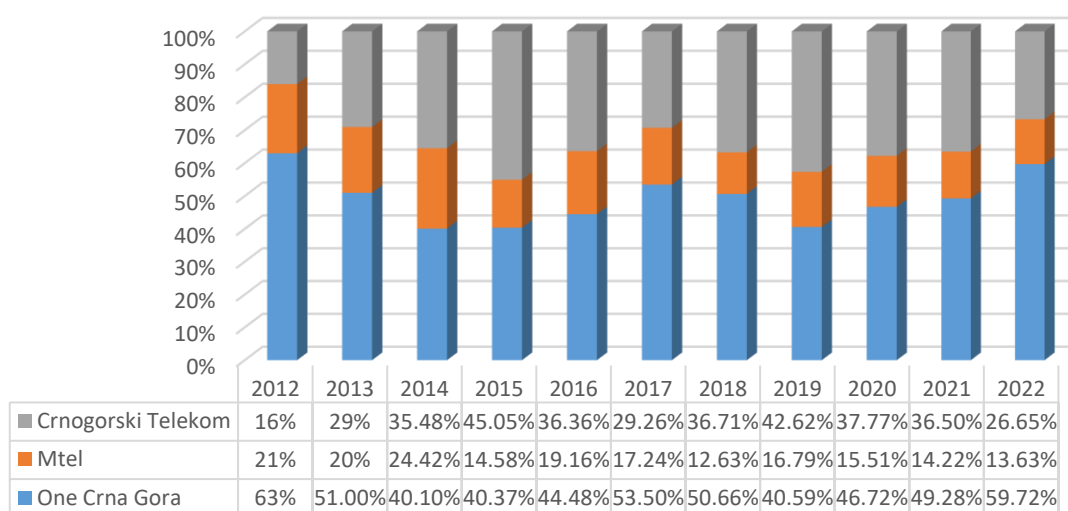


Total of numbers ported to mobile networks in 2022

From the beginning of number portability services (01.12.2011) until 31.12.2022, share in the total amount of ported numbers varied with all three mobile operators, which is presented in the chart below, per year.



Share in the total amount of numbers ported to operator's network



Share in the total amount of numbers ported from operator's network

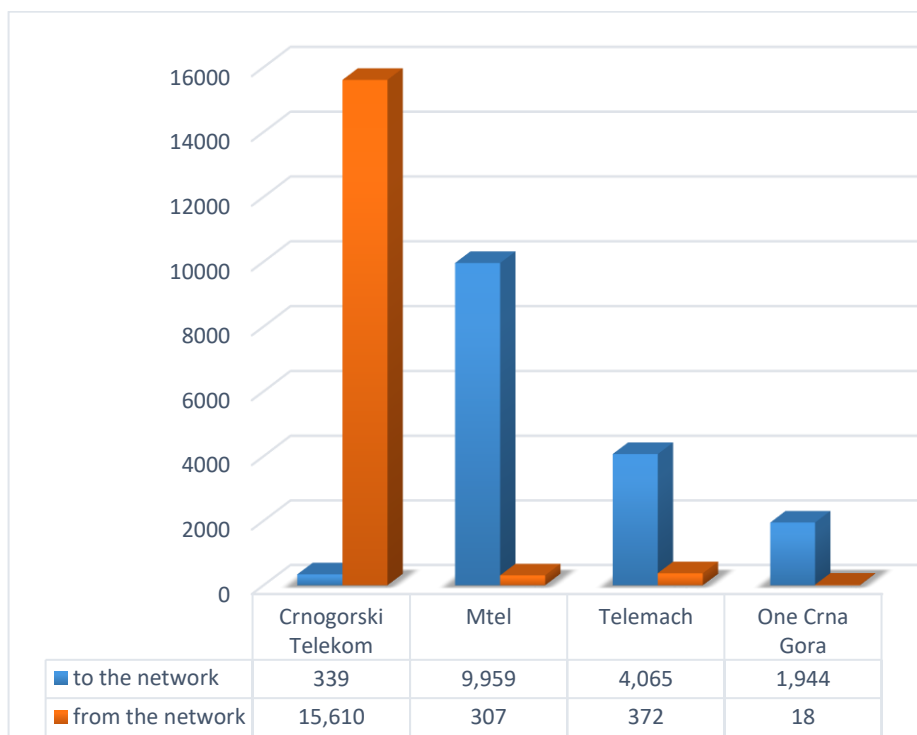
Number portability services have been provided from 01.12.2011 till 31.12.2022 and out of the total of 79,286 numbers 16,307 numbers were ported to fixed networks and 62,979 numbers to mobile networks.

Out of 16,307 ported numbers:

- 15,610 numbers were ported from the fixed network of Crnogorski Telekom: 9,701 numbers to the fixed Mtel network, 3,991 numbers to Telemach fixed network and 1,918 numbers to the fixed network of One Crna Gora;
- 372 numbers were ported from the fixed network of Telemach: 254 numbers to the fixed Mtel network and 118 numbers to the fixed network of Crnogorski Telekom;
- 307 numbers were ported from the fixed Mtel network, as follows: 207 numbers to the fixed network of Crnogorski Telekom, 74 numbers to the fixed network of Telemach and 26 numbers to the fixed network of One Crna Gora;

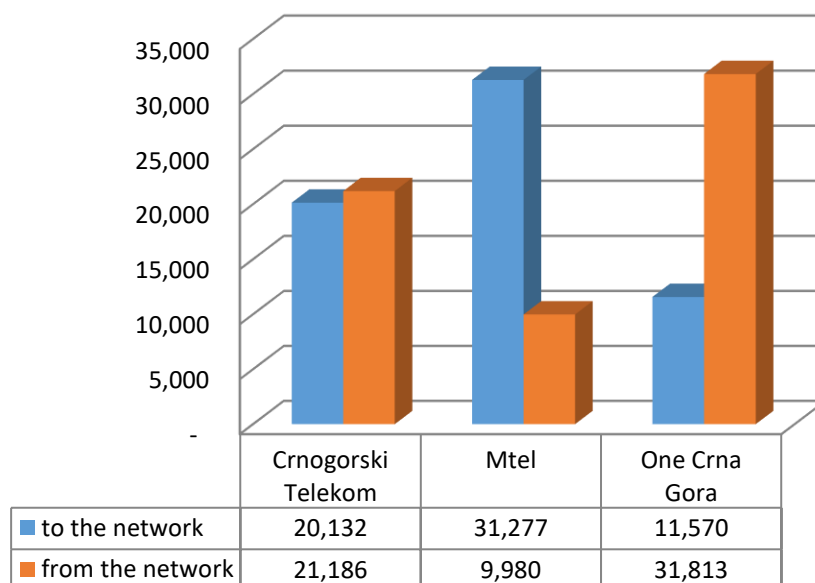
- 18 numbers were ported from the fixed network of One Crna Gora, as follows: 14 numbers to the fixed network of Crnogorski Telekom and 4 numbers to the fixed Mtel network.

The greatest amount of numbers were ported to the fixed Mtel network to which 9,959 numbers were ported, followed by the fixed Telemach network to which 4,065 numbers were ported, while 1,944 numbers were ported to One Crna Gora, and 339 numbers to the fixed network of Crnogorski Telekom. These data are presented in the chart below.



Total of numbers ported to the fixed networks since the beginning of the provision of number portability service

As regards mobile networks, out of 62,979 ported numbers, the greatest amount regarded mobile Mtel network i.e. total of 31,77 numbers, followed by the network of Crnogorski Telekom to which a total of 20,132 numbers were ported, while a total of 11,570 numbers were ported to the network of One Crna Gora. The greatest amount of numbers were ported from the network of One Cra Gora i.e. 31,813, followed by mobile network of Crnogorski Telekom-21,186, while the smallest amount was ported from the mobile Mtel network i.e. 9,980 numbers. Here follows the chart that illustrates these data.



Total of numbers ported to mobile networks since the beginning of the provision of number portability service

Number portability service was successfully implemented and has been continuously improved. This service has been encouraging the competition, and allowing end users to change their user packages, according to their needs (more convenient prices and higher quality of services), while keeping their telephone numbers.

1.12. Joint use of electronic communications infrastructure

Joint use of electronic communications infrastructure and associated facilities is stipulated by the following acts:

- Law on Electronic Communications ("Official Gazette of Montenegro", 40/13, 56/13, 02/17 and 49/19),
- Rulebook on the joint use of electronic communications infrastructure and associated facilities ("Official Gazette of Montenegro" 52/14, 02/17),
- Rulebook on the type and method of submitting and publishing information on electronic communications infrastructure and associated facilities, that may be of interest for the joint use ("Official Gazette of Montenegro", 48/18).

Mutual rights and obligations of the operators regarding the joint use of electronic communications infrastructure and associated equipment, according to ZEK, shall be regulated by a contract, while more detailed conditions and the way of joint use of electronic communications infrastructure and associated equipment, as well as the measures for increasing the availability of free capacities in this kind of infrastructure, are determined by Agency's regulations.

Also, the Law on the use of physical infrastructure for the installation of high-speed electronic communication networks ("Official Gazette of Montenegro" number 1/22) prescribes the way of using the physical infrastructure for the installation of high-speed electronic communication networks, joint use and coordinated construction of physical infrastructure in order to reduce costs, as well as other issues of importance for the use of physical infrastructure for setting up high-speed electronic communication networks. Physical infrastructure, in terms of this law, includes: pipes, poles, lines, monitoring rooms, shafts, cabinets, buildings or entrances to buildings, antenna installations and antenna poles and supports. This Act is of great importance for the efficient development of electronic communication networks in the coming

period because it prescribes obligations to the owners of physical infrastructure such as municipalities, that is, their utility companies in terms of enabling the use of their physical infrastructure.

Information the Agency obtained from the operators helped making an overview of the joint use of electronic communications infrastructure, which includes telecommunications cable (TK) ducts, antenna masts, and facilities/buildings/containers.

1.12.1. Joint use of telecommunications cable ducts

Lease of the space in electronic communications cable ducts has been provided by four operators: Crnogorski Telekom, Komunalne usluge Podgorica (Public Utility Enterprise d.o.o Podgorica), Mtel and Radio-difuzni centar (Broadcasting Center). Considering that the space in cable ducts can be leased by other operators, it fostered installation of access networks and development of new services. Electronic communications cable ducts are leased by: 8 operators which leased it from Crnogorski Telekom, 6 operators leased it from Komunalne usluge Podgorica, 1 operator leased it from Mtel, and 1 operator from Radio-difuzni centar.

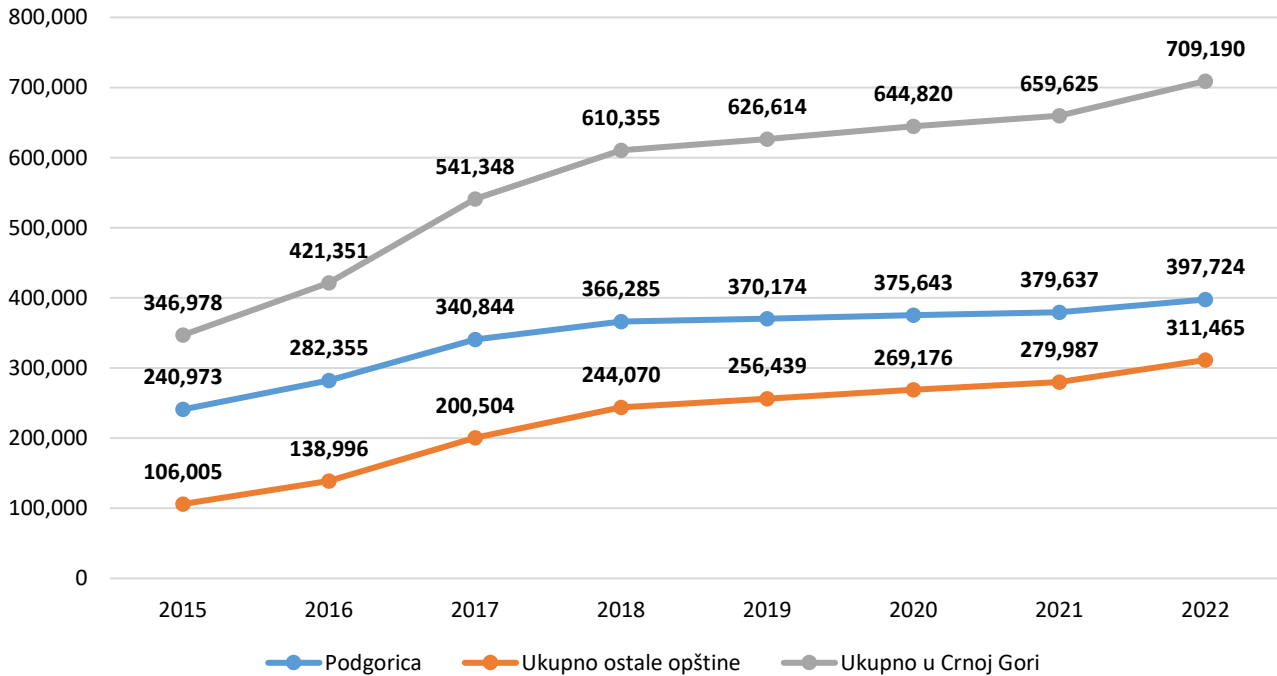
Joint use of telecommunications cable ducts is applied in 15 municipalities of Montenegro, in the total length of cca. 660 km, which is 7.51% more than in the relevant period of the previous year. A detailed overview of leased cable ducts per municipality is given in the Table below.

Joint use of telecommunications cable ducts per municipality, on 31.12.2022

Municipality	Length of EC cable ducts f40 mm (m)	Length of EC cable ducts f20 mm (m)	Length of EC cable ducts 3xf40 mm (m)	Length of EC cable 2xf20 mm (m)	Total of cable ducts (m)
Podgorica	111.770	276.779	2.783	413	397.724
Herceg Novi	7.811	59.985	0	0	67.796
Tivat	12.809	35.142	0	0	47.951
Kotor	5.648	15.563	0	0	21.211
Pljevlja	1.962	24.877	0	0	26.839
Bijelo Polje	3.945	34.710	0	0	38.655
Budvu	2.520	18.916	0	0	21.436
Bar	1.577	37.236	0	0	38.813
Nikšić	240	26.401	0	0	26.641
Cetinje	0	3.276	0	0	3.276
Berane	0	4.813	0	0	4.813
Ulcinj	0	2.164	0	0	2.164
Mojkovac	0	4.362	0	0	4.362
Danilovgrad	0	5.259	0	0	5.259
Žabljak	0	2.252	0	0	2.252

Total	148.282	551.733	2.783	413	709.190
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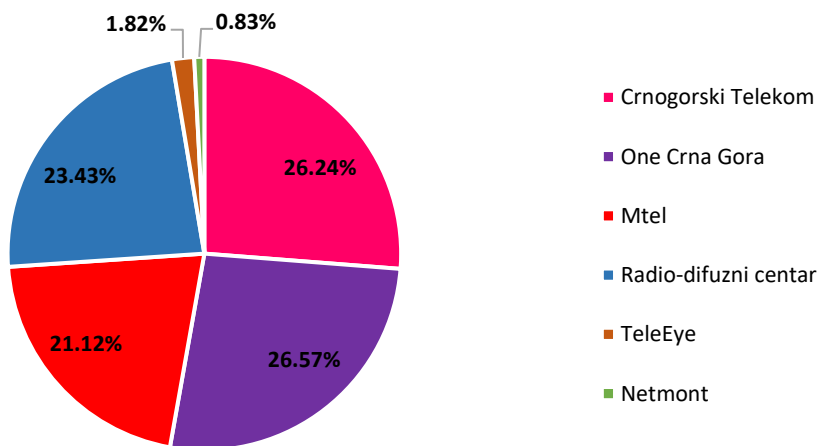
The graph below is an overview of leased telecommunications cable ducts (m) for the period 2015-2022. There is a continuous growth in the total length of leased telecommunications cable ducts, which is presented in the graph.



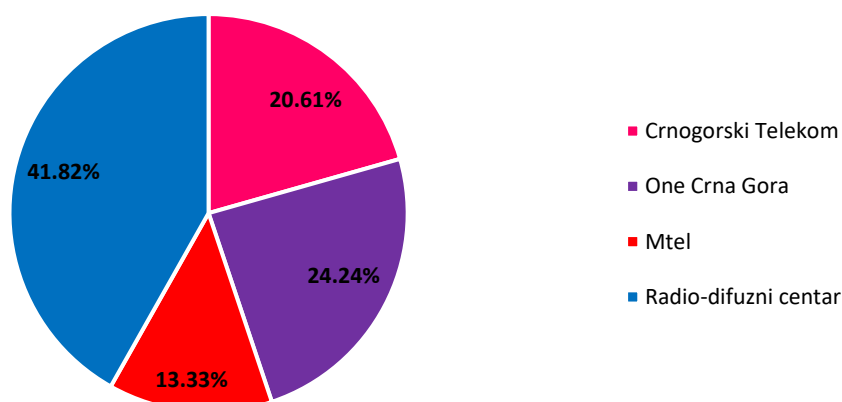
Actual prices of space lease in telecommunications cable duct of Crnogorski Telekom, Komunalne usluge Podgorica, Mtel and Radio-difuzni centar are at the same level and amount to 0.0811 €/m for a duct of 40mm diameter, i.e. 0.0304 €/m for a duct of 20mm diameter.

1.12.2. Antenna masts

Crnogorski Telekom, One Crna Gora, Mtel, Radio-difuzni centar, Teleeye Montenegro and NetMont in Montenegro have 606 antenna masts. Share in the ownership of antenna masts of the operators at the end of 2022 is shown in the pie-chart below.



As the owners of antenna masts, the operators rent the space on antenna masts on 322 locations, being cca. 54% of the total number of antenna masts. Individual shares in the ownership of antenna masts of the operators is given in the pie-chart below.



Mobile operators (Crngorski Telekom, One Crna Gora and Mtel) use their own antenna masts and those of other operators at approximately the same level, and the share of antenna masts of Radio-difuzni centar in the networks of Cnogorski Telekom, One Crna Gora and Mtel is 25-36%.

1.12.3. Facilities/Buildings

There are 729 locations of Crnogorski Telekom, One Crna Gora, Mtel and Radio-difuzni centar, with facilities/buildings/containers in which their equipment is stored. Joint use is applied at 228 location, which makes 31% of the total number of facilities/buildings/containers.

1.12.4. Joint use of public lighting masts and power masts

Operatori koriste stubove javne rasvjete u 8 opština (Podgorica, Nikšić, Bar, Budva, Herceg Novi, Danilovgrad, Ulcinj i Kotor).

Joint use of public lighting masts and power masts (35kV, 10kV and 0.4kV) is provided by Komunalne usluge Podgorica and Crnoogorski elektrodistributivni sistem (CEDIS). Komunalne usluge Podgorica signed agreements with Mtel, Crnogorski Telekom and Fibercom. Crnogorski elektrodistributivni sistem (CEDIS) signed agreements on the use of power masts with Mtel and with Crnogorski Telekom. The operators use public lighting masts in 8 municipalities (Podgorica, Nikšić, Bar, Budva, Herceg Novi, Danilovgrad, Ulcinj and Kotor).

1.12.5. Mapping of electronic communications infrastructure

Data on electronic communications infrastructure are submitted quarterly via Geoportal – system for mapping of the electronic communications infrastructure.

The Geoportal is implemented on the Java platform and uses the Geoserver software application, and the data is stored in the PostgreSQL spatial database. This system, in addition to the mapping of the electronic communication infrastructure, enables the mapping of broadband Internet access and the mapping of plans for the construction of electronic communication and other infrastructure, and contains data on the

electronic communication infrastructure, equipment, network and planned roads, available technologies, an overview of free capacities within cable pipes and calculation of the possibility to pass a cable or pipe of a certain diameter through them. A certain group of users has the option of entering the boundaries of spatial planning documents and based on them, they can export from the new system all the data needed for their further work. Also, one of the future novelties of the system is the selection of one or more cadastral plots and the export of data on the electronic communications infrastructure located in the area of the selected cadastral plot(s).

That system is used by the operators, processors of spatial planning documents, state, local and other institutions and administrations, investors and other interested physical and legal entities. The operators use that portal to submit data on their electronic communications infrastructure, as defined by ZEK and the Rulebook on the type of submission and disclosure of data on electronic communications infrastructure and associated facilities, which may be useful for the joint use. Also, by implementing the new system, operators are enabled to submit plans for the construction of electronic communications infrastructure, and the investors can submit information on planned construction of roads. Substrates in the form of maps and services are provided by Uprava za nekretnine Crne Gore. Mapping of electronic communications infrastructure provides optimal use of existing capacities and minimal damages during its construction. Moreover, this system allows efficient network and services planning, preparation of planning documentation, and in the same time it enables investors to make their investments based on real data. Mapping system is built in a way that it can be continuously upgraded and developed.

In the georeferenced base of electronic communications infrastructure there is data about telecommunications cable ducts, antenna masts, facilities/buildings/storage for storing electronic communications equipment, as well as the data about high-voltage energy masts and antenna carriers.

Data on telecommunications cable ducts provide information on the routes, shafts, cables, extensions and endings. The operators successively deliver this data and so far have been delivered by:

- Crnogorski Telekom submitted data for 6,956 km of telecommunications cable ducts, making appr. 100% of their local underground tk infrastructure,
- Komunalne usluge Podgorica submitted data for 162 km of telecommunications cable ducts, i.e. appr. 80% of their underground tk infrastructure,
- One Crna Gora submitted data for 16 km telecommunications cable ducts, i.e. 100% of their underground infrastructure,
- Siol submitted data for 182 km of telecommunications cable ducts, i.e. 100% of their underground tk infrastructure,
- Mtel submitted data for 459 km of telecommunications cable ducts, i.e. 100% of their underground tk infrastructure,
- Telemach submitted data for 23 km of telecommunications cable ducts, i.e. 100% of their underground tk infrastructure,
- Željeznička infrastruktura Crne Gore submitted data for 111 km of telecommunications cable ducts, i.e. appr. 80% of their underground tk infrastructure,

Regionalni vodovod Crnogorsko primorje submitted data for 26 km of telecommunications cable ducts, i.e. appr. 80% of their underground tk infrastructure.

Data on antenna masts provide information on the characteristics of the masts, antennas and equipment placed on the masts with underlying photographs and drawings. The operators have successively submitted this data and so far the following have been submitted:

- Crnogorski Telekom – for 159 masts (100% of the total number of masts),

- Radio-difuzni centar – for 142 masts (100% of the total number of masts),
- One Crna Gora – for 161 masts (100% of the total number of masts),
- Mtel – for 128 masts (100% of the total number of stubova),
- Teleeye Montenegro – for 11 masts (100% of the total number of masts),
- NetMont – for 5 masts (100% of the total number of masts).

Data on facilities/buildings/containers, providing information on their size, as well as the schedule of the equipment with underlying photographs and drawings. The operators have successively submitted this data, and so far, the following have been submitted:

- Crnogorski Telekom – for 283 buildings/facilities/containers (100% of the total number of facilities),
- Radio-difuzni centar – for 148 buildings/facilities/containers (100% of the total number of facilities),
- One Crna Gora - for 181 buildings/facilities/containers (100% of the total number of facilities),
- Mtel – for 71 buildings/facilities/containers (100% of the total number of facilities),
- Telemach – for 10 buildings/facilities/containers (100% of the total number of facilities),
- Teleeye Montenegro – for 13 buildings/facilities/containers (100% of the total number of facilities),
- Siol – for 2 buildings/facilities/containers (100% of the total number of facilities).

Data on antenna carriers provide information on the antennas and equipment placed on the carrier with underlying photographs and drawings. The operators have successively submitting this data and so far the following have been submitted:

- Crnogorski Telekom – for 79 carriers (100%),
- Radio-difuzni centar – for 12 carriers (100%),
- One Crna Gora – for 105 carriers (100%),
- Mtel – for 113 carriers (100%),
- NetMont – for 14 carriers (100%),
- Teleeye Montenegro – for 7 carriers (100%).

Data on the external cabinets and electronic communications equipment housed therein with associated photographs and drawings. The operators successively deliver this data, and so far, the following have been submitted:

- Mtel - for 309 external cabinets (100%),
- One Crna Gora - for 134 external cabinets (100%),
- Crnogorski Telekom - for 104 external cabinets (100%),
- Radio-difuzni centar – for 2 external cabinets (100%).

Data on the overhead lines provide information about the routes, cables, extensions, as well as the masts on which overhead lines are attached. The operators have successively delivered this data, and so far, the following have been submitted:

- CEDIS submitted geographic data for 2,713 km of telecommunications cables, i.e. 95% geographic data on the same,
- CGES submitted geographic data for 674 km of overhead telecommunications cables, which makes 100% geographic data on the same,
- Crnogorski Telekom submitted data for 28 km of overhead telecommunications cables, which makes appr. 80% data on the same,
- ŽICG submitted data for 58 km of overhead telecommunications cables, which is appr. 80% data on the same.

124 active users from the following entities were logged on into the system:

- 17 operators,
- 17 planners - developers of planning documents,
- 3 state authorities and
- 2 local self-governing bodies (Podgorica and Nikšić).

1.13. Monitoring of the quality of electronic communications services

Pursuant to Article 155 of ZEK (Law on Electronic Communications) the operators shall submit to the Agency measured quality parameters in the fixed and mobile networks. In December 2017, the Agency adopted a new Rulebook on the quality of public electronic communications services, which was published in the "Official Gazette of Montenegro", 002/18. The Rulebook was amended with measurement of accessibility parameters and signal quality of digital terrestrial radio broadcasting systems for broadcasting television programs of the second generation, and this Rulebook repealed the Rulebook on the quality of public electronic communications services dated from 2014. The Rulebook prescribes parameters of the quality of public electronic communications services in the fixed and mobile networks, as well as measurement methods and method for disclosing measurement results and the periods when measurements shall be made.

In order to make data on the quality of services provided by the operators in Montenegro publicly available, subject to the provisions of Article 155 of ZEK, the Agency publishes on its website comparative overview of measured values of the quality parameters for the public electronic communications services in fixed and mobile electronic communications networks. Pursuant to the same Article of the Law, the operators shall make publicly available measured parameters of the quality in their networks with a view to informing the users about the quality levels of the services from their offer.

The operators providing the services in a public mobile electronic communications network (Crnogorski Telekom, Telenor, and Mtel), during 2022, were regularly delivering their reports on measured values of the quality of electronic communications service parameters. With regard to the fixed network operators, the mentioned reports were submitted by ASP CO, Crnogorski Telekom, FiberCom, Mtel, Net Mont, One Crna Gora, Orion Telekom, Radio-difuzni centar, SBS Net Montenegro, TeleEye Montenegro, and Telemach.

Based on submitted reports, the Agency made comparative overviews of measured values of the quality parameters for public electronic communications services in the fixed and mobile electronic communications networks and published them on its website: <https://equip.me/page/users/electronic-communication-services/quality-of-service/parametri-kvaliteta>.

Comparative overview of these parameters of quality supplied the users with necessary information on the quality of services and helped them select electronic communication services of better quality and as well as a more reliable operator. Operators used these overviews to compare the parameters of their network with the ones of their competitors, and to take measures for the improvement of certain parameters of quality on fixed and mobile networks in order to offer their users services of improved quality.

The analysis of parameters of the service quality shows that the quality of services is not uniform and that some parameters of quality on fixed and mobile networks significantly vary from operator to operator. Being

aware of the fact that the values of certain parameters of quality are not satisfactory, the Agency addressed to the operators, indicating that the value of some parameters diverges from the expected one and that they should take measures on its improvement. When parameter of the quality of service on the public telephone network at a fixed location is concerned, the Agency reminded the operators of the parameters of “Failure repair time for access lines” and “Customer service response time”.

As regards the parameter “Failure repair time for access lines” - for 80% failures at the access line in the observed period” with Crnogorski Telekom, was very high, and it ranged from 33.88 hours (service of distribution of AVM contents), 45.59 hours (fixed telephony service) and 51.08 hours (Internet access service). It was very high in the 4th quarter, when these values were in the range from 49.02 hours to 66.93 hours. The high value of this parameter is the result of a strike in the company. Namely, due to the strike in the company, the Department for Technical Customer Services is working with approximately 1/3 of the employees, which results in disrupting repair time. Also, “Failure repair time for access lines” with Mtel - for 80% failure on the access line in the observed period was particularly higher in the first quarter of 2022 and between 25.30 and 27.72 hours depending on the service. The reason are band weather conditions at the beginning of the year which led to worse results of failure repair time.

In 2022, “Response time of the customer service” with Crnogorski Telekom was 33 seconds (fixed telephony services), 45 seconds (AVM contents distribution service) and 40 seconds (Internet access service). Significant increase was in the 4th quarter of 2022, when these values were between 63 and 87 seconds depending on the service type. High value of this parameter is due to a strike in the company.

Parameter values for Internet access service are hard to compare as the operators offer packages of different characteristics. That is why only certain parameters have been compared, as for example the parameter “Time of setting up a service at a fixed location”, which ranged from 1 day to 10.64 days. As for the parameter “Failure repair time for access lines”, it ranged from 4 hours to 51.08 hours; “Response time of the customer service” parameter values varied from 10 to 58 seconds. Compared to the values in 2021, with most of the operators, values of these parameters remained at the same level or were improved, except for Crnogorski Telekom where the value of these parameters raised.

By analysing the Report on the quality parameters of publicly available electronic communications services in 2021, it is concluded that during that year the values of quality parameters of the services in mobile electronic communications networks slightly varied on quarterly basis.

Value of “Response time of the customer service” parameter in Mtel mobile network is 21.6 seconds, in mobile network of Crnogorski Telekom it is 32 seconds, while in Orion Crna Gora it reached 40.99 seconds. “Frequency of appeals/complaints related to bill regularity” ranges from the value of 0.02% with Mtel, 0.06% with Crnogorski Telekom, and 0.18% with One Crna Gora; “Frequency of disconnected links” ranges from the value of 0.08% with One Crna Gora, 0.17% with Crnogorski Telekom, and 0.21% with Mtel. It is concluded that compared with the values of mentioned parameters in 2021, during 2022 “Frequency of disconnected links” decreased with all operators, “Frequency of appeals/complaints related to bill regularity” decreased with Crnogorski Telekom and One Crna Gora, while increased “Response time of the customer service” with Crnogorski Telekom.

Compared to the reports from the previous period, in 2022 the operators improved the values of certain parameters of service quality offered to the users, but despite these achievements and the efforts of the

operators to reach as much good parameter values as possible, some parameter values remain higher than expected. This mainly refer to the parameters indicated by the Agency to the operators, like: “Time of setting up a service at a fixed location”, “Failure repair time for access lines”, and “Response time of the customer service”.

In order to keep the users of electronic communications services informed about the quality of services offered by operators so they can select electronic communications services that meet their needs, the Agency will continue to publish on its website comparative values of the parameters of the service quality in the fixed and mobile electronic communications networks. The Agency will keep on monitoring the quality of electronic communications services, continue with detailed analysis of the values of service quality parameters, and will impose the operators to improve those parameters of electronic communications services that have not been achieved at the sufficient level.

1.13.1. Measurement of Internet access speed

At the beginning of June 2019, the Agency put into service the system for measurement and analysis of “EKIP NetTest” Internet access. The System EKIP NetTest allows measurement of parameters of Internet access service quality in fixed and mobile electronic communications networks in Montenegro.

EKIP Net Test is available to:

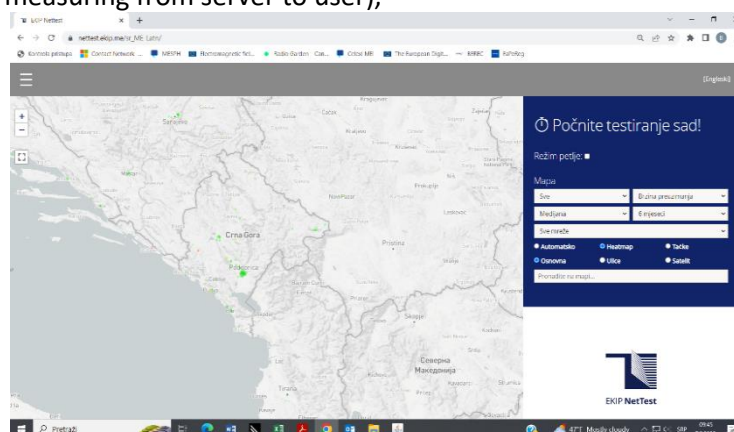
- all modern web browsers at the address: <https://nettest.ekip.me/>,
- mobile devices with Android operations system (version 6.0 or later) and iOS (version 10 or later). Mobile applications can be downloaded from Google Play for Android OS and App Store for Apple iOS.

With more than 80 measurable parameters, this is probably the most complete measuring tools available at the market. The System is completely in line with BEREC (Body of European Regulators for Electronic Communications) Report from 2014, recommending quality parameters for the quality of Internet connection.

Measuring server is located in the Internet exchange point (MIXP) in Montenegro, so the users of all operators would be in the same position when measuring the quality of Internet access service, i.e. in order to make the measuring results comparable.

By using EKIP NetTest, among other options, the users can test the parameters of Internet access quality

- Download speed (of data download – measuring from server to user),
- Upload speed (of data upload – measuring from user to server),
- Ping (latency),
- Parcel loss,
- Transparency and connection quality, and



- Signal power (depending on device and operations system).

The Agency also uses this system to control if the obligations of the operators of mobile services have been fulfilled with regard to dynamics and volume of coverage of the population of Montenegro with the signal of mobile networks, in line with the approvals for radio frequency use.

The subscribers may use EKIP NetTest system for testing the quality of Internet access service, in the context of the service quality parameters stipulated by subscriber agreements. If the measured quality parameters of Internet access service are below the quality stipulated by the subscriber agreement, the user may use the measuring results and file an appeal to the operator, and if the user is not satisfied with the response of the operator, he/she can file an appeal to the Agency, along with the results received from EKIP NetTest system.

Rezultati Mjerenja	
Brzina preuzimanja	46.62 Mbps
Brzina slanja	46.93 Mbps
Ping	3 ms

Rezultat testiranja (Kliknite na povezanu vrijednost za naprednu pretragu)	
Test vremena	Mar 7, 2023 9:45:49 AM
Vremenska zona	UTC+1h
Tip mreže	BROWSER
Lokacija	N 42°25.467' E 19°14.875' (BROWSER, 11.906 m)
Zemlja lokacije	Crna Gora
Zemlja AS	Srbija
Zemlja IP	Crna Gora

During 2022, according to measuring server of the system EKIP NetTest, a total of 3,284 separate measurements were carried out by the users from Montenegro. The users of mobile communications networks carried out 839 measurements, while an average download speed amounted to 56.87 Mbps. The measurements performed in the same period amounted to 2445. An average measured download speed was 51.57 Mbps.

1.14. The analysis regarding compliance with Net neutrality principles in Montenegro

Regulation (EU) 2015/2120 of the European Parliament and the Council (hereinafter referred to as the "Regulation") established measures related to access to the open Internet. The EU Regulation on open Internet access imposes a number of obligations on Internet service providers (ISP - Internet Service Provider) related to the provision of Internet access services (IAS - Internet Access Service). The goal of the regulation is to "ensure equal and non-discriminatory treatment of traffic in the provision of Internet access services and the related rights of end users" and to "guarantee the continuous functioning of the Internet ecosystem as a driver of innovation". In order to ensure the realization of these goals, the Regulation imposes measures related to the way of traffic management of data transmission by ISPs in their networks. Also, the Regulation specifies ISP obligations related to the terms and deadlines, as well as the content of information, in subscription contracts for the provision of IAS.

The practice in the member states of the European Union is that the national regulatory authorities (NRA - National Regulatory Authority) are responsible for the implementation and supervision of the fulfillment of the obligations arising from the aforementioned Regulation. BEREC Guidelines⁹ on the implementation of the European Regulation on Net neutrality have been designed to give the instructions for the implementation of NRA obligations.

⁹ https://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/guidelines/6160-berec-guidelines-on-the-implementation-by-national-regulators-of-european-net-neutrality-rules

Regulations of the European Parliament and the Council are regulations that are directly applied in EU member states, without the need to change national legislation. In contrast to the aforementioned practice, in order for Regulation (EU) 2015/2120 of the European Parliament and the Council to be applied in Montenegro, its implementation through national legislation is necessary. However, this has not been done so far, so the current Law on Electronic Communications does not include the provisions prescribed by this Regulation. Despite this, the Agency, recognizing the importance of this issue, to the extent permitted by the current competences prescribed by the Act, has implemented certain activities with the aim of monitoring the implementation of certain parts of this Regulation.

At the end of 2022, the Agency through the questionnaires asked the information from the operators that provide Internet access services on general, commercial and technical issues referring Net neutrality. The questionnaire was submitted to all Internet service providers, and most of them submitted their answers from which it is concluded that some of the operators were only partly familiarized with the Regulation provisions, and thus it was hard for them to complete it.

Traffic management (TM) measures - are of high importance in the assessment of Net neutrality. Reasonable TM measures are allowed to Internet service providers, provided that they are transparent, non-discriminatory, proportionate and not based on any "commercial reasons". Based on the analysis of the submitted data, it can be concluded that traffic management measures are applied only in cases of the need to preserve the integrity and security of the network and as a congestion management measure, in a non-discriminatory manner. In other words, based on the operator's response, it can be concluded that there are no procedures that indicate non-compliance with the Regulation related to traffic management measures. In addition, the operators stated in their answers that there is a possibility of blocking certain services, in case of requests from competent state authorities (eg Agencies - blocking of sites for online gambling; or MUP - blocking of sites with child pornography, etc.). What is also the obligation of ISPs is that the impact of TM measures is clearly and comprehensively described in the subscription contracts, which is currently not the case.

In addition, the Agency's questionnaire also covered the practice, used by ISPs, of blocking ports in order to preserve the integrity and security of their networks. The answers submitted showed that the operators are blocking certain ports, but that this is not a permanent measure, but rather a temporary one in order to preserve the security of the network. The main reasons given in the answers of ISPs for blocking ports are: SPAM, prevention of DDoS attacks, protection of users from malicious software, etc.

In order to be able to verify the application of TM measures by operators that provide Internet access services, since June 2019, the Agency has enabled end users to use the EKIP NetTest measurement system. EKIP NetTest enables, among other things, checking of blocking of specific UDP and TCP ports, Traceroute test and VoIP test to detect possible traffic slowdown or restriction (a precise description of QoS tests can be found at: <https://nettest.ekip.me/>). The available measurement results showed that operators who provide Internet access services do not use a permanent port blocking measure, but use this measure temporarily, as they stated in their answers to the questionnaire.

According to data provided by the operators there are several *zero rated* services in Montenegro, as for example the services of music *streaming*, video *streaming*, access to social media, *messaging* platforms etc. It is stated in BEREC Guidelines that *zero rated* services are to be thoroughly reviewed by national regulatory bodies so that they will not undermine the goals of the Regulation. Considering that the Regulation has not

been implemented in Montenegro, the Agency has not assessed the compliance of *zero rated* services with the provisions of the Regulation.

Based on the operator's response to the Agency's questionnaire, it was estimated that the provision of specialized services (VoIP and IPTV in a fixed network) by ISPs does not lead to the fact that specialized services are used or provided as a substitute for the Internet access service and are not available at the expense of availability or the quality of the Internet access service. Namely, the operators are obliged to provide sufficient capacities in their networks so that the provision of specialized services to the end user does not impair the quality of the Internet access service for other users in the network.

As laid down by Article 4 of the Regulation, the obligation of transparency for the operators providing Internet access service are the following:

- Mandatory content of the contract that includes the Internet access service;
- Obligation to publish a simple and efficient procedure for resolving user complaints related to open access to the Internet, as well as the fulfillment of contractual obligations

Despite the fact that the Regulation in Montenegro has not been implemented into legal regulations, a significant number of elements related to the aforementioned obligations are already applied by operators that provide Internet access services. This primarily refers to the procedures for resolving user complaints, which are precisely prescribed by the current Electronic Communications Act. Also, the Agency already controls a significant part of the mandatory items for subscription contracts through the approval procedure for all subscription contracts, including those that include the Internet access service.

Certain additions and adjustments must be made, in order to achieve compliance with the provisions of the Regulation. The issue of Internet access speed should be mentioned in particular. In the current Law on Electronic Communications, two categories related to this quality of service parameter are listed: minimum and maximum speed of Internet access in fixed networks. In contrast, the Regulation lists four categories in addition to this parameter: minimum, normally available, maximum and advertised speed of Internet access in fixed networks.

Based on the answers received from the operators, it is clear that large operators are familiar with the principles of network neutrality to a significant extent. Also, to a significant degree, there is an understanding of certain technical aspects related to network neutrality issues. On the other hand, in the part of the questions related to the commercial practices they apply, there is a noticeable lack of appropriate information.

Based on the available data, it can be concluded that the overall picture regarding Net neutrality in Montenegro is quite positive and shows the smooth functioning of the Internet ecosystem as a driver of innovation. It is certain that the harmonization of the Law with the European Union Regulation relating to net neutrality will represent a rounded system in which the Agency will receive appropriate responsibilities in the area of supervision over the implementation of appropriate measures, in order to fully implement all the obligations of operators that provide Internet access services. This will certainly lead to more efficient and comprehensive protection of end users, through the implementation of appropriate measures prescribed by the Regulation.

1.15. Safety and integrity of electronic communications networks and services

1.15.1. Measures to ensure safety and integrity of electronic communications networks and services

Following the Rulebook on the method and terms for performing the measures on security and integrity of electronic communications networks and services (“Official Gazette of Montenegro” 41/15 and 81/16) (hereinafter referred to as: the “Rulebook”), the operator shall implement relevant measures in the following fields:

- Risk Management,
 - Human Resources Security,
 - System and Facilities Security,
 - Operations Management,
 - Incidents Management,
 - Business Continuity Management,
 - Survey, Inspection and Testing, and
- within the competence of each of the above-mentioned fields of the operations, to reach appropriate security goals and undertake security measures.

The operators carried out most of the measures for safety and integrity protection of electronic communications networks and services included in the subject fields. Through their respective Network Operations Centers (NOC), as defined by the Rulebook, the operators submit notifications and reports on the latest safety incidents.

It is stipulated by the Report that the operators with more than 10,000 users (telephony, Internet) shall implement DRS (Disaster Recovery Site) at the geo-redundant location in the territory of Montenegro, which would enable continuous supply with the services (telephone, SMS, Internet).

According to the reports provided by the operators and based on the controls done by the Agency, DRS implementation level is as follows:

- Crnogorski Telekom carried out all the obligations prescribed by the Rulebook and put into operations the DRS in Bijelo Polje. The signalization was partly replaced, and No7 was replaced with SIP interconnection, through which it was connected to Telemach (the main and DRS Site) and the main sites of Mtel and One Crna Gora. The traffic was partly carried out through DRS of Bijelo Polje (fixed Internet 26%, mobile Internet 37%, fixed voice 10%, mobile voice 45% and GIA 54%),
- One completed the technical acceptance of all Core nodes including Billing and Provisioning tests. A new DR UDC as well as a new DR IMS have been put to production in the active geo-redundancy and all fixed telephony subscribers migrated to a new IMS. DRS in Pljevlja is connected to communications equipment of One network. Connection activity with the main and DR site of other operators and migration to SIP interconnection is planned to be realized till the end of Q2 2023. Currently, DRS is ready to operate in a “stand by” regime, while the load share configuration will remain active till the end of Q1 2023,
- Mtel completed DRS in Nikšić from the aspects of CS core, PS core and fixed network. Independent connection Internet has not still been completed, and the deadline is 2024. Through DRS Nikšić is done 30% of mobile calls and package traffic. Connections to other operators, except for Orion, has not still been completed,
- Telemach completed DRS Pljevlja and through SIP interconnection it is connected to the main site and DRS site of Crnogorski Telekom. A part of IP (Internet) traffic is carried out through DRS Pljevlja.

DRS put into operations the *voice* but the traffic is not carried out through it. In case of a failure of the main site in Podgorica, IP traffic is automatically directed to DRS, while the voice traffic needs to be manually directed, which lasts for about 60 minutes. They have an agreement with Crnogorski Telekom stipulating that, when needed, they can divert the traffic to Mtel and Telenor.

In order to ensure better system reliability of the operators that are in obligation to deploy DRSEs, it has been imposed to the operators to completely implement their DRSEs in the shortest time, and to connect them to DRS of other operators and put them into function.

Other operators, according to the criteria laid down by the Rulebook, for the time being, are not on obligation to deploy DRSEs.

During 2022, according to the reports received by the operators, it was determined that the failures occurred in a large scale (in more than 10 base stations) in the network of One Crna Gora, and mostly caused by bad weather conditions and outages in power supply caused by bad weather conditions. Some failures occurred due to problems in certain parts of the system which then led to problems in Internet connections (as from 27.07. till 04.08.2022 in the network of Crnogorski Telekom and on 13.10. and 05.11.2022 in the network of One Crna Gora) of mobile i fixed network (Mtel and Crnogorski Telekom). There were also some interruptions in the work of fiber cables of Crnogorski Telekom, in the north of Montenegro, consequently leading to service interruptions in some municipalities (Plav, Gusinje, Bijelo Polje and Mojkovac).

1.15.2. Emergency Response Measures Plan

Pursuant to Article 61 (1) of ZEK (Law on Electronic Communications and Postal Services) and Article 8 of the Regulation on the contents of the Measures plan for providing integrity of public electronic communications networks and use of electronic communications services in emergency situation ("Official Gazette of Montenegro" 50/14), in November and December of 2022, the operators submitted to the Agency the Emergency Response Measures Plan for 2023. The Plans for 2023 were submitted by: Crnogorski Telekom, One Crna Gora, Mtel, Wireless Montenegro, Telemach, RDC, IPMont, Orion Telekom and Tele Eye.

Common list of the operators and emergency services with contact persons was updated and submitted to each operator and to Directorate for Emergency Situations. That list is duly updated according to any change or update thereof sent by the operators.

1.15.3. Registration of users

As referred to in Article 174 of the Law, the operator shall register each user of fixed and mobile telephony, and of Internet.

Considering that during the paper registration of the users (2015-2016) some irregularities with mobile operators were identified, in order to overcome detected irregularities, the operators agreed with an access improvement of user registration process, so an electronic registration of users was introduced. According to the above said, the amendments to the Rulebook on the way of registration of users of electronic communications services ("Official Gazette of Montenegro", 60/16) were made, allowing also an electronic registration of users which started to apply as of 20 May 2017.

Introduction of electronic registration of users has so far proved all expectations of the state bodies, the Agency and the operators. During 2022 there were no complaints by the state bodies regarding the registration of users.

1.15.4. Unsolicited communications by abuse of electronic mail

In 2019 the Agency introduced “Ne zovi me” Register (“Do Not Call Me”) in electronic form. The Register are telephone numbers and e-mail addresses of the users who do not want to receive electronic messages i.e. telephone calls with the purpose of direct marketing. Entering in or deleting data from the Register, upon on the users’ requests, is free of charge, and is done by the operator with whom the user signed subscriber agreement.

Entering data in the Register is done by:

- submitting request by post or in the business office of an operator,
- submitting request by electronic mail, from the address previously registered with an operator, as the electronic mail address of the user submitting the request,
- sending SMS to the number 14876 from telephone number of the user who wants to be entered in the Register.

Telephone number, i.e. e-mail address from the request, the operator shall enter in the Register within 2 working days as of the date of receipt of a regular request of the user. The data will be accessible to all interested parties. The person sending electronic mails, or making telephone calls, or in whose name electronic mails are sent or telephone calls are made with the purpose of direct marketing, shall obtain the user’s approval, i.e. check the user’s status in the Register before sending the electronic mails or making telephone calls. Enlisting in the Register “Ne zovi me” annuls all previously given approvals mentioned herewith, meaning that neither electronic mails nor telephone calls with the purpose of direct marketing shall be made to the e-mail addresses or to telephone numbers enlisted in the Register. More detailed information referring to the Register are available on the following address: nezovime.ekip.me.

The screenshot shows the website nezovime.ekip.me. The header includes the logo 'NE ZIVI ME' and the name of the agency: 'CRNA GORA AGENCIJA ZA ELEKTRONSKE KOMUNIKACIJE I POŠTANSKU DJELATNOST'. Navigation links include 'Početna', 'Zakonska Regulatoriva', 'Zahtjevi', 'Česta Pitanja', 'Kontakt', 'Pristup Registru', and 'Login'.

The main content area contains the following text:

Agencija za elektronske komunikacije i poštansku djelatnost je uspostavila registar u elektronskom obliku, koji sadrži samo telefonske brojeve i e-mail adrese korisnika koji ne žele da primaju elektronske poruke odnosno telefonske pozive u svrhu direktnog marketinga. Upis/brisanje podataka u Registar, bez naknade, na osnovu zahtjeva obavlja operator sa kojim korisnikom ima zaključen pretplatnički ugovor. Opširnije

Telefonski broj odnosno e-mail adresu za koji je podnijet zahtjev operator je dužan da upiše/bríše u Registar u roku od 2 radna dana od dana prijema ispravnog zahtjeva korisnika. Pristup podacima iz Registra će imati sva zainteresovana lica. Opširnije

Obavještenje

Poštovani korisnici,

Upisom u Registar ste se opredijelili da ne primate elektronske poruke i telefonske pozive u svrhu direktnog marketinga, i time ste povukli sve saglasnosti koje ste prethodno dali.

Ako želite da izaberete od koga hoćete da primate poruke i pozive u svrhu direktnog marketinga, za to će biti potrebno, da pristupite Registru, pomoću lozinke koju ste dobili prilikom zahtjeva za upis u Registar Vašeg telefonskog broja ili email adrese (korisničko ime je upisan vaš telefonski broj ili email adrasa, a Lozinka je ona koju ste dobili prilikom upisa u Registar).

On the right side, there is a registration form titled 'Unesite vaš telefonski broj ili e-mail adresu da proverite da li su upisani u Registar'. It contains two input fields: 'Unesite Vaš telefonski broj u formatu 06XXXXXX za mobilni ili 0YYZZZZZ za fiksni broj' and 'Unesite Vas email'. Below each field is a 'PROVJERA' button. At the bottom of the form is a 'ULOGUJTE SE' button.

Till the end of 2022, in the Register were enlisted 582 users, of which 68 new users. At the end of 2022, in addition to the operator, ten other companies that were engaged in sending marketing messages had access to the Register, in order to monitor the registered numbers. In 2022, access was enabled for one company. There were also several changes regarding access by NTH Media (deletion of old users and registration of new users) and AD Mind. In the course of 2022, the Agency received three user complaints related to: unwanted SMS marketing messages (1), harassment and misuse of the number (2), which were processed, resolved and users were informed about them. Besides, there was one complaint on the short calls made from abroad, from the numbers: + 962 7xxx xxxx (interrupted immediately upon the first ringing). After addressing the operators the calls from this series of number was disabled.

1.15.5. Retaining of traffic data

Subject to Article 181 of the Law on Electronic Communications, the operator shall in its network and at its own costs retain particular data on traffic data (for successful and unsuccessful call attempts), as well as relevant data required for identification and registration of subscribers to the extent to which such data were generated to provide technical and organizational conditions which enable relevant state bodies to take over the retained data on traffic. Categories of retained data from Article 182(1) of the Law on Electronic Communications are defined in more details by the Rulebook on Technical and Organizational Conditions for taking over retained data ("Official Gazette of Montenegro" 54/15) and by the Directive on Categories of Data of Electronic Communications ("Official Gazette of Montenegro" 52/14), which are to be retained. Reasons for incomplete performance off required technical and organizational conditions which enable relevant state bodies to take over retained data on traffic and location, as well as required data for identification and registration of subscribers, were overcome by the Rulebook on amendments to the Rulebook on technical and organizational conditions for taking over retained data ("Official Gazette of Montenegro" No. 59/16); this is supported by the opinion of the Agency for Personal Data Protection and Free Access to Information (No. 06-11-2273-3/16 as of 3 June 2016), giving reply to the question of the operators asking to which relevant state bodies i.e. relevant state governing bodies the operators shall proceed retained data, respecting positive regulations of Montenegro.

The operators of electronic communications: Telenor, Mtel, Crnogorski Telekom and Telemach submit retained data by electronic means to competent state bodies, in accordance with the Law. In 2021 there were complaints by the state bodies on retaining and receipt of retained data, which regarded the issue that the operators do not provide them with all data prescribed by the Rulebook and Directive (MAC address and time advance). After the supervision, the operators were instructed by the supervisor to provide necessary technical and organizational conditions to allow retaining of "MAC addresses" and "time advance" data, and the manner for retaining data on the IP addresses.

Later, the control established that the "MAC address" of devices in the fixed network is retained and forwarded to the competent state authorities at their request. According to the operator, there is no technical possibility to realize the retention of "time advance" data. As a large number of users simultaneously access one IP address in the mobile network, mobile operators are unable to determine the source of communication for a specific date and time due to the limited number of IPv4 addresses. The problem with IP addresses can be solved by switching to IPv6, the ranges of which operators have been authorized to test since 2016/2017. Submission of information about the owner of the user account in the fixed network, for Internet access service, based on the data from the requirements of the competent state

body, the operators Crnogorski Telekom and One Crna Gora are able to accurately determine the end user, while Mtel and Telemach do not have this possibility.

By letter dated 18.11.2022, the operators addressed the Agency with a request and a specific proposal for amendments to the Regulation on the categories of data on electronic communications that are retained and the Rulebook on technical and organizational conditions for the download of retained data. The letter was forwarded to the competent state authorities (UP and ANB). In the response we received from the competent state authorities, it is emphasized that we should wait for the new Law on Electronic Communications, and only after its adoption, possibly proceed with the amendment of the Regulation and Rulebook.

2. IMPOSED REGULATORY MEASURES

2.1. Analysis of relevant markets for the purpose of the assessment of the level of market competitiveness

The Agency carries out procedure for analysing relevant markets with a view of assessing level of market competitiveness. The main goal of the analysis of relevant markets is to determine presence of the operators with individual or collective market power in the relevant market. The Agency imposes regulatory remedies to the operators with significant market power if the method of analysis and/or the Three-Criteria Test defines that the competition in the relevant market is not efficient, or the Agency withdraws the remedies, if otherwise determined. Furthermore, the Agency monitors the implementation prescribed regulatory remedies by the operators with significant market power.

2.1.1. The European Union regulatory framework for electronic communications

The European Union regulatory framework for the field of electronic communication is intended to ensure unhindered accomplishment of an efficient functioning of the European single market of electronic communications networks and services. Nowadays, this framework is regulatory model accepted as the best-known model, even in many non-EU countries.

In December 2009, on the proposal of the European Commission, European Parliament and the Council of Ministers of the European Union adopted a new regulatory framework in the field of electronic communications that includes two directives and one regulation:

- Regulation 1211/2009 of the European Parliament and European Council, on establishing the Body of European Regulators for Electronic Communications (BEREC)¹⁰,
- Directive 2009/136/EC of the European Parliament and European Council¹¹, amending Directive 2002/22/EC on universal service, Directive 2002/58/EC on the processing of personal data and Rulebook No. 2006/2004 on the cooperation of national bodies competent for implementation of the regulations on customer rights protection,
- Directive 2009/140/EC of the European Parliament and European Council¹², on amending Directive 2002/21/EC on the framework, Direktiva 2002/19/EC o pristupu i interkonenciji i Direktiva 2002/20/EC o izdavanju odobrenja za mreže i usluge.

The EC Regulation on relevant markets subject to ex-ante regulation (2014/10/EU) was adopted on 09.10.2014. According to this Decision, five wholesale markets are subject to ex-ante regulation.

¹⁰ Regulation (EC) No 1211/2009 of the European Parliament and of the Council of 25 November 2009, establishing the Body of European Regulators for Electronic Communications (BEREC) and the Office

¹¹ Directive 2009/136/EC of the European Parliament and of the Council of 25 November 2009, amending Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services, Directive 2002/58/EC concerning the processing of personal data and the protection of privacy in the electronic communications sector and Regulation (EC) No 2006/2004 on cooperation between national authorities responsible for the enforcement of consumer protection laws

¹² Directive 2009/140/EC of the European Parliament and of the Council of 25 November 2009, amending Directives 2002/21/EC on a common regulatory framework for electronic communications networks and services, 2002/19/EC on access to, and interconnection of, electronic communications networks and associated facilities, and 2002/20/EC on the authorisation of electronic communications networks and services

At the end of 2018, the European Union adopted new rules of the European Union regarding electronic communications with a view to promoting fast implementation of 5G technologies and other next generation technologies throughout Europe, promoting the latest innovations and increasing consumer protection in the field of electronic communications. Two legislation acts were adopted:

- Regulation (EU) 2018/1971 of the European Parliament and Council dated 11 December 2018 on establishing the Body of European Regulators for Electronic Communications (BEREC) and the Agency for BEREC support (BEREC Office), amending the Regulation (EU) 2015/2120 and repealing Regulation (EC) No. 1211/2009, and
- Directive (EU) 2018/1972 of the European Parliament and Council dated 11 December 2018 on the European framework in electronic communications.

The European Commission adopted directives for market analysis and assessment of the significant market power based on the EU regulatory framework for electronic communications networks and services (2018/C 159/01).¹³

On 18 December 2020, the European Commission adopted the Recommendation (EU) 2020/2245¹⁴ on relevant markets in the electronic communications sector subject to ex ante regulation in accordance with the Directive (EU) 2018/1972 of the European Parliament and Council of December 11, 2018, on the European Electronic Communications Code. Two relevant service markets are defined by the Recommendation.

2.1.2. Legal basis for the implementation of procedure for determining and analysing the relevant markets in Montenegro

The Law on Electronic Communications, Chapter VI - Protection of competition in electronic communications, stipulates criteria and methods for determining the presence of operators with significant market power in the relevant market, the process of market analysis, identification and definition of relevant markets and imposition of appropriate regulatory measures imposed on the operator with significant market power in the relevant market.

2.1.3. Monitoring the implementation of regulatory obligations imposed to operators with significant market power, in accordance with the Agency's decisions on relevant markets

During 2022, the Agency was monitoring the implementation of measures and obligations imposed by decisions from previous years, which determined significant market power operators upon performed relevant market analysis.

2.1.3.1. Analysis of relevant markets according to the Agency's Decision on relevant markets of the services subject to verification of the fulfillment of the Three Criteria Test with the aim to prove justification for further implementation of ex-ante regulation ("Official Gazette of Montenegro", 31/19)

¹³ Guidelines on market analysis and the assessment of significant market power under the EU regulatory framework for electronic communications networks and services (Text with EEA relevance) (2018/C 159/01)

The Agency Council, on its meeting held on 28.05.2019, adopted Decision on relevant markets of the services that are subject to verification of the fulfilment of the Three Criteria Test with the aim of proving the justification for further application of ex-ante regulation ("Official Gazette of Montenegro", 31/19).

The Agency Council, on its meeting held on May 28, 2019, adopted decision on relevant service markets that are subject to verification of the fulfilment of the Three Criteria Test with the aim of proving the justification for further application of ex-ante regulation ("Official Gazette of Montenegro", 31/19).

According to the Decision, the following relevant markets of services on which the Agency carried out fulfilment of Three Criteria Test are:

- 1) Retail market of the access to public telephone market at a fixed location, for physical and legal persons;
- 2) Retail market of the access to publicly available service of local and intercity calls for legal and physical persons, provided at a fixed location;
- 3) Retail market of publicly available international call service for legal and physical persons, provided at a fixed location;
- 4) Wholesale market of the market of calls originating from public fixed telephone network;
- 5) Wholesale market of access and call origination from public mobile telephone networks.

Retail market of the access to public telephony network at a fixed location, for physical and legal persons

After conducting an analysis of the degree of substitution on the demand side, the degree of substitution on the supply side and analysis of potential competitive pressures, the Agency determined that the scope of this relevant market includes the following relevant services:

- Service of access to telephone network at a fixed location for physical and legal persons provided via POTS connections, regardless of whether the subject access is offered separately or as a part of service package,
- Service of access to telephone network at a fixed location for physical and legal persons provided via ISDN connections, regardless of whether the subject access is offered separately or as a part of service package,
- Service of access to telephone network at a fixed location for physical and legal persons provided via Internet Protocol (IP), regardless of whether the subject access is offered separately or as a part of service package,
- Service of access to telephone network at a fixed location for physical and legal persons provided via cable networks, regardless of whether the subject access is offered separately or as a part of service package,
- Service of access to telephone network at a fixed location for physical and legal persons provided via wireless connections, regardless of whether the subject access is offered separately or as a part of service package.

The Agency determined that retail market of access to public telephone network at a fixed location for legal and physical persons in Montenegro is the entire territory of Montenegro in the geographical dimension.

During control with Three Criteria Test, the Agency concluded that all three criteria were cumulatively fulfilled on that relevant market, and conducted market analysis procedure. In the market analysis procedure, the Agency determined Crnogorski Telekom as the SMP operator and imposed it the following regulatory remedies:

- Obligations at the wholesale level:

- Obligation of having the right to choose/pre-choose the operator:
 - a) Obligation of data disclosure,
 - b) Obligation of providing non-discrimination,
 - c) Obligation of price control and cost accounting,
 - d) Obligation of keeping separate accounting records.

- Obligation of leasing the lines at the wholesale level:
 - a) Obligation of data disclosure,
 - b) Obligation of providing nondiscrimination,
 - c) Obligation of price control and cost accounting,
 - d) Obligation of keeping separate accounting records.

- Obligations at the retail level:
 - Obligation of keeping separate accounting record.
 - Obligation of regulation of the prices of retail services,
 - a) Prohibition of calculating over-pricing,
 - b) Prohibition of obstructing market entry,
 - c) Prohibition of restricting competition by introducing underpricing,
 - d) Prohibition of giving unduly advantages to certain end user,
 - e) Prohibition of unduly connection of certain services.

The above measures are imposed respecting the principles of proportionality and rationality as referred to in Article 69(3) of the Law.

The Agency monitored the implementation of imposed regulatory remedies during 2022.

Retail market of publicly available service of local and intercity calls for legal and physical persons, provided at a fixed location

After performing analysis of the substitution level on the demand side, substitution level on the side of supply and analysis of potential competition pressures, the Agency concluded that in the scope of this relevant market are also included the following relevant services:

- Calls to geographic numbers (to national fixed networks),
- Calls to the numbers in national mobile electronic communications networks, weather the main subject is standard publicly available telephone service, calls through the service of selection and pre-selection of the operator, administered VoIP calls providing separate virtual channel for voice transmission, or the service provided via WiMAX technology.

The Agency established that retail market is the entire territory of Montenegro in the geographical dimension.

During the Three Criteria Test, the Agency concluded that all three criteria were cumulatively fulfilled on that relevant market, and conducted market analysis procedure. In the market analysis procedure, the Agency determined Crnogorski Telekom as the SMP operator and imposed on it the following regulatory remedies:

- Obligations at the wholesale level:
 - Obligation of having the right to choose/pre-choose the operator:
 - a) Obligation of data disclosure,
 - b) Obligation of ensuring non-discrimination,

- c) Obligation of price control and cost accounting,
- d) Obligation of keeping separate accounting records.
- Obligation of leasing the lines at the wholesale level:
 - a) Obligation of data disclosure,
 - b) Obligation of providing non-discrimination,
 - c) Obligation of price control and cost accounting,
 - d) Obligation of keeping separate accounting records.
- Obligations at the retail level:
 - Obligation of keeping separate accounting records,
 - Obligation of regulation of the prices of retail services,
 - a) Prohibition of calculating over-pricing,
 - b) Prohibition of obstructing market entry,
 - c) Prohibition of restricting competition by introducing underpricing,
 - d) Prohibition of giving unduly advantages to certain end user,
 - e) Prohibition of unduly connection of certain services.

Upon cost model results verification according to CCA/LRIC methodology for fixed networks, according to Agency's Decision dated 23.06.2022, Crnogorski Telekom was in obligation to reduce the prices of that relevant market, according to the following:

- Calls of intercity calls, by 10%,
- Call services to mobile networks, by 15%, and
- Call services to other fixed networks, by 10%.

Crnogorski Telekom has applied unit prices determined by Decision, as from 01.08.2022.

Maloprodajno tržište javno dostupne usluge međunarodnih poziva za pravna i fizička lica, koja se pruža na fiksnoj lokaciji

The Agency has determined that the following relevant services are also included in the relevant market:

- Calls to geographic numbers (to international fixed networks),
- Calls to the numbers in international mobile electronic communications networks, weather the main subject is standard publicly available telephone service, administered VoIP calls providing separate virtual channel for voice transmission (with voice transmission provided via Internet Protocol, which is completely transmitted through the operator's network, while providing special virtual voice channel), or it is the service provided via WiMAX technology.

The Agency established that retail market is the entire territory of Montenegro in the geographical dimension.

By applying Three Criteria Test, the Agency concluded that all three criteria are cumulatively fulfilled on this relevant market, and after that conducted the procedure of market analysis. Based on certain criteria as referred to in Article 68 of ZEK (Law on Electronic Communications), the Agency determined Crnogorski Telekom to be SMP operator on the relevant market "Retail market of the services of international calls provided at a fixed location, for legal and physical persons".

With reference to obstacles on the market competition development which may occur on the relevant market, the Agency imposed to Crnogorski Telekom the following regulatory remedies:

- Obligations at the wholesale level:
 - Obligation of having the right to choose/pre-choose the operator:
 - a) Obligation of data disclosure,
 - b) Obligation of providing non-discrimination,
 - c) Obligation of price control and cost accounting,
 - d) Obligation of keeping separate accounting records.
 - Obligation of leasing the lines at the wholesale level:
 - a) Obligation of data disclosure,
 - b) Obligation of providing non-discrimination,
 - c) Obligation of price control and cost accounting,
 - d) Obligation of keeping separate accounting records.

- Obligations at the retail level:
 - Obligation of keeping separate accounting records,
 - Obligation of regulation of the prices of retail services,
 - a) Prohibition of calculating over-pricing,
 - b) Prohibition of obstructing market entry,
 - c) Prohibition of restricting competition by introducing underpricing,
 - d) Prohibition of giving undue advantages to certain end user,
 - e) Prohibition of undue connection of certain services.

Upon cost model results verification according to CCA/LRIC methodology for fixed networks, according to the Agency's Decision of 23.06.2022, the Agency imposed to Crnogorski Telekom to reduce the prices of that relevant market, according to the following:

- services of international calls to fixed networks of the Zone II, by 10%, and
- services of international calls to fixed and mobile networks of the zone IV, by 10%.

Crnogorski Telekom has applied unit prices determined by Decision, as from 01.08.2022.

Wholesale market of calls originating from public fixed telephone network

After performing analysis of substitution level on the demand side, substitution level on the side of supply and analysis of potential competition pressures, the Agency concludes that in the scope of this relevant market are also the following relevant services:

- Service of call originating from the network of all operators for the purpose of termination on the numbers of end users, including origination provided for their own needs;
- Service of call origination for the services of selecting the operator;
- Service of call origination for the access to numbers of operators, to numbers for the value-added services, services delivered by special services, emergency services and services of social importance in the network of another operator.

The Agency determined territory of Montenegro to be the relevant market within geographic dimensions.

By applying Three Criteria Test, the Agency concluded that all three criteria are cumulatively fulfilled on that relevant market and after that conducted market analysis procedure. The Agency determined Crnogorski Telekom to be SMP operator on that relevant market and imposed on it the following remedies:

During 2021 the Agency monitored implementation of imposed regulatory obligations.

- Obligation of data disclosure,
- Obligation of providing non-discrimination,
- Obligation of keeping separate accounting records,
- Obligation of allowing the access to network elements and their use,
- Obligation of price control and keeping cost accounting.

During 2022, the Agency monitored the implementation of imposed regulatory remedies.

Wholesale market of access market and call origination from public mobile telephone networks

After conducted analysis of the substitution level on the demand side, substitution level on the side of supply and analysis of potential competition pressures, the Agency concludes that within this relevant market are also included the following relevant services:

- Service of enabling every kind of the access by mobile network operator;
- Service of access for its own purposes and service of call origination from its own network and from the networks of other operators provided for their own needs.

Relevant market of call origination is single market for all mobile network operators and it includes call origination from mobile networks, whether the call is made from mobile device supporting 2G, 3G or 4G technology. The Agency established that retail market is the entire territory of Montenegro in the geographical dimension for the access services and call origination from public mobile communications networks offered by Crnogorski Telekom, One Crna Gora and Mtel.

By applying Three Criteria Test, the Agency concluded that all three criteria are cumulatively fulfilled on that relevant market and after that conducted market analysis procedure. The Agency determined Crnogorski Telekom, Telenor and Mtel to be SMP operators on that relevant market and imposed on it the following remedies:

- Obligation of data disclosure;
- Obligation of providing non-discrimination;
- Obligation of keeping separate accounting records;
- Obligation of providing the access to network elements and of their use;
- Obligation of price control and keeping cost accounting.

Upon verification of the results of cost models according to CCA/LRIC methodology for mobile networks, the Agency imposed on Crnogorski Telekom, One Crna Gora and Mtel to reduce the prices of the service of call origination from mobile networks, by 16.13%.

SMP operators on that relevant market applied prescribed unit price as from August 1, 2022, and in line with that they revised their reference interconnection offers.

2.1.4. Activities on analyses of relevant markets in 2021 in accordance with the Agency's decision on re-initiating analysis of relevant markets

The Agency Council, on its meeting held on March 18, 2021, made decision on initiation of re-evaluation of relevant markets ("Official Gazette of Montenegro", 32/21). Before adopting subject decision, pursuant to

Article 65 of the Law, the Agency provided positive opinion of the Agency for Protection of Competition, act no: 01-354/21-177/4 of 15.03.2021, on the reasonableness of initiation of re-evaluation of the market analysis. Relevant markets defined by the Agency's decision ("Official Gazette of Montenegro", 32/21) were subject of the analysis completed in 2017, respecting the decision on relevant markets ("Official Gazette of Montenegro", 2/17), strictly respecting Article 64(4) of the Law on Electronic Communications prescribing that the Agency shall conduct the procedure of relevant market analysis at least once in a three-year period.

A list of relevant markets is determined by the Agency's decision on relevant markets, in accordance with the European Commission Recommendation 2014/710/EC on relevant markets in the sector of electronic communications subject to ex-ante regulation, and not in accordance with valid Recommendation of the European Commission regarding the services of relevant markets, dated on December 18, 2020, considering that valid Law on Electronic Communications includes transposed provisions of the EU regulatory framework from 2009.

Relevant markets determined by the Agency's Decision are the following:

- Wholesale market of call termination on its own telephone network provided at a fixed location;
- Wholesale market of call termination on its own mobile telephone network;
- Wholesale market of local access provided at a fixed location;
- Wholesale central access provided at a fixed location for the mass market products;
- Wholesale high-quality access provided at a fixed location.

Chronology of the activities of the Agency in the relevant market analysis procedure

At the session held on January 28, 2021, the Agency Council adopted Draft Decision on the initiation of the reanalysis procedure on relevant service markets, in accordance with the Decision on Relevant Markets from 2017 ("Official Gazette of Montenegro", 2/17), pursuant to Article 64(4) of ZEK which defines the obligation of the Agency to conduct the procedure of relevant market analysis at least once in a three-year period.

During public consultation procedure on Draft Decision on initiating re-evaluation of the analysis on the relevant markets of services, which lasted till 01.03.2021, only Crnogorski Telekom submitted the comments on Draft Decision.

Upon receiving the Opinion No. 01-354/21-177/4 dated 15.03.2021 of the Agency for Protection of Competition, the Agency Council, on its session held on 18.03.2021, adopted Decision on re-initiating the procedure of the analysis on the relevant markets of services ("Official Gazette of Montenegro", 32/21).

The Agency Council, at the session held on October 28, 2021, adopted Draft Analysis of the relevant markets, pursuant to Article 65(2) of the Law on Electronic Communications ("Official Gazette of Montenegro", 40/13, 56/13, 2/17 and 49/19), in the period 29.10-29.11.2021, the Agency conducted public consultations procedure. In the public consultation procedure were received the remarks, comments and suggestions from Crnogorski Telekom and Crnogorski Elektroprenosni sistem. The Agency for Protection of Competition of Montenegro submitted its explanation and opinion No: 04-354/21-866/4 dated 22.11.2021, regarding the texts of draft relevant market analysis, subject of public consultations, where, within its competences, completely agreed with submitted draft documents.

The report on conducted consultation process regarding draft analysis of three relevant markets accompanied with the Agency's replies was adopted on the Council session, on 13.01.2022, and published on the Agency's web site. At its session held on 20.01.2022, the Agency Council made decision on adopting the relevant market analysis ("Official Gazette of Montenegro" No. 9/22), and adopted final texts of three analysis of relevant markets, as well as an overview of the Agency's replies with detailed professional analysis of the operators' remarks, comments and suggestions, and the reasons why they accepted or did not accept them, accompanied with explanations.

On the session held on 17.02.2022, the Agency Council made decisions on the designation of SMP operator in the following relevant markets:

- Wholesale market of call termination on its own telephone network provided at a fixed location;
- Wholesale market of call termination on its own mobile telephone network;
- Wholesale high-quality access provided at a fixed location.

The comments given by Crnogorski Telekom, submitted with the letter No 0102-6243/2 dated 29.11.2021 which refer to the following markets: wholesale local access provided at a fixed location (Market 3a) and wholesale central access provided at a fixed location for the mass market products (Market 3b) needed an additional intersectoral analysis.

On the session held on 28.04.2022, the Agency Council adopted Report on the consultations process regarding draft analysis of two relevant markets:

- Wholesale local access provided at a fixed location (Market 3a);
- Wholesale central access provided at a fixed location for the mass market products (Market 3b).
- On its session held on 12.05.2022, the Agency Council adopted final texts of the above mentioned Analysis and Decision on the adoption of relevant market analysis No. 0303-3234/1 dated 12.05.2022 („Official Gazette of Montenegro" No. 56/22).

Draft Decision on the designation of Crnogorski Telekom as an operator with significant market power in the relevant markets 3a and 3b was adopted at the Council session held on June 2, 2022. The same were submitted to Crnogorski Telekom, in order for them, as a party to the proceedings, in accordance with Article 112 of the Law on Administrative Procedure ("Official Gazette of Montenegro", 56/14, 20/15 and 37/17) to declare themselves within 8 days.

Crnogorski Telekom, in its statement number: 0102-3821/4 dated June 17, 2022, on the draft decision on the status of operators with significant market power in the relevant markets 3a and 3b, repeated the remarks and comments that were contained in the remarks and comments on Draft analyzes of the respective relevant markets.

At the session held on June 23, 2022, the Council of the Agency adopted the final texts of the decision on the designation of Crnogorski Telekom as an operator with significant market power in the relevant markets of Wholesale local access provided at a fixed location (Market 3a) and Wholesale central access provided at a fixed location for mass market products (Market 3b).

The Administrative Court of Montenegro, by letter Up No. 6273/2022 of 07/21/2022, submitted to the Agency the complaint of Crnogorski Telekom against Decision No. 0303-4263/1 of 06/23/2022, which designated Crnogorski Telekom as the operator in the relevant central access market provided at a fixed

location for mass market products, with a request to provide a response to the complaint as well as all case files related to the dispute, within 30 days.

On July 29, 2022, the Agency sent a response to the Administrative Court based on the allegations of Crnogorski Telekom, in which it confirmed that it had correctly and completely determined all the facts and circumstances that are important for a legal and proper decision on the administrative matter, and proposed to the Administrative Court that reject the lawsuit as unfounded.

Wholesale market of call termination in its own telephone network provided at a fixed location

At the wholesale market of call termination in its own telephone network, provided at a fixed location in the period covered by the analysis, four operators existed: Crnogorski Telekom, Mtel, Telemach and One Crna Gora. The analysis proved that there was no substitution on the supply and demand side at the observed market, neither a potential competence. In line with that, the Agency determined that this relevant market included:

- Wholesale market of call termination on public electronic communications network provided at a fixed location of Crnogorski Telekom, regardless of where the call originated,
- Wholesale market of call termination on public electronic communications network provided at a fixed location of Mtel, regardless of where the call originated,
- Wholesale market of call termination on public electronic communications network provided at a fixed location of Telemach, regardless of where the call originated,
- Wholesale market of call termination on public electronic communications network provided at a fixed location of One Crna Gora, regardless of where the call originated.

The Agency determined national territory of Montenegro to be the relevant market within geographic dimensions, for the wholesale service of call termination on its own telephone network provided at a fixed location and which offer the mentioned operators of fixed networks.

Taking into account the relative strength of the operator and possible obstacles to the development of market competition, the Agency determined the following obligations for SMP operators:

For Crnogorski Telekom:

- Obligation of data disclosure;
- Obligation of providing non-discrimination;
- Obligation of keeping separate accounting records;
- Obligation of providing the access to network elements and of their use;
- Obligation of price control and keeping cost accounting.

For Mtel, Telemach and One Crna Gora:

- Obligation of data disclosure;
- Obligation of providing non-discrimination;
- Obligation of providing the access to network elements and of their use;
- Obligation of price control.

Crnogorski Telekom, as an operator with significant market power on the relevant market for call termination in its own fixed telephone network, has, in accordance with the Agency's Decision of June 23, 2022, reduced the price of the national termination service by 20%.

One Crna Gore, Mtel and Telemach, as operators with significant market power on the relevant market of call termination (termination) in their own telephone network that are provided at a fixed location, in accordance with the Agency's decisions adopted in 2022, apply identical, i.e. symmetrical wholesale Crnogorski Telekom applies call termination prices in its networks.

SMP operators at this relevant market apply prescribed unit price as of 01.08.2022 and in line with that revised their reference interconecion offers.

During 2022, the Agency monitored the implementation of imposed regulatory remedies.

Wholesale market of call termination on its own mobile telephone network

At the market of call termination in its own telephone network, provided at mobile telephone network in the period covered by the analysis, four operators existed: Crnogorski Telekom, Mtel, One Crna Gora and Mtel. In line with that, the Agency determined that this relevant market included:

- Call termination on the network of One Crna Gora, regardless of network of call origination,
- Call termination on the network of Crnogorski Telekom, regardless of network of call origination,
- Call termination on Mtel network, regardless of network of call origination.

The Agency determined national territory of Montenegro to be the relevant market within geographic dimensions, for the wholesale service of call termination on its own telephone network.

Taking into account relative strength of the operator and possible obstacles to the development of market competition, the Agency imposed the following obligations on SMP operators:

- Obligation of data disclosure;
- Obligation of providing non-discrimination;
- Obligation of keeping separate accounting records;
- Obligation of providing the access to network elements and of their use;
- Obligation of price control and keeping cost accounting.

Upon verification of the results of cost models according to CCA/LRIC methodology for mobile networks, as from June 6, 2022, the Agency imposed on Crnogorski Telekom, One Crna Gora and Mtel to reduce the prices of the service of call termination on mobile networks, by 16.13%.

SMP operators on that relevant market applied prescribed unit price as from 01.08.2022, and in line with the Agency monitored the implementation of imposed regulatory obligations.

Wholesale local access provided at a fixed location

After performing the analysis, the Agency concludes that relevant market of local access provided at a fixed location includes the following:

- Access service to unbundled local loop and sub-loop based on copper wire,
- Access service to unbundled local loop and sub-loop based on optical fibers,
- Access service to network infrastructure provided by Montenegrin Telekom for its own needs.

The Agency determined national territory of Montenegro to be the relevant market within geographic dimensions, for the wholesale service of call termination on its own telephone network.

After the Agency imposed the following obligations on SMP operators:

- Obligation of data disclosure, along with the obligation of amendmet and publishing reference interconnection offer,
- Obligation of providing non-discrimination,
- Obligation of keeping separate accounting records;
- Obligation of providing the access to network elements and of their use;
- Obligation of price control and keeping cost accounting.

In 2022, the Agency monitored the implementation of imposed regulatory remedies.

Wholesale central access provided at a fixed location for the mass-market products

Based on the conducted analysis, the Agency concluded that relevant market of a wholesale central access provided at a fixed location for the mass market products includes the following services, regardless of the technology used:

- Bitstream ADSL service, with the points of traffic download between the operator providing the service and the provider using the service:
 - Access point at the IP level,
 - Access point at the Ethernet level,
 - Access point at the DSLAM/OLT or at an appropriate point;
- Broadband access service provided by Crnogorski Telekom for its own needs.

Also, referring to conducted analysis, the Agency determined that relevant market of the wholesale central access provided at a fixed location for the mass market products, is in geographical dimension of the whole territory of Montenegro.

Upon designating Crnogorski Telekom to be SMP (significant market power) operator, the Agency imposed on Crnogorski Telekom, the following regulatory obligations:

- Obligation of data disclosure, with an obligation of changing and issuing reference interconnection offer;
- Obligation of providing non-discrimination;
- Obligation of maintaining separate accounting records;
- Obligation of providing the access to the network elements and their use, and
- Obligation of price control and keeping cost accounting.

After verification of the cost model results for the fixed network, on 01.08.2022, the Agency imposed on Crnogorski Telekom to decrease the wholesale prices of the services of that relevant market, as follows:

- Service of National Bitstream access for the packages: Flat 2, Flat 4 and Flat 5, by 5% , and
- Service of National Bitstream access for the packages: Flat 8 and Flat 10, by 10%.

During 2022, the Agency monitored implementation of imposed regulatory remedies.

Wholesale high-quality access provided at a fixed location

Based on the conducted definition procedure, the Agency determined that relevant market of wholesale high quality access provided at a fixed location within dimension of service, involved publicly offered service of leased lines offered to other operators, entailing traditional leased lines and Ethernet leased lines, regardless of transmission capacity and medium used for transport, comprised of the following services:

- Services of wholesale leased lines;
- Services of the part of wholesale leased lines, and
- Services of leased lines provided by operators for their own purposes.

Furthermore, the Agency defined relevant geographic market for the provision of subject services within national borders, considering that main competition requirements, legal and regulatory frameworks and pricing policy are equal on the whole territory of Montenegro.

After the analysis of relevant market, the Agency concluded that Crnogorski Telekom is the operator with significant market power on that relevant market, and imposed on it the following regulatory remedies:

- Obligation of data disclosure;
- Obligation to ensure non-discrimination;
- Obligation of maintaining separate accounting records;
- Obligation of providing the access to the network elements and their use, and
- Obligation to control the prices and maintain the cost accounting.

As the operator with significant market power on the relevant wholesale market of high-quality access provided at a fixed location, following Agency's Decision dated on June 23, 2022, Crnogorski Telekom has applied unit prices of all capacities of the wholesale leased lines, decreased by 20%.

The Agency monitored the implementation of imposed regulatory remedies during 2021.

2.2. Project of accounting separation and cost accounting

2.2.1. Legal grounds for the implementation of measures for accounting separation and cost accounting

After the process of relevant market analysis has been conducted, in accordance with ZEK, (Law on Electronic Communications), the Agency may also impose on the operator with significant market power regulatory to implement at least one of the measures as referred to in Article 71 – 78 of ZEK.

- Obligation of data disclosure;
- Change of the reference offer;
- Obligation of providing non-discrimination;
- Keeping separate accounting records;
- Access to network elements and their use;
- Price control and keeping cost accounting;
- Control of carrying out the measures;
- Regulation of the prices of retail services.

Keeping separate accounting records and price control, and keeping cost accounting are stipulated by Article 74 (refers to the measure of keeping separate accounting records), Article 76 (refers to the measure of price control and keeping cost accounting), and Article 77 (refers to the measure of control of carrying out the measures) of ZEK.

2.2.2. The purpose for introducing the measures of keeping separate accounting records and cost accounting

SMP operator may undermine the principle of equal market conditions in several ways: overcharging the wholesale services, by discrimination while determining the prices, mutual subsidization and predatory pricing. By these actions, SMP operator may limit the competition and prevent the operators from entering the market. Accounting separation is the most common instrument used for determining the activities which disable the market competition. The implementation of accounting separation does not impose on SMP operator the rules or the recommended business organization, but only the contents and form of collecting accounting information and regulatory reporting. In order to prevent discrimination on the market and to enable monitoring of the profitability of certain market segments or services provided by SMP operator, as well as to ease determination of mutual subsidizing, it is necessary to define unequivocally the prices, i.e. the fees for transfer services between certain business segments of SMP operators. Accounting separation will thus enable supervision of the model of cost allocation at the retail and wholesale level.

The purpose of introducing the obligation of price control and keeping cost accounting is to provide equal, transparent criteria and the criteria which promote competition, and which should be applied by SMP operator during cost allocation to the services it provides.

In line with the above said, cost accounting refers to the group of rules and procedures ensuring allocation of costs, income, assets, obligations and capital to certain activities and services, particularly considering direct and indirect costs.

Cost accounting model defines the mechanism of monitoring of and keeping accounting records, identification and monitoring of operational costs, as are the costs of maintenance of facilities, which will result in transparent cost-price relation of certain services. Cost accounting model ensures carrying out of accounting separation obligation and control of the cost orientation of the prices with a view to prevent from mutual subsidizing, overcharges or from inefficient behavior of SMP operator.

Obligation of price control and keeping cost accounting are introduced both for the wholesale and retail market, in order to ensure implementation methodology of certain cost accounting model, i.e. SMP operators on relevant market should be provided with acceptable income rate on the capital engagement considering included rate of investment risk, meaning that capital cost needs to be determined as Weighted Average Cost of Capital –WAC.

As from 2013, the Agency has been the regulation procedure of the service price on relevant markets referring to the results of cost accounting and separate accounting.

2.2.3. The Agency's activities on implementation of the project of accounting separation and cost accounting in 2022

In 2022 continued the activities on implementation of the Project of accounting separation and cost accounting, in line with the dynamics defined by Methodology of accounting separation and cost accounting. Adopted Methodology of cost accounting enables implementation of cost accounting obligation, as well as verification of cost-orientation of prices in order to prevent cross-subsidies, excessive prices or inefficient behavior of SMP operators in the relevant market. Furthermore, accounting separation and cost accounting are intended to monitor the implementation of the obligations of transparency, in terms of monitoring the profitability of individual market segments, non-discrimination and transfer services between business segments.

By introducing the obligation of accounting separation, the operator with significant market power on the relevant market shall follow the content and form of collecting accounting data for regulatory reporting. These models serve as a support in taking regulatory decisions and provide reliable information for price control implementation.

Methodology of accounting separation and cost accounting for a fixed network of 30.05.2011, and Methodology of accounting separation and cost accounting for mobile networks of 17.10.2012 based on the method of *Fully Allocated Costing – FAC* which was then changed to the method of *Long Run Incremental Costs, LRIC*, while the cost assessment was done on the basis of *Historic Cost Accounting – HCA*, or based on *Current Cost Accounting – CCA*, as a cost base.

In line with an international practice, while preparing a cost model, the Agency applied Top-down” access, where entry data on the costs are based on accounting data of the operators and are allocated to different services based on cause-and-effect relation between costs and services.

2.2.3.1. Cost models for 2020

On its session of 12.05.2022, the Agency Council adopted final decisions on accepting the activities performed on the project of accounting separation and cost accounting, by the operator, according to CCA/LRIC methodology for mobile and fixed network for 2020.

After conducting public consultations procedure, at its session of 16.06.2022, the Agency Council adopted the following decisions:

- 1) the Agency imposed on Crnogorski Telekom, One Crna Gora and Mtel, as the SMP operators on the relevant wholesale market of call termination in its own mobile network and on the wholesale market of call origination from public mobile networks, to implement the following prices, as from 1 August, 2022:
 - price of call termination on mobile network in the amount of 0.0052 €/min,
 - price of call origination from mobile network in the amount of 0.0052 €/min.

After conducting public consultations procedure, on its session held on 23.06.2022, the Agency Council adopted the following decisions:

- 1) the Agency imposed on Crnogorski Telekom, as SMP operator on the relevant retail market of publicly available services of local and intercity calls for legal and physical persons provided at a fixed location, to implement the following prices, as from August 1, 2022:
 - price of call termination to all other fixed networks in Montenegro in the period of heavy traffic of 0.0231€/min, and
 - price of call service to mobile networks in the period of heavy traffic, of 0.0233€/min.
- 2) the Agency imposed on Crnogorski Telekom, as the SMP operator on the relevant retail market of publicly available services of international calls for legal and physical persons, provided at a fixed location, to implement the following unit prices, as from August 1, 2022:
 - price of the call service to fixed networks of the Zone 2, in the amount of 0.0655€/min;
 - price of the call service to fixed networks of the Zone 4, in the amount of 0.1636€/min;
 - price of the call service to mobile networks of the Zone 4, in the amount of 0.2867€/min;
- 3) the Agency imposed on Crnogorski Telekom, as SMP operator on the relevant wholesale market of central access, provided at a fixed location for the mass-market products, to implement the following unit prices, as from August 1, 2022:
 - wholesale price of a monthly subscription for the bitstream access –Flat 2 at 3.5236 €;
 - wholesale price of a monthly subscription for the bitstream access –Flat 4 at 3.5625 €;
 - wholesale price of a monthly subscription for the bitstream access –Flat 5 at 3.6860 €;
 - wholesale price of a monthly subscription for the bitstream access –Flat 8 at 3.8430 €;
 - wholesale price of a monthly subscription for the bitstream access –Flat 10 at 4.1940 €.
- 4) the Agency imposed on Crnogorski Telekom, as SMP operator on the relevant wholesale market of call termination in its own fixed telephone network and relevant market of call origination from its own public fixed telephone network, to implement the following unit prices, as from August 1, 2022:
 - wholesale price of national termination in the amount of 0.0035 €/min;
 - wholesale price of national origination in the amount of 0.0035€/min.
- 5) the Agency imposed on Crnogorski Telekom, as the SMP operator on the relevant wholesale market of call termination in its own fixed telephone network and relevant market of high-quality access provided at a fixed location, to implement the following unit prices, as from August 1, 2022:

▪ TDM LL 2 Mb/s 2 km	32.856 €
▪ TDM LL 2 Mb/s 5 km	40.664 €
▪ TDM LL 2 Mb/s 15 km	48.168 €
▪ TDM LL 2 Mb/s 50 km	66.216 €
▪ TDM LL 64 kb/s 2 km	18.432 €
▪ TDM LL 64 kb/s 5 km	18.616 €
▪ TDM LL 64 kb/s 15 km	17.968 €
▪ TDM LL 64 kb/s 50 km	17.968 €
▪ TDM LL 34 Mb/s 2 km	78.016 €
▪ TDM LL 34 Mb/s 5 km	85.176 €
▪ TDM LL 34 Mb/s 15 km	99.392 €
▪ TDM LL 34 Mb/s 50 km	162.688 €
▪ TDM LL 155 Mb/s 2 km	289.768 €
▪ TDM LL 155 Mb/s 5 km	322.832 €
▪ TDM LL 155 Mb/s 15 km	437.472 €
▪ TDM LL 155 Mb/s 50 km	809.024 €
▪ IP LL 10 Mb/s 2 km	49.544 €
▪ IP LL 10 Mb/s 5 km	54.856 €

▪ IP LL 10 Mb/s 15 km	58.656 €
▪ IP LL 10 Mb/s 50 km	98.296 €
▪ IP LL 100 Mb/s 2 km	303.192 €
▪ IP LL 100 Mb/s 5 km	296.824 €
▪ IP LL 100 Mb/s 15 km	387.904 €
▪ IP LL 100 Mb/s 50 km	718.384 €

2.2.3.2. Top-down cost models for 2021

The Agency is in obligation to calculate the weighted average cost of capital (WACC) every year in accordance with the WACC calculation methodology from 2012.

At the session held on July 7, 2022, the Agency Council adopted Decision on the value of the weighted cost of capital for 2021, which determines that the value of the weighted cost of capital before taxation is at the level of 6.33%, which when calculating the costs for providing regulated retail and wholesale services, required to be applied by operators with significant market power.

Until the end of June 2022, the operators submitted top-down cost models and regulatory accounting documentation (document on the allocation method, regulatory accounting document and regulatory financial reports accompanied with the opinion of an independent auditor).

No consultant was hired for the revision of the operator's top-down model for 2021. The revision of the model will be carried out by the Working Group defined in the Operational Plan for 2022 (II-2 Current activities, B Protection of competition in the field of electronic communications, point 4) which consists of employees from: the Sector for Economic Affairs and the Sector for Electronic Networks and Services.

The Agency is in the final phase of top-down model for 2021, and after that it will prepare the report on the supervision of the implementation of accounting separation and cost accounting, based on the CCA/LRIC methodology for the fixed and mobile networks of the operators and the decision on giving consent to the operator's activities on the implementation of cost accounting, and will initiate the price regulation.

2.2.4. Preparation and implementation of bottom-up cost models of the Agency

At the beginning of 2019, the Agency created a "Study of the justification of the creation and application of bottom-up LRIC cost models" taking into account the previous experience in the application of top-down cost models, the latest recommendations of the European regulatory framework and the practice of European regulators. The basic principle of the recommendations of the European Union with regard to the creation of bottom-up LRIC models by regulatory agencies is their use with the aim of checking the presence of certain cost inefficiencies in operations that are reflected in the operator's top-down LRIC models and which are proven by applying the bottom-up LRIC model or refute, and should be taken into account when analyzing or planning regulatory interventions on the market of individual services. Furthermore, the creation of bottom-up LRIC cost models is fully in accordance with the competences of the Agency in the direction of promoting competition, because operators will have a greater incentive to lower costs and increase business efficiency, as well as protect the interests of end users

In October 2020, the Agency started the Project "Development and implementation of bottom-up LRIC cost models for fixed and mobile electronic communication networks". The purpose of this Project is to create, create and transfer copyrights on bottom-up LRIC cost models, which are a regulatory tool for calculating the prices of services offered by operators with significant market power on the relevant markets of public fixed and mobile electronic communication networks. The project consists of 5 phases: Project launch and data collection, Development of methodologies, Development and testing of cost models, Application of models and Training of working group members.

After the implementation of Phase I, which related to the initiation of the Project itself and the collection of data, and the open consultation process carried out in the period from April 1, 2021 until May 1, 2021, the Council of the Agency at the session held on May 27, 2021, adopted the Decision on the adoption of the Methodology for the creation and implementation of the bottom-up LRIC cost model for fixed and mobile electronic communication networks number 0901-3294/1 dated May 27, 2021

Phase III of the Project "Creation and testing of cost models", which is considered the most demanding and complex because it refers to the development of bottom-up LRIC cost models for fixed and mobile electronic communication networks, also included conducting a public consultation process regarding: Draft documentation of the creation and implementation of the bottom-up LRIC cost model for the fixed electronic communication network, as well as the draft of the bottom-up LRIC cost model for the fixed electronic communication network, the draft of the documentation for the creation and implementation of the bottom-up LRIC cost model for the mobile electronic communication network, as well as the bottom-up draft LRIC cost model for mobile electronic communication network. At the session held on November 24, 2022, the Council of the Agency adopted the aforementioned Drafts of documentation as well as Drafts of bottom-up LRIC cost models for mobile and fixed electronic communication networks. The public consultation process lasted from November 25, 2022 to December 23, 2022. Due to the importance and complexity of the models and documentation, the Agency held during the public consultation period: introductory meetings, 4 workshops each, as well as final meetings with representatives of SMP operators: Crnogorski Telekom ad Podgorica, One Crna Gora doo, Mtel doo Podgorica, separately for fixed and a mobile bottom-up LRIC cost model.

SMP operators submitted questions and comments until December 23, 2022. The comments of SMP operators that were submitted during public consultations and the Agency's responses to them are tabulated in the Report on the implemented consultation process regarding Draft documentation and Draft bottom-up LRIC cost models, and it is available on the Agency's website.

On its session held on 26.01.2023, the Agency Council adopted the following:

- Report on on performed consultation process in relation to draft documentation and draft *bottom-up* LRIC cost model;
- Text of documentation on preparation and implementation of *bottom-up* LRIC cost model for the fixed electronic communications network;
- *Bottom-up* LRIC cost model for the fixed electronic communications network;
- Documentation text on the preparation and implementation of *bottom-up* LRIC cost model for mobile electronic communications network;
- *Bottom-up* LRIC cost model for mobile electronic communications network.

The Agency prepared Decision on the adoption of *bottom-up* LRIC cost models for the fixed and mobile network, and after that it will plan application dynamics of the results of mentioned cost models.

2.3. *Margin squeeze* study and implementation methodology regarding bundled services in the fixed telephony

At the end of 2019, the Agency prepared *Margin squeeze* feasibility study regarding bundled services in the fixed electronic communications network, and with regard to that obligation, the Agency conducted public consultations procedure and adopted the subject study.

Feasibility Study on the *margin squeeze* and methodology for its implementation regarding bundled services in the fixed electronic communications networks, comprises the following parts:

- “*Margin squeeze*” test – defining the term “*Margin Squeeze*”, and explaining different elements of *margin squeeze* test. Pre-conditions to be met in order to determine whether it is necessary to perform the *margin squeeze* test. At the end, the principles for *margin squeeze* test implementation are described in the ex-ante and ex-post context;
- Implementation of the *margin squeeze* test – explaining how *margin squeeze* test is implemented. Besides, the elements which should be considered during implementation of *margin squeeze* test are stated as are the advantages and disadvantages in different approaches for individual elements;
- Overview of the European Union Regulatory framework based on which is implemented *margin squeeze* test in the electronic communications sector, giving an overview relevant EU regulation based on which is implemented *margin squeeze* test;
- Experience in implementation of *margin squeeze* test in the EU countries and in neighboring countries – giving an overview of the situations concerning implementation of *margin squeeze* test in these countries, with an overview of the market i.e. services undergoing the tests;
- The analysis of actual situation of price regulation in the electronic communications sector – giving an overview of the current situation with regard to price regulation on the relevant markets in Montenegro implemented by the Agency;
- Proposed approach – analyzing certain methodology issues to be applied in the *margin squeeze* methodology, regardless of technology (e.g. copper or fiber optics) used for the provision of the retail products undergoing the test. Moreover, certain proposals have been given for the implementation of *margin squeeze* test.

For the implementation of *Margin squeeze* test it is necessary to have several structural and economic prerequisites at the market cumulatively fulfilled. By regular monitoring of the conditions at the market of electronic communications in Montenegro it was concluded that necessary prerequisites have not still been fulfilled for the implementation of *Margin squeeze* test. The Agency will monitor the situation on the market and when all required prerequisites are put in place it will implement *Margin squeeze* test as a complementary mechanism for regulation of retail prices of the services.

2.4. The activities on implementation of the Agreement on reducing the prices of roaming services in public mobile communications networks in the Western Balkans region

Government representatives of the Western Balkan countries – WB6 (Albania, Bosnia & Herzegovina, Montenegro, Kosovo, North Macedonia and Serbia) within the Digital Strategy for the Western Balkans shall work on reducing the prices of international roaming services in the above countries, in accordance with the EU Regulation. In line with the goals and priorities defined by Digital Agenda for the Western Balkans, and in coordination with the Regional Coordination Council and with participation of the EC Directorate General for Communications Networks, Content and Technology (DG Connect) and Directorate General for Neighborhood and Enlargement Negotiations, were carried out the activities on the compliance of the new

Agreement on reducing the prices of roaming services in the public mobile communications networks in the Western Balkans region. The Agreement is in its greatest part in compliance with the relevant EU Regulative in this field, and especially with: the EU Regulation No 2015/2120 and the EU Regulation No 2017/920.

The Agreement on reducing the prices of roaming services in the public mobile communications networks in the Western Balkans region was signed on 4 April 2019 in Belgrade, between the ministries of the bodies competent for the field of electronic communications of the following countries: Albania, Montenegro, Kosovo, Republic of North Macedonia and Republic of Serbia. On behalf of Montenegro the Agreement was signed by the Ministry of Economy.

Government representatives of the Western Balkan countries – WB6 (Albania, Bosnia & Herzegovina, Montenegro, Kosovo, North Macedonia and Serbia) within the Digital Strategy for the Western Balkans shall work on reducing the prices of international roaming services in the above countries, in accordance with the EU Regulation. In line with the goals and priorities defined by Digital Agenda for the Western Balkans, and in coordination with the Regional Coordination Council and with participation of the EC Directorate General for Communications Networks, Content and Technology (DG Connect) and Directorate General for Neighborhood and Enlargement Negotiations, were carried out the activities on the compliance of the new Agreement on reducing the prices of roaming services in the public mobile communications networks in the Western Balkans region. The Agreement is in its greatest part in compliance with the relevant EU Regulative in this field, and especially with: the EU Regulation No 2015/2120 and the EU Regulation No 2017/920.

The Agreement on reducing the prices of roaming services in the public mobile communications networks in the Western Balkans region was signed on 4 April 2019 in Belgrade, between the ministries of the bodies competent for the field of electronic communications of the following countries: Albania, Montenegro, Kosovo, Republic of North Macedonia and Republic of Serbia. On behalf of Montenegro the Agreement was signed by the Ministry of Economy.

The Agency made Decision on imposing Crnogorski Telekom, Telenor and Mtel to make the following step in reducing the prices of roaming services in the WB countries, as from 1 July 2021:

- Rulebook on determining detailed rules on applying "fair use policy", on the methodology of the sustainability assessment of extra fees for the regulation of retail roaming services and on request to be submitted by the operator for the assessment purposes, precisely defining situations in which the operators may deviate from charging mechanism defined by the Decision;
- Guidelines for implementation of the aforementioned Decision and Rulebook Pravilnika, at retail level (Guidelines for retail roaming in the Western Balkans region), in order to facilitate the implementation of these regulations.

The Decision, Rulebook and Guidilines are alligned with the provisions of the Agreeemen on reducing the prices of roaming services in public mobile communications network in the Western Balkans region, as well as relevant EC and BEREC regulations, based on which the mentioned charging method is applied in the EU member countries.

Reduction of the prices of roaming services in the Western Balkans countries to be introduced as from 1 July 2021, will bring a lot of benefit to private and business users which will use the roaming services in our region. These benefits will at the first place refer to greater use of roaming services having no fear of receiving high invoices for their use. This kind of roaming service in the Western Balkans countries will benefit both to

physical persons who will find their stay in the above countries more attractive and to legal persons as this kind of unhindered use of roaming services will much facilitate performance of their business activities in the region.

Along with regulated prices of retail roaming services, the operators may offer to their roaming users certain amount of regulated roaming services for the fee on daily basis or some other fixed fee on periodical basis. Besides, the operators may offer to the users the prices different from those stipulated by the Agreement on reducing the prices of roaming services and by the Agency's Decision the user may select the price which he/she finds to be the most favorable. Changing regulated price with an alternative price of roaming services is carried out within one working day and is free of charge for the user.

In line with the signed Agreement on the price reduction of roaming services in the public mobile communications networks in the Western Balkans region and the Agency's Decision, dated on 01.01.2022, mobile operators applied lower price of the wholesale service of data transmission in roaming for the Western Balkans region, amounting to 0.006 €/MB (previously amounted to 0.0077 €/MB).

During 2022, the activities which initiated in 2021 aimed at reduction of the prices of roaming services between the Western Balkans region and the members of the European Union, were further intensified. Several meetings were held in the organization of the RCC, where the Roadmap for reducing the prices of roaming services between the Western Balkan region and the members of the European Union was considered, as well as the best models for its implementation. The meetings were attended by representatives of the ministries and regulators of the countries of the region, representatives of the European Commission and BEREC, representatives of operators from the region and the EU. As a result of this process, operators from the region of the Western Balkans and the EU are 06.12.2022 signed the Declaration on Roaming in Tirana, which will enable a reduction in the prices of roaming services between the EU and the Western Balkans. In accordance with the signed declaration, the price reduction process will begin on October 1, 2023, while the plan for the gradual reduction of prices in the coming years should be known by May 1, 2023. Unlike the price reduction in the Western Balkan region, which was implemented on the basis of a signed agreement between the competent ministries, this process is based on voluntariness and commercial agreements between operators. Also, this process of reducing the prices of roaming services between the region of the Western Balkans and the EU will be accompanied by complementary measures, i.e. appropriate policy reforms related to the sector of electronic communications in the countries of the Western Balkans.

2.5. The initiative on reducing the prices of international call termination in the region

Based on several performed analysis and follow-up of the situation on the market of international phone calls, in 2018, the Agency for Electronic Communications and Postal Services of Montenegro launched an initiative on reducing the prices of roaming services of international call termination on the fixed and mobile networks in the region.

The reasons why the Agency took this initiative are as follows:

- International telephone traffic (outgoing and incoming) with the region is a significant part of the total international telephone traffic realized by the users of the operators in Montenegro,

- The prices of international call termination from the region to the networks of the operators in Montenegro (fixed and mobile), are mostly much higher (up to 30 times) than the prices of national call termination which are determined by the Agency, on the basis of cost models,
- The prices of call termination from the network of the operator in Montenegro (fixed and mobile) to the networks of the operators in the region are reciprocal and are mostly much higher (up to 30 times) than the prices of national call termination, which are determined by the regulatory bodies of the countries from the region, on the basis of cost models.

Such high prices of call termination of international calls between the countries in the region led to much higher prices of the phone calls, with certain operators, made from Montenegro to the countries in the region, than those of the calls made to other European countries and to certain countries in the world (i.e. to the USA). Similar situation is in other countries in the region. This level of retail prices has been caused by the price increase of international call termination in the region, which was initiated by the regional operators themselves with a view to keep the income during the lower volume of realized traffic. High retail prices of international calls in the region, introduced by the operators in Montenegro and in the countries of the region, highly affect the volume of international traffic in the region.

Due to the above-mentioned reasons, the Agency has considered this situation as illogical and non-sustainable for a long-term. Because of this, the Agency finds as necessary to abort the process of increasing the prices of international calls in the fixed and mobile networks in the region and to redirect it, i.e. initiate to decrease the prices.

This is why the Agency launched the initiative to regulatory authorities from Bosnia and Herzegovina, Serbia and North Macedonia, on reducing the prices of the services of international call termination in the fixed and mobile networks in the region. The regulators from these countries accepted the initiative as a quite reasonable. As the result of common work on this issue was prepared draft agreement stipulating gradual and reciprocal decrease of the service prices of international call termination in the fixed and mobile networks in the region. Due to differences between legal regulations, and different competencies of the regulators and the ministries in charge in the above countries, it is concluded that the regulators do not have authorities to sign the subject agreement.

At a joint meeting of the representatives of regulators from Bosnia and Herzegovina, Serbia, North Macedonia and Montenegro, held in November 2019 in Sarajevo, it was concluded that the best way for launching the initiative on reducing the prices of international call termination services in the fixed and mobile networks in the region, on a reciprocal basis, would be to make the amendments to the Agreement on interconnection between the operators in the region, stipulating reduction of the prices of international call termination services in the fixed and mobile networks in the region, on a reciprocal basis. This was also the occasion where the representatives arranged that each regulator should contact the operator in its domicile country, asking it to initiate the process of reciprocal price reduction of international call termination.

In December 2019, the Agency organized the meeting with the operators in Montenegro and presented the arrangement made between the operators regarding this issue. That was only one of many other meetings the Agency organized with the operators regarding that issue. Thus, was achieved a full transparency in the work of the Agency, enabling the operators to give their opinions on the subject matter.

Relying on the achieved arrangement, in February 2020, three biggest operators in Montenegro (Crnogorski Telekom, Telenor and Mtel) sent their common letter to the operators in Bosnia and Herzegovina, Serbia and North Macedonia, with the proposal for a gradual and reciprocal price decrease of international call termination in the fixed and mobile networks. Nevertheless, according to their replies they were not ready to accept the proposals of the operators from Montenegro.

During 2022, the Agency sent an initiative for a reciprocal reduction in the prices of international call termination services in fixed and mobile networks to all regulators in the Western Balkans region. The reason for this initiative of the Agency, in addition to the reasons already mentioned, was the question of one of the mobile operators in Montenegro, which referred to a traffic case in which the provisions of the Agreement on the reduction of the prices of roaming services in public mobile communication networks in the Western Balkan region are applied. In relation to the above question, the Agency has assessed that the only correct and sustainable solution is a reciprocal reduction in the prices of international call termination services in fixed and mobile networks in the Western Balkans region. Accordingly, an initiative was launched towards all regulators from the Western Balkans region. The response to this initiative was submitted by only two regulators, where they did not express their willingness to implement activities that would result in a reciprocal reduction in the prices of international call termination services in fixed and mobile networks in the region.

The Agency still considers it necessary and necessary to reduce the prices of international call termination services in fixed and mobile networks, both in the region and globally. In this context, they will certainly continue further activities in relation to this important issue. These activities will primarily be focused on searching for a generally acceptable solution among all interested parties (ministries, regulators and operators) in the countries of the region, which will result in a reduction in the prices of international call termination services in fixed and mobile networks.

3. IMPLEMENTATION AND QUALITY OF UNIVERSAL SERVICE IN ELECTRONIC COMMUNICATIONS SECTOR

3.1. Regulatory framework for the provision of Universal Service

3.1.1. Regulatory framework of the European Union

Universal service in electronic communications is defined in the following regulations from the EU acquis:

- Directive 2002/58/EC of the European Parliament and Council of July 12, 2002, with regard to personal data protection and i zaštiti privacy protection in the electronic communications sector (Directive on the privacy in electronic communications);
- Directive 2009/136/EC of the European Parliament and Council of November 25, 2009, amending Directive 2002/22/EC on basic services and user rights with regard to electronic communication networks and services, Directive 2002/58/EC in connection with the processing of personal data and protection of privacy in electronic communications and Regulation (EC) No. 2006/2004 on cooperation between national bodies responsible for the implementation of the Consumer Protection Act;
- Regulation (EU) No. 2017/2394 of the European Parliament and the Council of December 12, 2017, on cooperation between national bodies responsible for the implementation of regulations on consumer protection, and
- Directive (EU) 2018/1972 of the European Parliament and the Council of December 11, 2018, on the European Law on Electronic Communications, which stipulates that the Universal Service is equated with broadband access.

3.1.2. Regulatory framework in Montenegro

Chapter VII (Article 81-95) of the Law on Electronic Communications includes Universal service in electronic communications in Montenegro. Under Article 81 of ZEK, Universal Service is defined as a set of basic electronic communications services of prescribed quality, available on the territory of Montenegro at affordable prices, regardless of their geographical location.

Provision of Universal Service in electronic communications in Montenegro is defined by the Law on Electronic Communications (ZEK) and by secondary legislation which are adopted in line with that Law by: The Government of Montenegro, Ministry of Economic Development, Ministry of Finance and Social Welfare, and these regulations are as follows:

- Regulation on the minimum set of services included in Universal Service (Official Gazette of Montenegro, 46/14 and 72/20),
- Rulebook on the quality of Universal Service (Official Gazette of Montenegro, 23/14),
- Rulebook on the types of benefits and special measures for the access to public electronic communications services for the persons with disabilities (Official Gazette of Montenegro, 43/14 and 26/17),

- Rulebook on determining the rate of data transmission for ensuring functional internet access via Universal Service (Official Gazette of Montenegro, 46/14 and 80/18),
- Rulebook on establishing a list of categories of the users eligible for special advantages in the use of Universal Service (Official Gazette of Montenegro, 52/14 and 75/15),
- Rulebook on the criteria for assessing the justification of requests for the access to public electronic communications network via Universal Service (Official Gazette of Montenegro, 56/13),
- Rulebook on the methodology of calculating net cost of providing services within Universal Service (Official Gazette of Montenegro, 12/14 and 101/20),
- Rulebook on the assessment of affordability of services and special packages of Universal Service for socially disadvantaged persons and persons with disabilities (Official Gazette of Montenegro, 33/14 and 13/17), and
- Rulebook on the implementation of public competition and requirements for designating the Universal Service Operator (Official Gazette of Montenegro, 45/14).

Public consultation processes were conducted for all regulations adopted by the Agency, in line with the Law on Electronic Communications and the reports were submitted to the bodies involved in the public consultation process.

The Law on Electronic Communications („Official Gazette of Montenegro“, No. 40/13, 56/13, 2/17 and 49/19), was adopted in 2013 and three more amendments have been made until today. Regulations in Montenegro which determine Universal Service in electronic communications are adopted based on the Directive (EU) 2002/22/EC of the European Parliament and Council dated on March 7, 2002, on the universal services and users rights with regard to electronic communications networks and services (Universal Service Directive) and Directive 2009/136/EC of the European Parliament and Council dated on November 25, 2009. Directive (EU) 2002/22/EC of the European Parliament and Council dated on March 7, 2002, with the date of entry into force 21.12.2020, without prejudice to the obligations of member countries regarding the terms for transposing into national legislation and the date when started implementation of the directives.

3.2. Activities on the realization of Universal Service

In accordance with the Regulation on the minimum set of services included in the Universal Service and in the Law on Electronic Communications, the Universal Service in Montenegro comprises:

- Fulfillment of reasonable users' requests for the access to public electronic communications network and publicly available electronic communications services at fixed locations, for enabling voice communication and data rates that allow functional Internet access,
- Provision of the service of Universal Telephone Directory and Universal Enquiry Service to provide information on the phone numbers of subscribers, and
- Special measures and benefits for the persons with limited mobility and for the persons with disabilities, including the access to emergency services, telephone enquiry service and telephone directory service, allowing equal opportunities to access publicly available telephone services which are made available to other end users, as well as to choose the appropriate operator available to the majority of end users.

The Universal Service/ universal access to electronic communications is provided through three key elements:

- Geographical availability – the service is available within the observed geographical area;

- Infrastructure accessibility – the service is accessible to the people with different abilities (mental and physical abilities), and
- Affordability – price of the service should be affordable to most of the users.

Geographical availability of the services is the main feature of the Universal Service and it means that provision of the basic set of services within the whole territory for which the Universal Service is planned. The principles of infrastructure accessibility and affordability in this context mean that the users with disabilities would have available necessary equipment (specialized tools, devices etc.) which is following their needs/abilities, as well as available special tariffs for the persons with disabilities and for socially vulnerable persons.

3.2.1. Provision of the Universal Directory Enquiry and Universal Telephone Directory Service

Based on the results of the public bidding, the Agency Council issued Decision No: 0405-2368/18 dated on 29 October 2020, selected telecom operator Mtel as the Universal Service Operator providing Universal Directory Enquiry and Universal Telephone Directory Service in a 5-year period from 25 January 2021 till 25 January 2026.

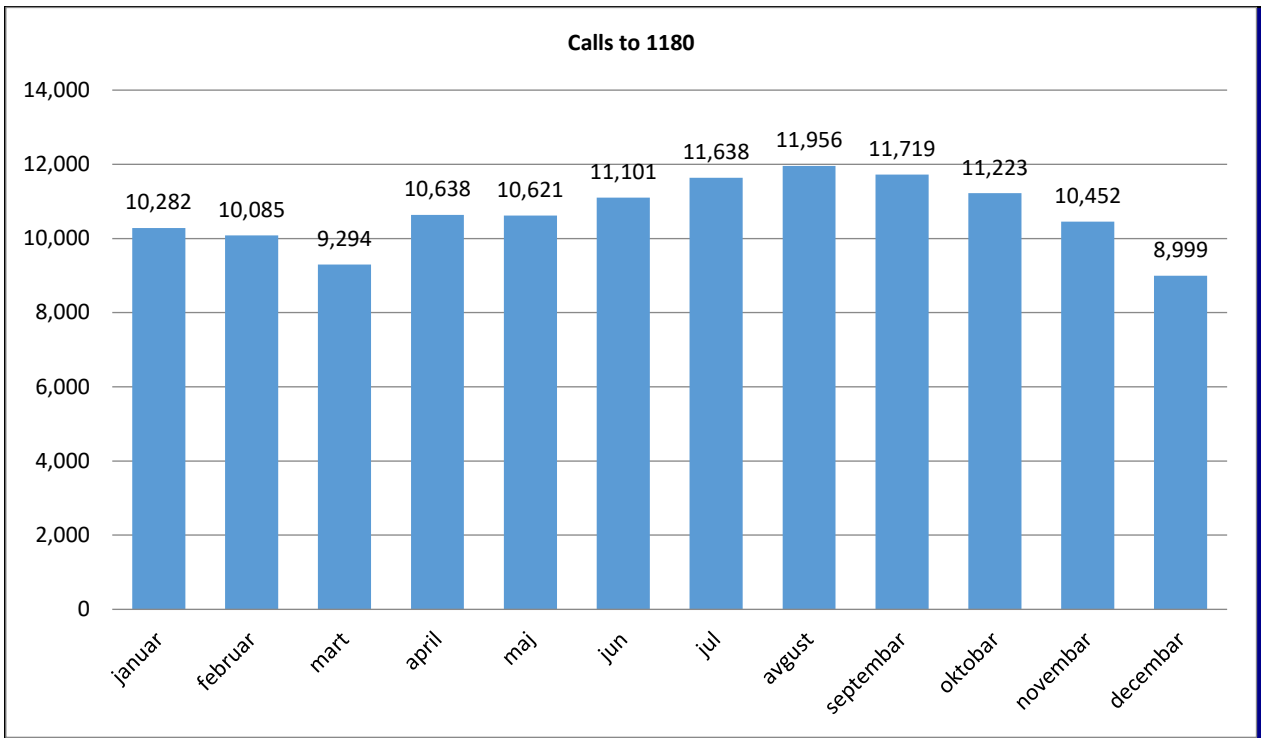
Mtel offer No. 43250 dated on September 29, 2020, provides for that:

- users can access web portal of Mtel for the search in Universal Directory through the page for searching the name and surname regardless of the use of dialectic signs and page for the search per telephone number;
- In 2021 there will be 28 operators in the Universal Directory Enquiry Service, while 36 operators in 2025, and in case there are more than 240,000 calls per year, every next year there will be 2 more operators;
- net costs for the provision of Universal Directory Enquiry Service calculated for the provision of services for more than 240,000 calls per year for the next 5 years, is planned to be in the total amount of €140,688.00, VAT excluded, and in case the number of calls is below 240,000 per year, Mtel will not require refund of net costs, and
- the price of calls to Universal Directory Enquiry Service will be €0.08, VAT excluded, and €0.0968, VAT included.

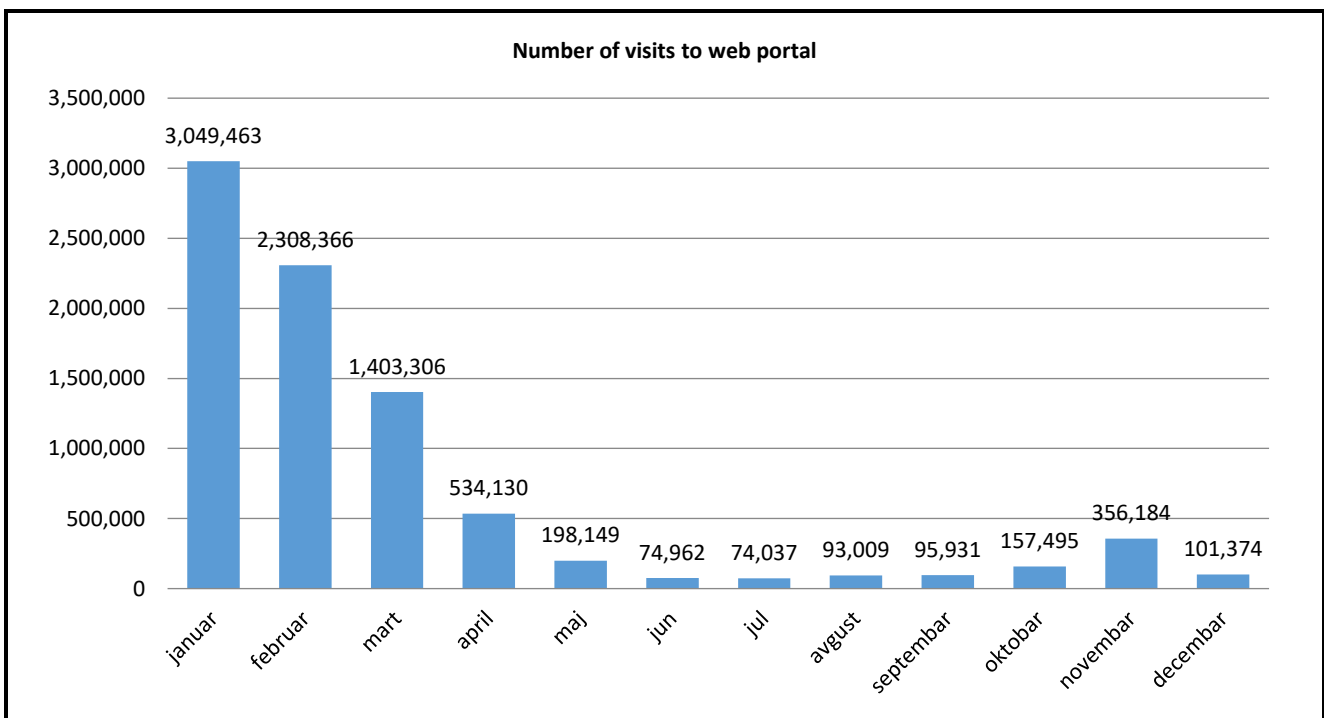
Mtel allowed users to access web portal of Mtel for the search in the Universal Telephone Directory (dual search: by first and last name and by phone number). It is to expect that the citizens will mostly use online services for this service, which will lead to a great decrease in the number of calls to Universal Directory Enquiry Service.

The number 1180 is available from all public electronic communications networks in Montenegro. By calling 1180 number, it is possible to be informed on fixed and mobile (*post-paid and pre-paid*) telephone numbers of all subscribers who did not demand a ban on the publication of such data, by subscriber number or user of the number.

In the period from 1 January 2022 till 31 December 2021, the users made 128,008 the calls to number 1180 (the income in the amount of €10.240,64 was made, VAT not included), in order to obtain the information on telephone number of a desired user or the user of telephone number, according to telephone number. Trend in the number of calls to 1180 number during 2022, is given in the following chart.



In 2022, 128,008 users called the number 1180, while this figure for 2021 amounts to 137,666, which shows that 7.02% less calls were made in 2022. The reason of lower percentage is due to a less calls to Universal Telephone Directory Service (a two-way search: per name and per telephone number). In the chart below is given the number of accesses to web portal of Mtel regarding the search throuh the Universal Telephone Directory Service, which amounted to 8,446,406, while in 2021 it amounted to 4,038,071, meaning that in 2022 was 109% more visits to web portal than in 2021.



3.2.2. Provision of the services of access to electronic communications network, telephone calls and Internet access

Universal Service is a safeguard mechanism for the provision of a set of minimum electronic communications services which is available to all end users, in order to prevent their isolation from society. Along with socially vulnerable persons and persons with disabilities, it primarily refers to people living in rural and isolated areas where electronic communications network is purely developed. Due to low density of population, the expansion of electronic communications networks to these areas implies the investments which are not economically viable to the operator.

The Agency Council made Decision No. 0405-2368/25 dated 26.11.2020 on assigning the operator of Universal Service of Crnogorski Telekom for the provision of the services of access to electronic komunikacionoj mreži, telephone calls and Internet access in a 5-year period, from 25.01.2021 till 25.01.2026.

According to the Pricelist for Universal Service of Crnogorski Telekom, No. 03-1421/4 dated January 31, 2020, Universal Service has been provided under the following conditions:

- Connection fee at a fixed location: €0;
- Monthly subscription fee: €4.5;
In the monthly subscription fee are included 120 minutes of calls to fixed networks in Montenegro, 10 minutes of calls to mobile networks in Montenegro, 15 minutes of calls to FOREIGN COUNTRIES and 1 GB for the use of Internet;
- Call fee to fixed networks in Montenegro: 0.0136 €/min,
- Call fee to mobile networks in Montenegro:
 - to its own network 0.0136 €/min,
 - to other mobile networks 0.0357 €/min;
- fee for the amount of transferred data: 0.0051 €/MB;
- persons with disabilities as the users, the fees for conversation and data transfer are 50% lower, monthly subscription is free of charge and 2GB of transferred data are free of charge;
- socially vulnerable persons as the users, fee for conversations and data transfer are 33% lower, monthly subscription is free of charge and 2GB of transferred data are free of charge;
- all other fees for the calls, Universal Service users will pay according to actual Pricelist of Crnogorski Telekom in the public electronic communications network at a fixed location;
- tariff interval for voice traffic: 1 second, and
- tariff interval for data transfer: 1 kB.

Pursuant to Article 95 (5) of the Law, the Agency may, for the purpose of reducing net costs for the provision of the Universal Service, require the Universal Service operator to apply certain technical or other solutions or to conclude the offered interconnection contracts or cooperate with other operators, or it may acknowledge net costs up to the amount that would result from application of the requested technical and other solutions.

As the Universal Service operator, Crnogorski Telekom shall provide connection at a fixed location, based on a reasonable request of any citizen of Montenegro, notwithstanding geographical position of the building that citizen lives in, following the Rulebook on criteria for reasonableness of the user's request for the access to public electronic communications network through Universal Service.

Crnogorski Telekom provides socially vulnerable persons and persons with disabilities with the services of Universal Service at more favourable conditions from the above said. Persons with disabilities and socially vulnerable persons receive 120 minutes free of charge to fixed networks in Montenegro, 10 minutes to mobile networks in Montenegro, 15 minutes of calls abroad and 2 GB of transferred data. Upon realized traffic which is free of charge, a discount to telephone call fee and fee of transferred data for persons with disabilities will be 50%, and for socially vulnerable persons will be 33% in relation to the abovementioned service fees of the services of Universal Service for commercial users.

Universal Service connections were required in the last period by the citizens of MZ Bliškovo, Municipality of Bijelo Polje, MZ Jelovica, Municipality of Berane i one citizen from MZ Pometenic, and Municipality of Žabljak.

In its Decision No: 0504-2981/2 dated 02.06.2022, the Agency imposed to Crnogorski Telekom to implement radio base stations in the 790-862 MHz band, with a view to fulfilling the conditions stipulated by the Approval for the use of radio frequencies No. 0505-5053/2 dated 01.09.2016, referring to coverage of selected rural areas where no other way for the provision of broadband services of data transmission, till 01.09.2022, and these were:

- 1) Vusanje in the Municipality of Gusinje (Vusanje location),
- 2) Stožer and Bliškovo in the Municipality of Bijelo Polje (Bliškovo location),
- 3) Lubnice, Buče, Mušovica Rijeka and Mujića Rečine in the municipalities of Berane and Kolašin (Jelovica location),
- 4) Grnčar and Dolja in the municipality of Plav (Grebaje location).

Thus, the location in MZ Bliškovo, m Information on the Universal Service in Montenegro are on the Agency's web site: <https://ekip.me/page/electronic-communications/univerzalni-servis/about-us/content>.

The services of Universal Service are provided by the selected operators, in accordance with the regulations determining the provision of Universal Service in Montenegro. If any of the above regulations referring the Universal Service, selected operators of Universal Service shall follow the new regulations.

Municipality of Bijelo Polje and MZ Jelovica, Municipality of Berane became the obligation to be fulfilled as laid down by the Approval for the use of radio-frequencies, but due to submitted requests for the connection via Universal Service it will still be regarded by this report. The costs for the construction of these locations will not be considered during the approval of net costs for the Universal Service.

Radio base station at the location of MZ Jelovica was put into operations as from 16.11.2022. Radio base station at the location of MZ Bliškovo, Municipality of Bijelo Polje was not implemented although Crnogorski Telekom completed the works on the pillar construction, due to the problems regarding electrical connections to be provided by CEDIS, followed by installation of the equipment.

The user from MZ Pometenici, Municipality of Žabljak released the service of data transmission dated on 04.11.2022, through a satellite connection which Crnogorski Telekom borrowe from SBS Net Montenegro operator and that user will a test user in the period ahead. The service will be tested and if it is proved that voice services of proper quality can be provided, the service can be provided in 2023, when supplied in their production with a new technology (a new voice platform providing VoLTE and Voice over WiFi).

On 31.12.2022, Crnogorski Telekom informs the Agency that 15 users were active and that one user had been temporarily disconnected and 40 users demontated (due to cancellation of the agreement and not fulfilling

their obligations to Crnogorski Telekom as the service provider, they have not been provided with the services any more).

Crnogorski Telekom did not claim for net costs for the business year 2021.

Information on the Universal Service in Montenegro are given on the Agency's web site: <https://ekip.me/page/electronic-communications/universal-service/general-1/content> as well as on the web site of Crnogorski Telekom: <https://telekom.me/privatni-korisnici/univerzalni-servis>. <https://ekip.me/page/electronic-communications/univerzalni-servis/about-us/content>.

The services of Universal Service are provided by the selected operators, in accordance with the regulations determining the provision of Universal Service in Montenegro. If any of the above regulations referring the Universal Service, selected operators of Universal Service shall follow the new regulations.

3.3. Quality of Universal Service in the sector of electronic communications

As laid down by ZEK, the operators designated for the provision of the Universal Service, shall submit to the Agency information regarding measured quality parameters of the Universal Service for the service they provide, as laid down by the decision on designation of the Universal Service Operator, in accordance with the Rulebook on the quality of the Universal Service, they shall submit an annual report on the values of quality indicators of the Universal Services they provide. With this regard and pursuant to Article 3 of the Rulebook on the quality of services provided within the Universal Service, quality parameters of the US services are defined. Universal Service operators performed measurement of quality parameters of the services within the Universal Service provided in accordance with definitions and methods specified in technical instructions: METI ETSI EG202 057-1, METI ETSI EG 201 769-1 and METI ETSI EG 202 057-4.

As the operator of Universal Telephone Directory Service and Universal Enquiry Service, Mtel submitted to the Agency the following data for the period from 1.1.2022 – 31.12.2022:

- Average response time of the operator's contact person (telephone operator) was 9.00 seconds;
- Total of 132,768 calls were made to Universal Enquiry Service number, of which 132.768 calls were successful (connection with the operator was established and requested information received). Out of those calls:
 - 130,723 calls i.e. 92.27% of the calls were made with the response time of Universal Enquiry Service shorter than 20 seconds;
 - 5,605 calls i.e. 7.73% of the calls were made with the response time of Universal Enquiry Service, longer than 20 seconds, and
 - 4,760 calls $((132,768 - 128.008)/132.768) * 100$) i.e. 3.58% of the calls were interrupted.

The Rulebook on the quality of Universal Service defines that an average response time of the Universal Enquiry Service shall not exceed 15 seconds within a year, and the percentage of calls to which the Universal Enquiry Service responds within 20 seconds shall not be lower than 80 % on a yearly basis. Based on the above-mentioned data, it can be concluded that the Universal Enquiry Service and Mtel as a designated operator, met all the criteria defined by the Rulebook on the quality of services of the Universal Service for the service they provide.

For the period from 1 January 2022 to 31 December 2022, Crnogorski Telekom submitted to the Agency the following information on quality parameters of the Universal Service provided: service set-up time, frequency

of malfunctions on an access line, time needed for removing malfunctions, frequency of unsuccessful calls, time needed for setting the call, frequency of complaints against the bill for services provided under the Universal Service, and minimum data transmission speed necessary for Internet access (output "upload" speed and input "download" speed). Values of measured parameters are within the values indicated in the Rulebook on quality of services of the Universal Service. Some of them are as follows:

For the period from 1 January 2020 to 31 December 2020, Crnogorski Telekom submitted to the Agency the following information on quality parameters of the Universal Service provided: service set-up time, frequency of malfunctions on an access line, time needed for removing malfunctions, frequency of unsuccessful calls, time needed for setting the call, frequency of complaints against the bill for services provided under the Universal Service, and minimum data transmission speed necessary for Internet access (output "upload" speed and input "download" speed). Values of measured parameters are within the values indicated in the Rulebook on quality of services of the Universal Service. Some of them are as follows:

- Frequency of unsuccessful calls related to:
 - % of all national calls was 0.11%.
- Call set-up time:
 - An average time for all national calls is 3.8 seconds.
- Frequency of complaints on the bills of services of the Universal Service:
 - % within one year is 0%.
- Frequency of malfunctions on an access line:
 - % within one year is 0%.
- Minimum data transmission speed necessary for Internet access:
 - Upload speed means maximum upload speed achieved in 95% cases, expressed in kbps, amounts to 525 kbps, and
 - Download speed means maximum download speed achieved in 95% of cases, expressed in kbps and it amounts to 3819 kbps.

Users of the part of Universal Service provided by Crnogorski Telekom expressed their satisfaction with the prices and quality of the Universal Service as well as with telephone connections they had (used for a voice telephony and data transmission). According to them, this system was very useful and actually the only one available for the people living in a remote and inaccessible area, where communication is difficult to be made in any sense.

In April 2022, for the needs of the Agency, the Agency for Public Opinion Research "Damar Plus" from Podgorica, carried out a survey on 1,009 respondents 15 years old and above, of the degree of their satisfaction regarding electronic communications services in Montenegro. The study referred to citizens' awareness of the number 1180 and of the Universal Enquiry Service, as well as to satisfaction degree with the service. According to the results about the service which allows the citizens to obtain information about the telephone number in a fixed and mobile telephony (number 1180), 39.5% heard of this service, which is 1.9 percentage points more than in 2021. Out of those who heard of the number 1180, 95% of the respondents say they know which information can be obtained by dialing the above number, which is 2.5 percentage points more than in 2021. Out of those who heard of the number 1180, 24.9%, asked for information through that service in the previous year (previous report on public opinion research comprised the period from the beginning of putting into operation the 1180 service), and 89.9% of them were satisfied with the service provided, which is a decrease of 5.4 percentage points in the satisfaction level of the respondents, compared to 2021.

4. ASSIGNED LIMITED RESOURCES

4.1. Carrying out the assignment procedure for available radio frequencies for MFCN systems

For the realization of radio access part of public mobile electronic communications networks by Radio Frequency Spectrum Allocation Plan in Montenegro, the following radio frequency bands were allocated: 694-790 MHz (700 MHz band), 790-862 MHz (800 MHz band), 880-915/925-960 MHz (900 MHz band), 1427-1518 MHz (1500 MHz band), 1710-1785/1805-1880 MHz (1800 MHz band), 1920-1980/2110-2170 MHz (2 GHz band), 2300-2400 MHz (2.3 GHz band), 2500-2690 MHz (2.6 GHz band), 3400-3800 MHz (3.6 GHz band), and 24.25-27.5 GHz (26 GHz band).

The assignment procedure for radio frequencies in the 700 MHz, 3.6 GHz and 26 GHz bands was designed in a way to meet the following goals:

- keeping and strengthening the effective competition at the mobile electronic communications market;
- ensuring consistent business environment for mobile operators and other investors;
- creating conditions for further development of mobile electronic communications networks and services and ensuring implementation and development of advanced technologies (i.e. 5G NR) through appropriate and timely allocation of frequency resources;
- ensuring availability of broadband data transmission services of adequate quality in the largest possible part of the territory of Montenegro;
- ensuring development of electronic communications services and infrastructure for the development of electronic communications services and infrastructure for the support to social and economic progress of Montenegro;
- generating revenue for the budget of Montenegro, from the allocation of radio frequencies that reflect the market value of the spectrum.

Subject of the allocation were unit frequency blocks is given in the Table below.

Band	Block width	Number of blocks for allocation	Validity period of the approval	Description	Initial fee per block
700 MHz	2x5 MHz	6	15 years from the date of issuing the approval	Frequency generic paired blocks in the ranges from H1 to H6	690,000.00 €
	5 MHz	2 (+1)*	15 years from the date of issuing the approval	Frequency generic paired blocks in the ranges from I2 to I3	70,000.00 €
2 GHz	10 MHz	38 (+2)*	15 years from the date of issuing the approval	Frequency generic unpaired blocks in the L5-L6 to L79-L80 ranges	95,000.00 €
26 GHz	200 MHz	5	15 years from the date of issuing the approval	Frequency generic unpaired blocks in the M12-M16 ranges	100,000.00 €

* One block 5 MHz wide from unpaired part of the 700 MHz range and two blocks 10 MHz wide in the 3.6 GHz range with limited use conditions were not the subject of public competition and could have been allocated to the bearer of neighbouring blocks per request.

The decision to launch a public bidding process for granting approval for the use of radio frequencies in the 700 MHz, 3.6 GHz and 26 GHz bands for the realization of public mobile electronic communication networks was announced on October 26, 2022. Allocation procedure is carried out by the method of *multiband* spectrum auction. Auction spectrum process was performed in two levels: the basic level, in which it is determined how many generic frequency blocks of a category are allocated to each auction winner, and the allocation level, in which it is determined which concrete frequency blocks are allocated to each auction winner in each range. The entry-level bidding followed a combined Simple Clock Auction and Sealed-Bid Auction format and included one or more primary rounds in the clock format and one additional round of sealed bids, which is carried out only in the event that not all frequency blocks have been allocated in the last primary round. Bidding in the allocation stage followed the Sealed-Bid Auction format and included one round of allocation for each spectrum that was the subject of the spectrum auction. The criterion for the selection of the most favorable bidders in all stages of the spectrum auction procedure was the offered price.

Spectrum auction was carried out electronically, using the system for performing electronic spectrum auction (EAS system). In each phase of spectrum auction the bidders submitted their offers electronically, in a decentralized manner, through the bidding part of the EAS system. The administrator of the EAS system was the company SPECURE from Vienna, with which the Agency previously signed a contract on the provision of consulting services for the preparation and implementation of the spectrum auction with the use of appropriate software for the implementation of the electronic spectrum auction.

The right to participate in the public bidding procedure had each interested legal person who had been provided with the public bidding documentation, and with at least a ten-year experience in the implementation of public mobile electronic communications networks and provision of public mobile electronic communications services (qualification request). In order to acquire the status of a qualified bidder at the spectrum auction, the applicants for participation in the spectrum auction for which the eligibility was determined were obliged to pay the fee for participation in the spectrum auction (in the amount of €50,000.00). The status of qualified bidder in the spectrum auction gained the actual mobile operators in Montenegro: Crnogorski Telekom, One Crna Gora and Mtel.

According to the Documentation for the public bidding, qualified bidders were obliged to submit a bid guarantee to the Agency no later than three days before the start of the spectrum auction in an amount covering at least 100% of the total amount of the bid they intended to submit in the first primary round. In subsequent rounds of the main auction phase, the amount of the submitted guarantee had to cover at least 25% of the total amount of the bid submitted in the primary round, or at least 25% of the total amount of the bid submitted in the Additional Round, increased by the total amount of the bid submitted in the last primary round.

After all prescribed procedural prerequisites were fulfilled, including the training of the representatives of qualified bidders for the work with bidding part of EAS (*Electronic Auction System*) system and maintenance of testing (MOCK) auction, initiated the performance of spectrum auction for the allocation for the use of radio frequencies in the 700 MHz, 3.6 GHz and 26 GHz ranges for the implementation of public mobile

electronic communications networks, respecting the form, procedure and rules prescribed by the Decision on initiating the public bidding procedure and public bidding documentation.

Bidding in the primary rounds of the basic auction stage was conducted on December 20, 2022. In the primary rounds, bidders submitted bids (requests) for frequency blocks by category at the price valid for the current round, whereby the price per block was increased by 5% compared to the initial price after each round in which there was an excess of



demand in that category. Bidding in the primary rounds ended after the fifth primary round did not show excess demand for the first time in any of the categories of frequency blocks that were the subject of the auction. In the primary rounds, all frequency blocks from the paired part of the 700 MHz band and from the 3.6 GHz band were allocated.

Spectrum auction continued in the auction phase on 22.12.2021. The subject of the main auction phase was a non-reserved spectrum in the 2 GHz and 2.6 GHz bands, as well as nonassigned frequency block in the 1800 MHz band from the pre-auction phase. In the primary rounds of the main auction phase, the bidders submitted the requests for the frequency blocks per category, at the price valid for the current round, whilst the price per a block was increased for 5% in relation to the initiating one, after each round in which an excess demand was shown in that category.

The spectrum auction procedure continued on December 22, 2022, with an additional round of the basic auction stage. The subject of bidding in the Additional Round were frequency blocks from the unpaired part of the 700 MHz band and five frequency blocks from the 26 GHz band, which remained unallocated in the primary rounds. No blocks were allocated in the Additional round of the basic stage of the spectrum auction.

The allocation degree was carried out on December 27, 2022 by awarding rounds. According to the result of the basic level of the auction, the allocation rounds were conducted for the comparative part of the 700 MHz band and for the 3.6 GHz band. In the allocation rounds, the winners of the spectrum auction from the basic level submitted bids for the presented allocation options.

In the Table below are given total results of spectrum auction with regard to the number and physical boundaries of frequency blocks per category allocated to each auction winner, and total amount of a one-time fee for granting the approval for the use of those blocks.

Crnogorski Telekom		
Bandwidth	Total width of allocated blocks	Marks and physical boundaries of allocated blocks
700 MHz FDD	2x10 MHz	H5,H6 [723-733/778-788 MHz]
700 MHz SDL	0	n/a

3.6 GHz	140 MHz	L53-L80 [3660-3800 MHz]
26 GHz	0	n/a
Total amount of the fee		3.108.000,00 €
Mtel		
Bandwidth	Total width of allocated blocks	Marks and physical boundaries of allocated blocks
700 MHz FDD	2x10 MHz	H3,H4 [713-723/768-778 MHz]
700 MHz SDL	0	n/a
3.6 GHz	120 MHz	L29-L52 [3540-3660 MHz]
26 GHz	0	n/a
Total amount of the fee		2.750.148,00 €
One Crna Gora		
Bandwidth	Total width of allocated blocks	Marks and physical boundaries of allocated blocks
700 MHz FDD	2x10 MHz	H1-H2 [703-713/758-768 MHz]
700 MHz SDL	0	n/a
3.6 GHz	120 MHz	L5-L28 [3420-3540 MHz](1)
26 GHz	0	n/a
Total amount of the fee		€2,977,998.00

Decision on the selection of bidders in the public bidding process was made on January 12, 2023. After the selected bidders paid the entire amount of a one-time fee for the allocation of authorization for the use of radio frequencies to the budget of Montenegro and submitted the appropriate requests, on February 9, 2023, the Agency issued the appropriate authorizations for the use of radio frequencies in the 700 MHz and 3, 6 GHz for the implementation of public mobile electronic communication networks, which formally ended the allocation process. The selected bidder One Montenegro used the possibility of allocating two 10 MHz blocks in the 3.6 GHz band (block 3400-3420 MHz) with limited conditions of use, so that operator was allocated a total of 140 MHz of spectrum from that band.



Total revenue generated from the allocation of radio-frequencies in the subject public bidding procedure, which makes budget revenue of Montenegro, amounts to €8,836,146.00. In relation to prices at the beginning an income was achieved higher than € 1,086,146.00, i.e. slightly higher than 14%. A total of €4,192,142.00 was the revenue generated from the allocation of radio-frequencies in the 700 MHz band and a total of €4,644,004.00 in the 3.6 GHz band.

The value of unallocated spectrum at the initial price is €640,000.00. The outcome of the spectrum auction in terms of the realized income from the allocation is at the level of the Agency's projections.

With the approvals for the use of radio frequencies in the 700 MHz and 3.6 GHz bands, mobile operators are obliged to meet strict requirements regarding the scope and dynamics of network signal coverage and regarding the development of the 5G network. By the end of 2026, all three mobile operators are obliged to

provide an extension of network signal coverage that enables the provision of data transmission services according to the 10/3 Mb/s criterion based on user experience to 98% of the population of Montenegro, with the fact that they are required to they each cover five rural areas where broadband data transmission services are currently unavailable. Furthermore, operators are obliged to ensure the availability of data transmission services according to the 30/10 Mb/s criterion by the end of 2026, and by the end of 2030 according to the 100/30 Mb/s criterion based on user experience for at least 75% of the population of Montenegro. Also, each of the mobile operators is obliged to ensure, by the end of 2026, and after the expiration of that period, to maintain uninterrupted network signal coverage of all highways and all major roads, and by the end of 2030, all regional roads in Montenegro, as well as to ensure until the end of 2026, and after the expiration of that deadline, to maintain signal coverage of the Skadar lake water area belonging to Montenegro, the water area of the Bay of Kotor and part of the territorial waters of Montenegro up to 1 nautical mile from the coast, and by the end of 2030 and parts territories of national parks in Montenegro where the tourist infrastructure is located.

Every mobile operator in Montenegro shall, by the end of 2024: provide 5G services in every municipality of Montenegro, by the end of 2026 cover at least 50% of the municipalities of Montenegro with the 5G (NR) signal, and by the end of 2030 shall cover all inhabited areas, highways and major roads with the signal of 5G network in Montenegro.

4.2. Assigned limited resources and assessment of their rational use

4.2.1. Radio frequency spectrum management

As referred to in Article 96 of the Law on Electronic Communications, the Agency is authorized for radio frequency spectrum management as a limited natural resource, in line with international agreements, relevant Law, radio frequency spectrum allocation plan and radio frequency allocation plans.

By radio frequency spectrum allocation plan („Official Gazette of Montenegro”, No. 89/20 and 104/20), adopted by the Government of Montenegro in October at the Agency’s proposal, radio frequency allocation was determined for certain radio communications services, in line with the ITU Rulebook on radio communications (ITU Radio Regulations) – the issue after WRC-19 Conference.

Along with the allocation plan for radio frequency spectrum management, it is also very important to make the appropriate allocation plans. By the allocation plan for radio frequencies in certain bands, band allocation to radio frequency channels shall be determined, as well as detailed conditions, way of use and manner of allocation of radio frequencies to one or more radio communications services, in line with radio frequency allocation plan.

In 2022, the Agency adopted the following acts:

- Supplement to the allocation plan of radio frequencies in the 87.5-108 MHz bands for FM radio („Official Gazette of Montenegro” 34/17, 57/17, 51/18, 16/19, 11/20, 116/20 and 77/22);
- Radio frequency allocation plan in the 1710-1785/1805-1880 MHz bands for GSM/DSC1800 and MFCN systems („Official Gazette of Montenegro“, 142/22), and
- Radio frequency allocation plan in the 880-915/925-960 MHz bands for GSM and MFCN systems („Official Gazette of Montenegro“, 13/23).

4.2.2. Assigned radio frequencies

Physical and legal persons may use radio-frequencies on the basis of the approvals for using radio-frequencies issued by the Agency. The exception refers to the frequencies used in compliance with the Rulebook on radio frequencies and conditions under which radio frequencies can be used without approval ("Official Gazette of Montenegro", 47/14, 50/14, 64/18, 66/19 and 119/22).

In 2022, a total of 2,155 approvals for the use of radio frequencies, decisions on establishing technical and operational requirements for the use of approved radio frequencies and decisions on assigning the call sign/MMSI number, which is an increase of 107,6% in relation to 2021. In the reference period, 127 approvals for the use of radio frequencies and decisions on defining technical and operational conditions for the use of approved radio frequencies, were revoked.

In the Table below is given an overview of issued and revoked approvals/decisions per radio communications services during 2022.

Radiocommunications services		Number of issued approvals/decisions	Number of revoked approvals/decisions
FIXED	Radio relay links	293	19
	Exclusive use of radio frequencies on the territory of Montenegro	0	0
MOBILE	Functional systems	15	3
	Exclusive use of radio frequencies on the territory of Montenegro	9	1
	Technical requirements for GSM/DCS1800/UMTS/LTE radio base stations	1.380	27
	Technical requirements for TETRA radio base stations	0	0
MARITIME	Terrestrial radio stations for the support to sailing vessels and radio stations on the vessels	247	63
	Technical conditions for the stations for supporting sailing of vessels and radio stations on the vessels.	0	0
	Call sign/MMSI number	112	6
AERONAUTICAL	Radio stations on the aircraft	7	3
	Radio stations for the support and control of the air traffic	1	0
RADIO-AMATEUR	Radio-amateur radio stations	65	0
SATELLITE	Fixed satellite, VSAT or SNG station mobile satellite, MSS/CGC station	1	0

RADIO-BROADCASTING	DVB-T2 transmitters	0	0
	T-DAB+ transmitters	0	0
	FM transmitters	25	5
	Links for the delivery of modulation signal	0	0
TOTAL		2,155	127

4.2.3. Analysis of the occupancy of the most important radio frequency bands

4.2.3.1. Fixed and mobile services

Public mobile electronic communications networks

Radio frequency resources were assigned on an exclusive basis on the entire territory of Montenegro, for the implementation of public mobile electronic communications networks in Montenegro in the following radio-frequency bands:

- 790-862 MHz (800 MHz band) for the implementation of TRA-ECS system, in accordance with radio frequency allocation plan in the 790-862 MHz band for TRA-ECS system („Official Gazette of Montenegro”, 55/14);
- 880-915/925-960 MHz (900 MHz band) for GSM and TRA-ECS systems, in accordance with radio frequency allocation plan in the 880-915/925-960 MHz bands for GSM and MFCN systems („Official Gazette of Montenegro”, 13/23);
- 1710-1785/1805-1880 MHz (1800 MHz band) for the implementation of DCS1800 and TRA-ECS systems, in accordance with radio frequency allocation plan in the 1710-1785/1805-1880 MHz bands for GSM/DSC1800 and MFCN systems („Official Gazette of Montenegro”, 142/22);
- 1920-1980/2110-2170 MHz (2 GHz band) for the implementation of TRA-ECS systems, in accordance with radio frequency allocation plan in the 1920-1980/2110-2170 MHz for MFCN systems („Official Gazette of Montenegro”, 127/20);
- 2500-2690 MHz (2.6 GHz band) for the implementation of TRA-ECS system, in accordance with radio frequency allocation plan in the 2500-2690 MHz band for MFCN systems („Official Gazette of Montenegro”, 127/20).

In accordance with valid approvals for the use of radio frequencies, radio frequencies in the 790-862 MHz, 880-915/925-960 MHz, 1710-1785/1805-1880 MHz, 1920-1980/2110-2170 MHz, and 2500-2690 MHz bands intended for the realization of public mobile electronic communications networks were assigned to mobile operators: Crnogorski Telekom, One Crna Gora and Mtel.

In the 800 MHz band, Crnogorski Telekom was assigned 2x20 MHz wide block, and Mtel 2x10 MHz wide block. Both allocations are valid until 01.09.2031. Both mobile operators use radio frequencies in this band for the realization of the access part of LTE mobile network at national level.

In the 900 MHz band, One Crna Gora was allowed to use of 2x15 MHz wide block, while Crnogorski Telekom and Mtelu were allowed to use 2x10 MHz wide blocks. All the assignments in this band are valid until 01.09.2031. Crnogorski Telekom and Mtel use 900 MHz band for the implementation of an access part of

GSM mobile network, and one its part (2x4.2 MHz wide block) also use for the implementation of an access part of UMTS network, but only in rural areas. The operator One Montenegro, except for GSM and UMTS in rural areas, used part of the resources in the 900 MHz band (2x10 MHz wide block in locations where UMTS900 technology was not implemented, i.e. 2x5 MHz wide block in locations where UMTS900 technology was implemented) and for the implementation of the access part of the LTE network at the national level.

In the 1800 MHz band, all three operators have 2x25 MHz wide blocks. The respective approvals are valid until September 1, 2031. All three mobile operators use a 2x5 MHz block for the realization of the access part of the DCS1800 network, and a 2x20 MHz block for the realization of the access part of the mobile LTE network at the national level.

In the 2 GHz band, each operator is allocated 2x20 MHz of spectrum. All authorizations for the use of RF from this scope are valid until September 1, 2031. All three mobile operators use radio frequencies from the 2 GHz range for the implementation of the access part of the UMTS network at the national level, with the fact that One Crna Gora and Crnogorski Telekom refarmed part of the allocated resources from this range in order to implement LTE technology, i.e. NR technology on based on the DSS technique. In 2022, Crnogorski Telekom reduced the configuration of UMTS base stations in the 2 GHz range to one carrier, and One Montenegro to one or two carriers. Mtel still has radio base stations with three active UMTS carriers in the network.

In the 2.6 GHz band, Crnogorski Telekom was allocated 2x20 MHz in the paired part, i.e. 5 MHz of spectrum in the unpaired part of the band, Mtel a frequency block with a width of 2x35 MHz in the paired part, and operator One Crna Gora a block with a width of 2x15 MHz in the paired part, i.e. 20 MHz in the unpaired part of the scope. Crnogorski Telekom has implemented LTE technology in the paired block at over 70 locations with high traffic density, while the unpaired block is still not used. By the end of 2022, Mtel has implemented about 50 LTE radio base stations with two carriers with a width of 2x20 MHz and 2x15 MHz in the 2.6 GHz band, while the operator One Montenegro has implemented about 20 LTE radio base stations in the 2.6 GHz band GHz with the aggregation of FDD and TDD carriers, mainly in densely populated areas. Also, this operator has implemented NR technology based on the DSS technique and in the 2.6 GHz band.

In the 800 MHz, 900 MHz, 1800 MHz, 2 GHz and paired part of the 2.6 GHz band are allocated all available resources, while three blocks 5 MHz wide were unpaired in the 2.6 GHz band.

On the basis of the above, we conclude that the assigned radio frequencies in the 800 MHz, 900 MHz, 1800 MHz, 2 GHz and 2.6 GHz bands are intensively and rationally used for the realization of public mobile electronic communication networks by GSM, UMTS and LTE/LTE - Advanced technology, according to the dynamics of network development and user requirements. In the first realization phase of 2022, mobile operators implemented 5G technology in the 1800 MHz, 2 GHz and/or 2.6 GHz bands based on DSS tehnologije.

In accordance with radio Frequency Spectrum Allocation Plan, along with the above-mentioned bands, radio frequencies from the free bands can be used for the implementation of mobile electronic communications networks in Montenegro:

- 694-790 MHz (700 MHz band) for the implementation of MFCN systems, in accordance with Radio Frequency Allocation Plan in the 694-790 MHz band for MFCN (TRA-ECS) systems ("Official Gazette of Montenegro", 16/18),

- 1427-1518 MHz (1500 MHz band) for the implementation of MFCN systems, in accordance with Allocation Plan for radio frequencies in the 1427-1518 MHz band for MFCN (TRA-ECS) systems ("Official Gazette of Montenegro", 22/21),
- 2300-2400 MHz (2.3 GHz band) for the implementation of MFCN systems, in accordance with Radio Frequency Allocation Plan in the 2300-2400 MHz band for MFCN (TRA-ECS) systems ("Official Gazette of Montenegro", 25/18),
- 3400-3800 MHz (3.6 GHz band) for the implementation of MFCN systems, in accordance with Radio Frequency Allocation Plan in the 3400-3800 MHz band for MFCN (TRA-ECS) systems ("Official Gazette of Montenegro", 22/21),
- 24.25-27.5 GHz (26 GHz band) for the implementation of MFCN systems, in accordance with Radio Frequency Allocation Plan in the 24.25-27.5 GHz for MFCN systems ("Official Gazette of Montenegro", 22/21).

Radio frequency in the 700 MHz and 3.6 GHz bands are allocated to mobile operators in the 2022 auction spectrum procedure, and appropriate allocations for the use of radio frequencies are allocated to 15.02.2023. More details on this allocation is given in the item 4.1. "Implementation of the available radio frequency allocation for 5G mobile networks".

Fixed connections

For implementation of two-way fixed connections of a "point-to-point" type, the following radio frequencies are in the use in Montenegro:

- 3800-4200 MHz (4 GHz band), in accordance with Allocation Plan for radio frequencies from the 3800-4200 MHz band for fixed connections ("Official Gazette of Montenegro", 77/18),
- 5925-6425 MHz (L6 GHz band), in accordance with Allocation Plan for radio frequencies from the 5925-6425 MHz band for fixed connections ("Official Gazette of Montenegro", 9/16),
- 6425-7125 MHz (U6 GHz band), in accordance with Allocation Plan for radio frequencies in the 6425-7125 MHz band for fixed connections ("Official Gazette of Montenegro", 9/16),
- 7125-7425 MHz (L7 GHz band), in accordance with Allocation Plan for radio frequencies in the 7125-7425 MHz band for fixed connections ("Official Gazette of Montenegro", 28/16),
- 7425-7725 MHz (U7 GHz band), in accordance with Allocation Plan for radio frequencies in the 7425-7725 MHz band for fixed connections ("Official Gazette of Montenegro", 28/16),
- 7725-8275 MHz (L8 GHz band), in accordance with Allocation Plan for radio frequencies in the 7725-8275 MHz band for fixed connections ("Official Gazette of Montenegro", 28/16 and 61/19),
- 10.700-11.700 GHz (11 GHz band), in accordance with Allocation Plan for radio frequencies in the 10.700-11.700 GHz band for fixed connections ("Official Gazette of Montenegro", 5/16),
- 12.750-13.250 GHz (13 GHz band), in accordance with Allocation Plan for radio frequencies in the 12.750-13.250 GHz band for fixed connections ("Official Gazette of Montenegro", 70/15),
- 14.500-15.350 GHz (15 GHz band), in accordance with Allocation Plan for radio frequencies in the 14.500-15.350 GHz band for fixed connections ("Official Gazette of Montenegro", 15/16),
- 17.700-19.700 GHz (18 GHz band), in accordance with Allocation Plan for radio frequencies in the 17.700-19.700 GHz band for fixed connections ("Official Gazette of Montenegro", 5/16),
- 22.000-23.600 GHz (23 GHz band), in accordance with Allocation Plan for radio frequencies in the 22.000-23.600 GHz band for fixed connections ("Official Gazette of Montenegro", 7/16),
- 24.500-26.500 GHz (26 GHz band), in accordance with Allocation Plan for radio frequencies in the 24.500-26.500 GHz band for fixed connections ("Official Gazette of Montenegro", 7/16),

- 27.500-29.500 GHz (28 GHz band) in accordance with Allocation Plan for radio frequencies in the 27.500-29.500 GHz band for fixed connections ("Official Gazette of Montenegro", 77/18),
- 37.500-39.500 GHz (38 GHz band), in accordance with Allocation Plan for radio frequencies in the 37.000-39.500 GHz band for fixed connections ("Official Gazette of Montenegro", 15/16).

Along with the listed bands, for the realization of two-way fixed connections of a "point-to-point" type, the following bands are also planned in Montenegro:

- 8275-8500 MHz (U8 GHz band) in accordance with Allocation Plan for radio frequencies in the 8275-8500 MHz band for fixed connections ("Official Gazette of Montenegro", 28/16),
- 48.500-50.200/50.900-52.600 GHz (50 GHz band) in accordance with Allocation Plan for radio frequencies in the 48.500-50.200/50.900-52.600 GHz band for fixed connections ("Official Gazette of Montenegro", 02/19),
- 55.780-57.000 GHz (55 GHz band) in accordance with Allocation Plan for radio frequencies in the 55.780-57.000 GHz band for fixed connections ("Official Gazette of Montenegro", 77/18),
- 57-64 GHz (60 GHz band) in accordance with Allocation Plan for radio frequencies in the 57-64 GHz band for fixed connections ("Official Gazette of Montenegro", 65/19),
- 64-66 GHz (65 GHz band) in accordance with Allocation Plan for radio frequencies in the 64-66 GHz band for fixed connections ("Official Gazette of Montenegro", 65/19), and
- 71-76/81-86 GHz (70/80 GHz band) in accordance with Allocation Plan for radio frequencies in the 71-76/81-86 GHz band for fixed connections ("Official Gazette of Montenegro", 65/19),

but radio frequencies in those bands have still not been used for the implementation of fixed connections.

The bands below 10 GHz are mostly used for implementation of the backbone of transmission part of electronic communications networks. Backbone of transmission network of Telenor is completely based on a two-way system of digital radio relay connections implemented in the form of rings. In this segment, Telenor uses L6 GHz bands (32 segments), and 11 GHz (4 segments) in 4+0 configuration. The backbone of transmission network of Mtel is based on transmission by optical fibers and on digital radio relay connections, using the L8 GHz (14 segments), and the 11 GHz (2 segments) band in 2+0 configuration, or 3+0, depending on the route. Mtel changed one number of radio relay connections in the backbone of transmission network with connections by optical fibers. The backbone of transmission network of radio broadcasting center is based on the use of the U6 GHz (34 segments), and U7 GHz (30 segments) band, with one connection (Podgorica-Lovćen route) implemented in the 4 GHz band. In the backbone of transmission network Crnogorski Telekom uses optical transmission infrastructure, with only one segment (Podgorica-Lovćen route) implemented in the form of a two-way digital radio relay connection, in the band of U6 GHz with 4+0 configuration.

The bands above 10 GHz are mostly used for implementation of access connections on the backbone of transmission part of electronic communications networks and for individual connections of other users. Connection of radio base stations on the most suitable connection point of backbone transmission systems is implemented through optical fiber connections (in smaller part) and by two-way digital radio relay connections. In this segment, Telenor uses the following bands: 13 GHz, 15 GHz, 18 GHz and 23 GHz, with some access links on longer routes, implemented in the L7 GHz and 11GHz, Mtel uses the bands: 13 GHz, 18 GHz, 23 GHz, and 26 GHz, with several connections in each of the following bands: L7 GHz, 15 GHz, 18 GHz, 28 GHz and 38 GHz. Radio difuzni centar uses the 18 GHz band for the access links up to radio broadcasting transmitters, while Wireless Montenegro uses the: 18 GHz, 23 GHz and 38 GHz band for connecting dispatch centers of the users on TETRA network.

Apart from the above mentioned operators, the approvals for fixed connections were assigned to Simes d.o.o. (12 links in the 18GHz band for connecting the border crossing), Elektroprivreda Crne Gore (three connections for connecting the elements of functional network in the band of L8 GHz), Uprava pomorske sigurnosti i upravljanje lukama (three connections in the bands: L7 GHz, 4 connections in the 18 GHz band and one connection in the 23 GHz band for connecting the elements of VTMS systems), SMATSA (one connection in the band of 23 GHz for connecting radars on Srpska Gora with Control Tower in Podgorica), and to the Parliament (Skupština) of Montenegro (one connection in the band of 23 GHz for the transmission of signal from the building of Parliament up to RTV dom for the needs of direct TV transmissions of the Parliament sessions).

The 1525-1535 MHz band is used for the implementation of one-way radio-relay links for the needs of getting modulation signal from the studio to the transmitter for the needs of FM radio transmitter. 11 radio relay links were realized.

In the table below is given the overview of the assigned radio channels, per width and per band.

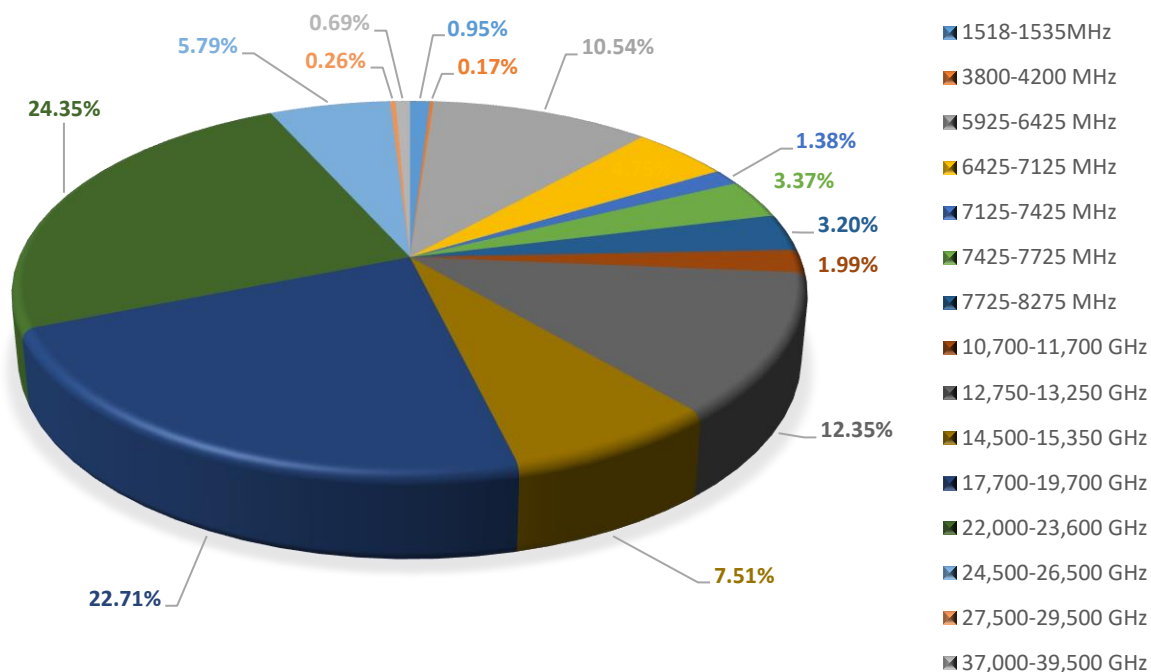
Overview of assigned radio channels per width and per band at the end of 2022

Bandwidth	Channel width	Number of allocated channels per width	Number of allocated channels per band
1525-1535 MHz	0,5 MHz	11	11
3800-4200 MHz	2x29 MHz	2	2
5925-6425 MHz	2x29,65 MHz	122	122
6425-7125 MHz	2x40 MHz	55	55
7125-7425 MHz	2x28 MHz	16	16
7425-7725 MHz	2x28 MHz	39	39
7725-8275 MHz	2x29,65 MHz	36	37
	2x59,3 MHz	1	
10.700-11.700 GHz	2x40 MHz	23	23
12.750-13.250 GHz	2x7 MHz	9	143
	2x14 MHz	16	
	2x28 MHz	83	
	2x56 MHz	35	
14.500-15.350 GHz	2x7 MHz	9	87
	2x14 MHz	21	
	2x28 MHz	52	
	2x56 MHz	5	
17.700-19.700 GHz	2x7 MHz	33	263
	2x13,75 MHz	51	

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	2x27,5 MHz	148	
	2x55 MHz	31	
22.000-23.600 GHz	2x7 MHz	33	282
	2x14 MHz	28	
	2x28 MHz	171	
	2x56 MHz	50	
24.500-26.500 GHz	2x7 MHz	10	67
	2x14 MHz	3	
	2x28 MHz	46	
	2x56 MHz	8	
27.000-29.500 GHz	2x28 MHz	1	3
	2x56 MHz	2	
37.500-39.500 GHz	2x28 MHz	5	8
	2x56 MHz	3	

The chart below shows the structure of the approved radio frequency channels for the implementation of fixed connections per band at the end of 2022.



Structure of the assigned radio frequency channels for the realization of fixed connections per band at the end of 2022

In 2022 continued an increasing trend in the capacity of transmission systems of mobile operators, by using new solutions that increase spectral efficiency, which is a support for the development of the access part of LTE networks and a good basis for starting 5G implementation. The trend of switching to optical fiber transmission in the "last mile" part of transmission networks also continued.

At the World radio communications conference WRC-19, the 26 GHz (24.25-27.5 GHz) band was globally identified for IMT systems, and by mobile industry this band was, along with 694-790 MHz and 3400-3800, MHz recognized as one of key bands for an early implementation of 5G systems. Part of this band, i.e. 24.5-26.5 GHz has been used for fixed connections, and in Montenegro is currently in use 70 fixed connections used by two operators (Crnogorski Telekom and Mtel). The deadline for the migration of fixed connections to alternative bands (i.e. 23 GHz, 28GHz and 38 GHz) was defined to be 30.06.2027. After the given deadline, the 26 GHz band will not be possible to use for those purposes.

TETRA system

Radio frequencies in the 380-385/390/395 MHz bands (400 MHz band) for the implementation of TETRA System are assigned to the company Wireless Montenegro. The goal of implementing this system is to provide communication channels for the needs of certain state administration services (police, army, security, protection services and other emergency services). In March 2022, the approval was extended for an additional five years, i.e. until the end of May 2027. Two paired radio-frequency blocks with a width of 2x2 MHz (80 two-way radio channels with a width of 2x25 kHz) were allocated. TETRA radio base and repeater stations were implemented in a total of 44 locations. TETRA signal is enabled in all municipalities of Montenegro.

The System was implemented in order to provide communications channels for the needs of state administration (police, military, security, protection services and other emergency services). The approval is valid until the end of May 2022. Two paired 2x2 MHz wide radio frequency blocks (80 two-way radio channels 2 x 25 kHz wide). TETRA radio base and transmitter stations are introduced at the total of 44 locations. TETRA signal is available in all municipalities of Montenegro.

PMR systems

PMR (*Professional (Private) Mobile Radio*) is a part of the land mobile service based on the use of a simplex, half duplex, and if applicable, duplex type of work, at the level of terminal with the purpose of providing communications to a closed users group. PMR is commonly used by commercial entities in performing their activities i.e. their functional systems, but also in some cases PMR systems are used for the provision of public EK services (most often dispatch services in taxi services).

As set out by Radio Frequency Spectrum Allocation Plan for PMR systems, the following bands are intended for PMR systems: 29.7-68 MHz, 68-87.5 MHz, 146-174 MHz, 380-400 MHz, 406.1-410 MHz, 410-430 MHz, 440-470 MHz and 870-876/915-921 MHz. In Montenegro, PMR systems are implemented in the following bands:

- 146-174 MHz (VHF PMR band), according to Radio Frequency Allocation Plan in the 146-174 MHz for PMR/PAMR systems ("Official Gazette of Montenegro", 81/16),
- 440-470 MHz (UHF PMR band), according to Radio Frequency Allocation Plan in the 440-470 MHz band for PMR/PAMR systems ("Official Gazette of Montenegro", 24/17).

Due to improved propagation characteristics and sensitivity of the receivers, the use of VHF band is still dominant in relation to UHF band.

The largest system of functional links in Montenegro is used by the Ministry of Interior (MUP), which mostly uses VHF PMR band. The equipment used by MUP has no technical characteristics for setting up to a new channel arrangement defined by Radio Frequency Allocation Plan in the 146-174 MHz band for PMR/PAMR systems, based on the CEPT/ECC Recommendation T/R 25-08. The use of radio frequencies in these cases cannot be considered as rationale, having in mind that a new arrangement also allows additional resources both for simplex and half duplex/duplex way of work.

In line with the relevant allocation plans, the old channel arrangement is allowed for use until 1 March 2021, with the possibility of extension of this period when needed due to the reasons of national and public safety and security. Safety and security agencies (MUP, UP, ANB) do not have appropriate approvals for the use of radio frequencies for their PMR System, but the Agency has been informed by these institutions regarding the part of spectrum for using radio frequencies; so, there is no possibility for interferences to the safety/security systems neither to other civil users, thus attaining respective secrecy levels with regard to the use of radio frequencies. Moreover, as these services, while carrying out activities from their competences, are frequently using TETRA System as a main communications system, in the future is expected a decrease in the use of PMR installations.

4.2.3.2. Maritime and aeronautical services

During 2022, as laid down by the Law, radio frequency spectrum allocation plan and radio frequency allocation plan in the 156-162.05 MHz band for maritime communications ("Official Gazette of Montenegro", 73/17) with regard to the use of radio frequencies on the vessels, the Agency made 247 approvals/decisions for the use of radio frequencies on the vessels and 63 decisions on the termination of validity of approvals for the use of radio frequencies on the vessels.

In 2022, following the Rulebook on the mode, conditions and procedure in determining a call sign and international maritime radio communications id number ("Official Gazette of Montenegro", 24/14) the Agency adopted 112 decisions on determining a call sign and/or MMSI number and 6 decisions on the termination of validity of decisions on determining a call sign and/or MMSI number.

In the same period, the Agency issued 7 approvals for the use of radio frequencies on aircraft, 1 decision on the use of radio frequencies for the needs of military radar and 3 decisions on revoking approval for the use of radio frequencies on aircraft.

4.2.3.3. Radio-amateur service

Radio frequencies for radio-amateur service are awarded in accordance with the Law on Electronic Communications, radio frequency spectrum allocation plan, Rulebook on radio-amateur communications ("Official Gazette of Montenegro" 8/20) and radio frequency allocation plan intended for radio-amateur services ("Official Gazette of Montenegro" 25/12).

In 2022 a total of 65 approvals were issued to physical persons, radio-amateur clubs or associations.

4.2.3.4. Satellite service

In 2022 one temporary approval for VSAT satellite terminal station for the needs of international military exercises.

4.2.4. Broadcasting service

Assignment of radio frequencies in radio broadcasting service is performed pursuant to ZEK, Law on Electronic Media ("Official Gazette of Montenegro" 46/10, 40/11, 53/11, 6/13, 55/16, 92/17 and 82/20), Radio Frequency Spectrum Allotment Plan, and appropriate allocation plans, as follows:

- Radio frequency allocation plan in the 87.5-108 MHz band for FM radio ("Official Gazette of Montenegro" 34 /17, 57/17, 51/18 16/19, 11/20 and 116/20 and 77/22),
- Radio frequency allocation plan in the band 526.5-1606.5 kHz for AM radio ("Official Gazette of Montenegro" 34 /17), and
- Radio frequency allocation plan in the band 174-230 MHz, and 470-694 MHz for DTT and T-DAB systems ("Official Gazette of Montenegro" 16/18, 70/18, 16/19 and 116/20).

Although during 2022 there were no requests submitted for the issuance of authorization for the use of radio frequencies by network operators for digital terrestrial radio broadcasting, based on the previously issued authorizations, it can be stated that the radio frequency spectrum for the mentioned systems is used rationally and efficiently. On the basis of a comparative analysis with the Plan for the distribution of radio frequencies from the bands 174-230 MHz and 470-694 MHz for DTT and T-DAB systems, it is concluded that in the mentioned bands there are available radio-frequency resources for the realization of new DTT networks with national, regional and local coverage, depending on the needs of the audiovisual media content market, including the implementation of future T-DAB+ networks

4.3. Control of the compliance with the requirements for the coverage with mobile network signal

Approvals for the use of radio frequencies in the 800 MHz, 900 MHz, 1800 MHz, 2 GHz and 2.6 GHz bands for the implementation of public mobile electronic communication networks, issued in the spectrum auction procedures in 2016 and 2021, are prescribed to holders of the appropriate requirements regarding the scope and dynamics of coverage of the population of Montenegro with the network signal, including requirements related to the quality of service. The requirements regarding coverage of the population of Montenegro with a network signal are defined specifically for voice telephony and SMS services and for data transmission services. Network signal coverage means the possibility of providing a functional voice and SMS message transmission service, i.e. data transmission services with a minimum flow to the user (downlink) of 10 Mbps based on user experience, i.e. with a guaranteed flow to the user (downlink) of 2 Mbps and guaranteed flow from the user (uplink) of 1 Mbps, in the case of mobile reception in an outdoor environment.

It is considered that a request for a minimum flow to the user of 10 Mbps based on the user experience (condition 10 Mbps DL) is met if a measured speed of data transmission to the user is 10 Mbps or more in at least 90% of the measurements carried out during the day (00-24h), with the rate of successfully initiated and completed measurement sessions is at least 95%, whereas measurements carried out during a two hour of maximum network burden shall not be included. Subject requirement does not refer to the measurements executed in the period of 45 days during the summer season.

It is considered that a request for guaranteed flow to the user of 2 Mbps (condition 2 Mbps DL), i.e. from the user 1 Mbps (condition 1 Mbps UL), has been fulfilled if in at least 95% of the measurements carried out within any timeframe of 120 min, measured speed of data transmission to the user is 2 Mbps or more, i.e. from the user 1 Mbps or more, with the share of successfully initiated or completed measuring sessions of at least 95%.

Until 1 September, 2022, mobile operators shall meet the requirements given in the Table below, with regard to the volume and dynamics of network signal coverage.

Crnogorski Telekom	One Crna Gora	Mtel
99% population of Montenegro, as regards the availability of voice telephony service and SMS service	99% of the population of Montenegro, as regards the availability of voice telephony and SMS	99% of the population of Montenegro as regards the availability of voice telephony and SMS
95% population of Montenegro with network signal providing broadband services of data transmission of required quality	50% population of Montenegro is covered with signal of TRA-ECS network that allows provision of broadband services of data transmission of required quality	75% population of Montenegro with network signal providing broadband services of data transmission of required quality

As the holder of the approval for the use of radio frequencies from the 800 MHz range with specific requirements regarding the scope and dynamics of network signal coverage, in addition to the above requirement, Crnogorski Telekom was obliged to implement five of new LTE radio base stations in the 800 MHz band in order to cover rural areas where there is no other way of providing broadband data transmission services.

The Agency verifies the fulfillment of requirements regarding network signal coverage through software prediction of reception field strength and through measurement of service quality parameters with specialized measuring equipment. It is considered that the requirement is fulfilled when it is determined through the software prediction of the strength of the reception field that the required (or greater) extent of coverage of the population of Montenegro with the network signal has been achieved and when, through the measurement of the availability and quality parameters of the service at selected fixed locations and in motion along the selected route, in the territory which, based on the results of the software prediction of the strength of the reception field, is considered covered, determines that the required (or higher) availability and the required (or better) quality of service parameters have been achieved.

For determining level of coverage with network signal as regards the availability of voice telephony service and SMS, GSM technology in the bands: 900 MHz and 1800 MHz, and UMTS technology in the bands: 900 MHz and 2 GHz were considered, while for determining level of coverage with network signal as regards the availability of data transmission service with a minimum downlink flow of 10 Mbps based on the user experience, LTE technology in the following bands: 800/900 MHz, 1800 MHz and 2 GHz and 2.6 GHz, was considered.

In the Table below is given a review of the results of software prediction on the level of coverage of the population and territory of Montenegro with mobile operators' network signal, per technology, carried out

by the Agency, considering data on radio base stations for which the Agency stipulated technical and operations conditions, till the end of 2022, which were also verified as active by mobile operators.

Technology	Criterion	Crnogorski Telekom	One Crna Gora	Mtel
GSM – population	RxLev \geq -99 dBm	97,2%	97,81%	97,20%
GSM - territory	RxLev \geq -99 dBm	79,09%	80,23%	73,32%
UMTS – population	RSCP \geq -99 dBm	96,49%	96,95%	95,09%
UMTS – territory	RSCP \geq -99 dBm	72,80%	76,22%	61,84%
GSM/UMTS composite (Voice/SMS) – population	RxLev\geq-99 dBm & RSCP\geq-99 dBm	97,81%	97,83%	97,31%
GSM/UMTS composite (Voice/SMS) – territory	RxLev \geq -99 dBm & RSCP \geq -99 dBm	80,10%	80,32%	73,89%
LTE (basic) - population	RSRP \geq -120 dBm	97,03%	96,74%	95,60%
LTE (basic) – territory	RSRP \geq -120 dBm	76,97%	73,40%	59,69%
LTE (10 Mbps DL) - population	RSRP\geq-106 dBm@10 MHz & RSRP\geq-112 dBm@20 MHz	96,79%	95,08%	94,05%
LTE (10 Mbps DL) - territory	RSRP \geq -106 dBm@10 MHz & RSRP \geq -112 dBm@20 MHz	75,49%	62,12%	52,30%

On the basis of the achieved results, it is clear that all three mobile operators met the requirements concerning the coverage of population with LTE network signal, enabling data transmission service with minimum downlink flow of 10 Mbps on the basis of user experience, while Crnogorski Telekom fulfilled very demanding request for covering 95% of the population of Montenegro. Furthermore, Mtel also fulfilled the request regarding coverage of population of Montenegro with signal of UMTS network, while an estimated coverage level with the signal of GSM network of this operator, as well as composite coverages with the signal of GSM/UMTS networks of other two operators is slightly lower than the requested one. Nevertheless, when evaluating the results received, it is also necessary to observe the fact that evaluation of population coverage with network signal is based on the propagation models of limited accuracy, and assuming harmonized population density within unit territory (the Agency applies *clutter* with regard to population, which is based on the so called census circles), which in some cases, especially in the mountain areas, may result in lower values than the actual coverage really is (for example in case when half of census circle inhabited with all population of census circle is covered, the model will show the coverage of 50% of population, although an actual coverage is 100% of population). Therefore, on the basis of results received, considering a small difference between estimated and required coverage level, it cannot be 'ad hoc' concluded that a requirement for the level of network signal coverage, as regards the availability of voice telephony service and SMS, and/or for the level of GSM network signal coverage, has been fulfilled; this due to the fact that mobile operators in their reports state that the level of GSM network signal coverage is over 99% of the population of Montenegro.

In order to cover selected rural areas, Crnogorski Telekom implemented LTE radio base stations during the first three years of the approval for the use of radio frequencies in the 800 MHz band and provided coverage

to the required extent in 11 areas where there was no other way of providing broadband data transmission services. Due to problems with resolving property legal relations and obtaining consent regarding the construction of infrastructure, at the end of 2020, the Agency extended the deadline for Crnogorski Telekom to ensure coverage of the remaining four rural areas. In November 2022, the LTE800 radio base station was put into operation at the Jelovica location in order to cover rural areas: **Lubnice**, **Buče**, **Mušovica Rijeka** and **Mujića Rečine** in the municipalities of Berane and Kolašin. The implementation of radio base stations for the coverage of rural area **Vusanje** in the municipality of Gusinje, **Stožer** and **Bliškovo** in the municipality of Bijelo Polje and **Grnčar** and **Dolja** in the municipality of Plav is expected to be in the first half of 2023.

In the period from October 10 to November 25, 2022, the Agency carried out measurements of the quality parameters of the data transmission service in mobile networks in order to verify the fulfillment of the conditions from the approval for the use of radio frequencies. Measurements were made during 23 measurement days at selected fixed locations and in motion along selected measurement routes within measurement polygons in each municipality in Montenegro, whereby Podgorica, Tuzi and Zeta were taken as one municipality, since the borders between these municipalities have not yet been established. In each municipality, measuring polygons have been set aside, which include urban and non-urban areas, where network signal coverage has been determined by software prediction. The urban polygons encompassed the territory where, according to the data from the 2011 census, about 75% of the total population of Montenegro lives, and the non-urban territory where about 20% of the total population of Montenegro lives. Measurements were not made in the territory where about 5% of the population of Montenegro lives. Approximately the same number of measurement samples were made in the urban and non-urban polygons in one municipality.

For the analysis of the results of measuring the parameters of the quality of the data transmission service in the network of the mobile operator Crnogorski Telekom, carried out with the aim of verifying the fulfillment of the conditions from the approval, measurement samples made within the measuring polygons that include urban areas (urban polygons) and a large part of non-urban areas (non-urban polygons) in each municipality, in which, according to the 2011 population census, about 95% of the population of Montenegro lives. Analysis of measurement results for the Crnogorski Telekom network determined the following:

- The condition regarding the parameter "Degree of successfully started and completed measurement sessions" was fulfilled in each of the 23 measurement days;
- The 10 Mbps DL requirement was met on 13 out of 23 measurement days. This condition was not met in the 10 measuring days when measurements were made in the municipalities of Kolašin and Mojkovac (percentile 10 data transfer speed was 6.39 Mb/s), Berane and Petnjica (6.13 Mb/s), Rožaje (3, 43 Mbps), Bijelo Polje (8.8 Mb/s and 7.93 Mb/s), Pljevlja (5.14 Mb/s), Nikšić (6.26 Mb/s and 7.9 Mb/s), Ulcinj (4 Mb/s), and during one of the two measurement days in the capital city of Podgorica (7.92 Mb/s), while on the days when measurements were made in more than one municipality, this condition was met in the municipality of Mojkovac, and the condition was also met in the capital Podgorica, if the measurement samples made during both measurement days are taken into account together. The requirement of 10 Mb/s DL was met in the urban training ground in every municipality, except Petnjica, while in the out-of-town training grounds this condition was met only in the municipalities of Andrijevica, Budva, Cetinje, Danilovgrad, Plav and Tivat;
- The 2 Mb/s DL requirement was met in 809 out of a total of 865 considered time intervals lasting 120 minutes. This condition was not fulfilled in 56 time intervals, namely in four intervals in the non-urban training ground in the municipality of Kolašin, 13 in the non-urban training ground in the municipality of Rožaje, 15 in the non-urban training ground in the municipality of Pljevlja, five in the

urban and non-urban training ground in the municipality of Bijelo Polje, three in non-urban training grounds and the municipalities of Tivat and Kotor, seven in the urban and non-urban training grounds in the municipality of Nikšić, one in the non-urban training ground in the municipality of Ulcinj and eight in the non-urban training ground in the municipality of Zeta;

- The requirement of 1 Mb/s UL was met in each of the 867 considered time intervals lasting 120 minutes.

On the basis of the above, the Agency concluded that in the network of the mobile operator Crnogorski Telekom, the conditions from the approval for the use of radio frequencies in the range 790-862 MHz for the realization of a public mobile electronic communication network, which relate to enabling data transmission services with the required quality for at least 95% of the population of Montenegro, and ordered that operator to fix the identified deficiencies, in terms of enabling a data transmission service with a minimum flow to the user (downlink) of 10 Mb/s based on user experience in the urban training ground in the municipality of Petnjica and non-urban training grounds in the municipalities Berane, Bijelo Polje, Kolašin, Nikšić, Petnjica, Pljevlja, Rožaje and Ulcinj, i.e. data transmission services with a guaranteed flow to the user (downlink) of 2 Mbps in urban training grounds in the municipalities of Bijelo Polje and Nikšić and non-urban training grounds in the municipalities of Bijelo Polje, Kolašin, Kotor, Nikšić, Pljevlja, Rožaje, Tivat, Ulcinj and Zeta removed within nine months.

During the analysis of the results of measuring the parameters of the quality of the data transmission service in the network of the mobile operator One Montenegro, carried out in order to verify the fulfillment of the conditions from the approval, the measurement samples made within the measurement polygons that include urban areas (city polygons) in each municipality were taken into account, with the exception of parts of the urban polygon in the municipality of Nikšić, which include the settlements of Vidrovan, Miločani, Rastovac, Zavrh, Vir, Mokra njiva and Kličevo, where a large number of unsatisfactory results were recorded for all analyzed parameters, and in which, according to the results of the 2011 population census, a total of over 65% of the population of Montenegro lives. Analysis of measurement results for the One Montenegro network established the following:

- The condition regarding the parameter "Degree of successfully started and completed measurement sessions" was fulfilled in each of the 23 measurement days;
- The requirement of 10 Mb/s DL was met in each of the 23 measurement days;
- The 2 Mbps DL requirement was met in 579 out of a total of 583 considered time intervals of 120 minutes. This condition was not met in four time intervals on the day when measurements were made at the city training ground in the municipality of Bijelo Polje, with the result being slightly below the required value;
- The requirement of 1 Mb/s UL was met in each of the 576 considered time intervals lasting 120 minutes.

Referring to the above, the Agency concluded that in the network of the mobile operator One Montenegro, the conditions from the approval for the use of radio frequencies for the implementation of a public mobile electronic communication network, which refer to the provision of data transmission services with the required quality for at least 65% of the population of Montenegro, have been met.

During the analysis of the results of measuring the parameters of the quality of the data transmission service in the network of the mobile operator Mtel, carried out in order to verify the fulfillment of the conditions from the approval, the measurement samples made within the measuring polygons that include urban areas

(city polygons) in each municipality and in which, according to the results, were taken into account according to the 2011 census, about 75% of the population of Montenegro lives in total. Analysis of the measurement results for the Mtel network determined the following:

- The condition regarding the parameter "Degree of successfully started and completed measurement sessions" was fulfilled in each of the 23 measurement days;
- The 10 Mbps DL requirement was met on 15 out of 23 measurement days. This condition was not met by city polygons in the eight measuring days, when measurements were made in the municipalities of Andrijevica, Plav and Gusinje (percentile 10 data transmission speed was 9 Mbps), Berane and Petnjica (6.6 Mbps), Rožaje (8.1 Mbps), Žabljak and Pljevlja (7.6 Mbps), Kotor (8.3 Mbps), Bar (8.3 Mbps), during one of the two measurement days in the capital Podgorica (9.7 Mbps), and during the measurement day when the measurements were made in the municipality of Tuzi (7.9 Mbps), while on the days when the measurements were made in more than one municipality, this condition was met in the city's polygons in the municipalities of Gusinje and Žabljak, and the condition was also fulfilled in the city polygons in the municipality of Pljevlja and the capital Podgorica, if the measurement samples made in those polygons during both measurement days are taken into account together;
- The 2 Mb/s DL requirement was met in 623 out of a total of 632 considered time intervals of 120 minutes. This condition was not met in a total of nine time intervals, namely in four out of a total of 25 time intervals in the city training ground in the municipality of Rožaje and five out of a total of 72 time intervals in the city training ground in the capital Podgorica;
- The requirement of 1 Mbps UL was met in each of the 633 considered time intervals lasting 120 minutes.

On the basis of the above, the Agency concluded that in the network of the mobile operator Mtel, the conditions from the approval for the use of radio frequencies in the range 790-862 MHz for the implementation of a public mobile electronic communication network, which refer to the provision of data transmission services with the required quality for at least 75% of the population of Montenegro, the conditions had not been met and imposed on that operator to fix the identified deficiencies, in terms of enabling a data transmission service with a minimum flow to the user (downlink) of 10 Mbps, based on user experience in city polygons in the municipalities of Andrijevica, Bar, Berane, Kotor, Petnjica, Plav and Rožaje, i.e. to fix data transmission services within six months, with a guaranteed *downlink* flow of 2 Mbps in city polygons in the municipality of Rožaje and Podgorica.

4.4. International coordination of radio frequencies

The coordination of the use of radio frequencies is one of the segments of the management of the radio frequency spectrum, which ensures the uninterrupted provision of services throughout the territory of Montenegro, that is, the use of this limited resource without the occurrence of harmful interference. In the field of electronic communications, the Agency coordinates the use of radio frequencies in accordance with relevant international recommendations and other documents. Coordination of radio frequencies is carried out in direct bilateral and multilateral cooperation, as well as at coordination meetings with authorities and/or organizations of other countries, and also through participation in the work of administrative and working bodies of competent European and international organizations and institutions in the field of electronic communications.

4.4.1. Radio frequency coordination in the 87.5-108 MHz band

The coordination of radio frequencies in the range 87.5-108 MHz used for FM radio is carried out in accordance with the procedure of Article 4 and 5 of the Geneva 84 International Agreement (GE84). The mentioned scope is efficient but at the same time maximally used, and in almost all locations on the coast, as well as in most locations in the central part of Montenegro, it is no longer possible to plan new radio frequencies, and it is especially difficult to expect that they can be agreed with the relevant administrations with given that the entire region has a similar situation regarding the occupation of the 87.5-108 MHz band. After the conducted analyses, the Agency informed the obtained results about the electronic media that submitted requests for specific radio frequencies from this scope. Considering the intense interest in the use of a new radio frequency for FM radio at the Spas location in the municipality of Budva, the Agency, after very detailed analyses, determined a potential solution for the allocation of a new radio frequency at the Spas location and further prepared a coordination request for supplementing the GE84 Plan with a new radio - with the frequency of 103.4 MHz and in February 2021 initiated the procedure of international coordination. This procedure consisted of obtaining the consent of all relevant administrations, namely Albania, Bosnia and Herzegovina, Croatia, Italy and Serbia, for the aforementioned request and lasted until the middle of 2022. After obtaining the consent of the majority of relevant administrations, the Agency sent an official request for the coordination of the mentioned radio frequency to the ITU Bureau. In February 2022, this request was published by the ITU in Part A BRIEFIC 2965 in Special Section No. 390. In the period of 100 days from the date of publication of the request in BRIFIC, all administrations, determined according to the criteria from Article 4 of the GE84 Agreement, were obliged to respond to this request. Given that the necessary consents of most of the affected administrations, except for Albania, were previously obtained, and after the expiration of the time provided for the statement, this administration still did not submit an objection, so the international coordination procedure was successfully completed in June 2022. This created the conditions for the entry of 103.4 MHz for the Spas location in the GE84 Plan based on the submission of the subject request by MNE in Part B of that plan. After that, with the consent of the regulatory body for audiovisual media, the corresponding radio frequency allocation plan was supplemented at the national level with the radio frequency 103.4 MHz for the broadcast location Spas in the municipality of Budva.

4.4.2. Coordination of radio frequencies in the 174-230 MHz band

The right to use radio frequencies for digital terrestrial radio broadcasting systems in the bands 174-230 MHz and 470-694 MHz is regulated by the International Agreement and Plan Geneva 2006 (GE06). In recent years, international coordination of radio frequencies in the range of 147-230 MHz, which is divided into 8 channels or 32 blocks, which can be used for digital terrestrial television (DTT) or digital terrestrial radio (T-DAB). For Montenegro, it is important to revise the GE06 Plan in the mentioned scope for the area of the Adriatic-Ionian region, within the coordination group formed in 2019, which consists of the administrations of Albania, Bosnia and Herzegovina, Montenegro, Greece, Croatia, Italy and Slovenia, with the aim replanning of allocations from the GE06 Plan for more efficient use of radio frequencies and elimination of potential harmful interference, including coordination of parameters for individual emission locations. Activities in this group continued in 2022.

After several iterations based on resource allocation proposals using the compatibility matrix, a result was reached that, from the point of view of the group participants, can be considered an acceptable version of the new plan proposal, bearing in mind that it represents a significant improvement in qualitative and quantitative terms compared to the original GE06 Plan for the subject scope from the aspect of each

administration individually, and also from the aspect of the entire Adriatic-Ionian region. Namely, from the point of view of some administrations (Albania, Italy), which according to the GE06 Plan in the VHF band, expressed in blocks for DAB, had the possibility to realize a 4+2 network with coverage at the national level (layer), the new plan provides the possibility for realization of 4+3 layers. For the administration of BIH, 4+3 layers from the GE06 Plan, of which 1 is unfeasible for implementation, have been changed so that 4+3 layers are realized, all of which are feasible for implementation. The administrations of Slovenia, Croatia and Montenegro, which according to the GE06 Plan had full 4+3 layers, based on the new plan have the possibility of 4+3 layers as well, with the possibility of realizing networks with local coverage, specifically for Montenegro on to one of those layers (at the level of municipalities/groups of municipalities), depending on the future needs of digital radio development. During the work in the group, the administrations agreed on the training ground in the Adriatic-Ionian region, which is relevant for the coordination of radio frequencies in the scope in question. In order to guarantee the maximum flexibility of radio-frequency planning at the internal level of administrations, the basic principle on which the VHF Band III frequency plan is based, which is the subject of the Draft Agreement of the Adriatic-Ionian Group, was adopted, and implies the distribution of radio-frequency blocks that will be used on exclusive based on the Western (Italy) and Eastern (Albania, Bosnia and Herzegovina, Croatia, Greece, Montenegro and Slovenia) sides of the Adriatic and/or Ionian Sea in the Exclusive Zone (exclusive blocks), with explicitly specified exceptions regarding certain radio-frequency blocks, called common blocks.

Common blocks are frequency blocks that can be used on both sides, where one of the parties is obliged to provide protection to the other party. The list of allotment zones and maps for each zone, the detailed allocation of blocks and how to use them, then the detailed allocation parameters for individual locations, are determined by the provisions and/or corresponding annexes of the Draft Agreement. Completion of the work of the coordination group is expected in 2023.

When creating a proposal for a new allocation plan in the range of 174-230 MHz, which would be an integral part of the future multilateral agreement and based on which the GE06 Plan for Montenegro would be modified, the Agency also took into account the allocations from the GE06 Plan for Serbia in order to eliminate the domino effect, taking into account that Serbia is the only one of the neighboring states of Montenegro that is not involved in the work of the Adriatic-Ionian Coordination Group, and it is necessary to ensure the harmonization of the new plan through bilateral coordination between Montenegro and Serbia. The Agency started coordination with the Serbian administration during 2021 and at the meeting held in February 2022 presented proposals for achieving compatibility of the new plan of Montenegro with the plan of the Serbian administration current at that time, which were preliminarily accepted by that administration. Also, after analyzing the compatibility and harmonizing the requirements of both parties, the Agency, according to the same model, preliminarily accepted the coordination requirements of Serbia, which this administration had planned in the meantime within the framework of the work of the Central-Eastern European Group during the previous period. After the conclusion of the multilateral agreements of the Adriatic-Ionian and Central-Eastern European groups, the administrations of Montenegro and Serbia will once again exchange the relevant coordination requests with each other in order to establish a bilateral agreement between these countries.

4.4.3. Coordination of radio frequencies in the 470-694 MHz band

Recognizing the widespread interest in ensuring the timely implementation of the MFCN system in the 700 MHz band and the migration of the broadcasting service to the band lower than 700 MHz, the European

Commission has continuously encouraged all administrations to focus on the timely replanning and release of the 694-790 MHz (700 MHz) band. According to Decision (EU) 2017/899 of the European Parliament and the Council of 17 May 2017 on the use of the radio frequency band 470-790 MHz in the European Union, the member states of the European Union were directed to conclude all necessary cross-border agreements on the coordination of radio frequency until December 31, 2017, in order to enable the use of the 700 MHz band for MFCN systems until June 30, 2020 at the latest. This deadline could be extended by a maximum of two years in justified situations, but with the condition that no harmful interference is caused to MFCN systems in neighboring countries during that period.

In order to meet the mentioned terms, in the period 2015-2017, all EU member countries, as well as other administrations, including EU membership candidate countries, performed international coordination activities with a view to broadcasting replanning for designing future plans for DVB-T2 in the 470-694 MHz band and a release of the 700 MHz band for the use by mobile services. In that sense the Agency participated in the work of the Adriatic-Ionian Group and Forum for implementation of digital dividend in the South European countries (SEDDIF) and signed multilateral agreements in October i.e. December 2017, along with 15 administrations of the countries of the region.

The right to equal use of the radio frequency spectrum is a fundamental principle on which the valid international agreement Geneva 06 (GE06) is based, signed by the countries of Regions 1 and 3 (Europe, Africa and part of Asia), and it is indisputable that reciprocity must be ensured for Albania, which only started revising the plan and coordinating radio frequencies for the mentioned scope with neighboring countries at the end of 2021. This significant delay of the mentioned administration had repercussions on the use of radio-frequency resources for both mobile and broadcasting services in the region.

The experiences of the countries that participated in the revision process of the GE06 Plan, not only in SEDDIF and the Adriatic-Ionian Group, but also in the whole of Europe, showed that it is possible to plan 5-6 coverages at the national level for digital terrestrial television in the 470-694 MHz range. Ensuring a greater number of coverages at the national level also implies greater flexibility of the administrations that want to achieve this, in terms of very precise setting of parameters, and in particular implies tolerance when it comes to accepting the level of the electromagnetic field of signals on their territory originating from other administrations, and the willingness to they also accept solutions that do not imply an ideal scenario for potential disturbances. These are inevitable occurrences if one wants to reach the number of coverages mentioned above at the national level.

The administrations of Albania and Montenegro, as well as numerous others in the region, in the original GE06 Plan each had 7 national coverages in the range of 470-862 MHz (comprising a total of 49 channels), of which the administration of Italy was given an agreement from 2006, which they signed all countries of the region, guaranteed use of 1/2 of the total resources in the exclusive zone of the Adriatic region. The outlined goal of the administrations of Montenegro and Albania, reflected as 6 national coverages for Montenegro and 7 national coverages for Albania in a significantly reduced range of 470-694 MHz (now includes a total of 28 channels) for the broadcasting service, of which only 14 channels are currently available for planning on the eastern side of the Adriatic-Ionian region, which includes a significant part of Montenegro and Albania, was very ambitious. The fulfillment of this goal requires mutual flexibility and tolerance for potential interference from both administrations, as well as other administrations in the region.

In this regard, and taking into account the limited range of radio frequencies in question and the mutual influence of relevant locations in terms of causing potential interference, the agreed use of radio frequencies for DTT between Montenegro and Albania, in such a way as to satisfy the qualitative and quantitative requirements of both administrations, was possible only with appropriate changes to the entry of Montenegro from the GE06 Plan, and also certain changes to the SEDDIF/Adriatic-Ionian Plan, in order to achieve compatibility with the proposal of the new plan of Albania, as stated below:

- Change of channel 21 from the MNE GE06 Plan for Podgorica suballotment zone with channel 29. The Agency issued approval for the use of channel 21 in 2018, according to which the DTT transmitter at the Velja Gora location, which is used for local MUX in the Capital City zone, was put into operation. In order to implement this change for channel 21, the Agency informed the Radio Broadcasting Center about the same at a meeting in March 2022 and proposed the allocation of channel 30 for replacement, considering that channel 30 has been provided for the Podgorica suballotment zone since the earlier GE06 Plan and that and immediately available, which was accepted by the representatives of the Broadcasting Center.
- Change of channel 21 from the MNE SEDDIF/Adriatic-Ionian Plan for allotment zone MNE-AE (which includes eastern part of the coastal area of Montenegro, municipalities of Bar and Ulcinj) through channel 29. The mentioned channel has been put into operation, a provided for *layer 6* (potential 6. national network in Montenegro or within the regional network).
- Change of channel 33 from MNE GE06 Plan for suballotment zone Podgorica through channel 32. The mentioned channel has not been put into operation, but it is planned as one of several available channels for the local network of the Capital City.

Considering that the administration of Albania also submitted requests for local networks, requests for the local networks of Montenegro have been prepared, and these were not the subject of prior harmonization of the administrations during the preparation of SEDDIF Plana, so it is necessary to harmonize them with other relevant administrations.

It is clear that all the requests of the administrations of Montenegro and Albania for the revision of the GE06 Plan are mutually dependent. Therefore, as part of the letter to the administration of Albania dated January 21, 2022, the Agency conditionally accepted the proposals so that the plans of the administrations of Albania and Montenegro represent a "package" solution, which, in addition to mutual acceptance, also implies acceptance by other respective administrations, which is still the only possible principle for the successful completion of this process, which is clearly indicated in the Agency's addresses to all neighboring

administrations. The Agency first submitted the draft bilateral agreement containing the relevant changes to the plan of Montenegro and Albania to the administration of Albania in February 2022.

However, considering that some of Albania's requests were rejected by the Croatian administration in April 2022, the Agency took an active part in solving critical cases in the best possible way for all involved parties and proposed compromise solutions during several multilateral meetings of the Adriatic-Ionian Group held in the period until the end of June 2022. The proposed solutions resulted in the possibility of achieving the set goals of the administration of Albania to achieve as many as 7 national coverages for all allotment zones and can be considered an exceptional success for all administrations of the Adriatic-Ionian region, including the administration of Italy, which participated in this compromise solution while satisfying national interests for the further development of broadcasting and mobile services in each of the countries. At the same time, the proposed solutions for the administrations of Montenegro and Croatia implied the possibility of realizing 6 coverages at the national level.

The Agency submitted the proposal for changes, including the proposal to supplement the plan of Montenegro with radio frequencies intended for DTT coverage at the local level, to other neighboring administrations, which includes the administrations of Bosnia and Herzegovina and Serbia, which are not members of the Adriatic-Ionian group. The Serbian administration gave its consent to the submitted requests regarding changes to the plan in order to harmonize with the Albanian administration. Requests to supplement the plan of Montenegro for the purpose of local coverage were not considered at this stage of the procedure, but were left



for later consideration. In connection with the same requirements of the Agency, a bilateral meeting was held with representatives of the Communications Regulatory Agency of Bosnia and Herzegovina (RAK) in Podgorica in the period 10-11.05.2022. On this meeting previously submitted requests for the use of radio frequencies in the 470-694 MHz band for DTT of both administrations were considered, both for national and regional coverage for the purpose of amendments to Geneva 2006 (GE06) Plan, SEDDIF and BIH-MNE Agreement from 2017, as well as for the needs of DTT local coverage which were not the subject of SEDDIF Agreement from 2017. The administrations of Montenegro and Bosnia and Herzegovina have agreed upon subject requests from the bilateral coordination meeting protocol signed on 11.05.2022 in Podgorica.

The Agency submitted the second draft of the bilateral agreement on the use of the 470-694 MHz band between Albania and Montenegro to the administration of Albania in June 2022, taking into account that on June 30, 2022, the deadline for releasing the 694-790 MHz band from foreign broadcasting services, which is an obligation of the Albanian administration that the Agency expected to be completed in a timely manner. However, since the formal acceptance of the agreement did not occur by the end of this deadline, the Agency submitted the coordination requests for amending the GE06 Plan to the ITU Bureau in July 2022. These requests included changes to the GE06 Plan of Montenegro in accordance with the Adriatic-Ionian and

SEDDIF agreements from 2017, which were submitted to the ITU Bureau in 2018, but for which the coordination procedure was not successfully completed due to the lack of declarations (Italy) and/or of the complaint (Albania) submitted by the respective administrations, which should have expressed their explicit consent directly to the ITU Bureau.

The Agency submitted for the third time draft bilateral agreement on the use of the 470-694 MHz band between Albania and Montenegro to the administration of Albania in August 2022, facing the multilateral meeting held in Albania in the organization of the Audiovisual Media Authority of Albania (AMA) as a competent administration for these issues. However, the Albanian administration has not still agreed on signing this agreement, nor has it given its opinion to the amendments to the plan, submitted by the Agency to the ITU Bureau.

4.4.4. Coordination of radio frequencies in the 694-790 MHz and 790-862 MHz bands

Radio frequency 694-790 band (700 MHz range) and 790-862 band (800 MHz range) are harmonized at the level of CEPT member states for mobile service for use by the MFCN system. Bearing in mind the decisions at the level of ITU, CEPT and the European Union, as well as the valid regulatory framework for the field of electronic communications in Montenegro, during 2022 the allocation of the 700 MHz band for MFCN systems is planned, as well as the start of its use for these applications. The 700 MHz band, together with the 3.6 GHz and 26 GHz bands, is recognized in Europe as key for the early implementation of 5G mobile communication networks.

Back in 2019 the Agency signed technical agreements on a cross border coordination of MFCN systems in the 800 MHz band with the administrations of Bosnia and Herzegovina (RAK), North Macedonia (AEK) and Serbia (RATEL). For the 700 MHz band, the Agency planned to establish a coordination agreement with the administrations of neighboring countries during 2022. In order to ensure equal access to the spectrum, without the occurrence of harmful interference, and efficient use of the spectrum in the border areas between the signatory countries, these agreements prescribe the appropriate technical parameters (field strengths and preferential codes) that mobile operators in the signatory countries will be obliged to implement within certain deadlines.

For the 700 MHz band, the Agency planned to establish a coordination agreement with the administrations of neighboring countries during 2022. In order to ensure equal access to the spectrum, without the occurrence of harmful interference, and efficient use of the spectrum in the border areas between the signatory countries, these agreements prescribe the appropriate technical parameters (field strengths and preferential codes) that mobile operators in the signatory countries will be obliged to implement within certain deadlines.

The procedure for coordinating radio frequencies in the 700 MHz and 800 MHz bands between the Agency and the competent administration of Croatia (HAKOM) began at the end of 2021, when activities were initiated to harmonize the texts of the bilateral technical agreement on cross-border coordination of MFCN systems operating in the 800 MHz band, as and the multilateral technical agreement on cross-border coordination of MFCN and BB-PPDR systems operating in the 700 MHz band, supported by the competent administrations of Serbia and Bosnia and Herzegovina. The corresponding technical agreements harmonized and signed in Zagreb on May 35, 2022.



The 700 MHz band was released in Montenegro from the broadcasting service - digital terrestrial TV (DTV) system in 2017, however, the use of this band for MFCN systems is limited by the presence of harmful interference from DTV transmitters from Albania, which is also during 2022 was a problem for the implementation of the MFCN system in Montenegro and that in the part of the territory where almost 40-60% of the total population lives. The greatest impact was recorded in Podgorica, Zeta, Tuzi, Ulcinj and Bar. This problem has been evident ever since the introduction of DTV in that neighboring country, which was implemented in the period 2017-2019.

Agreement on the cooperation between the Agency and Audiovisual Media Authority of Albania (AMA) was signed in 2019, and in February of 2022, as well as a Common Declaration on the interinstitutional cooperation regarding the release of radio frequencies in the 700 MHz band. Since the beginning of 2022 a number of the activities were carried out with regard to the release of the 700 MHz band from DTV from Albania, as stated in the item 4.4.2. of that Agreement. At a meeting with representatives of the AMA regulator held in early February 2022 in Podgorica, the Agency received assurances that the process of freeing up the 700 MHz band will be completed by June 30, 2022, if the Agency approves Albania's new digital broadcasting plan in the part of the UHF band below 694 MHz. In February 2022, the Agency sent the AMA regulator a draft agreement on RF coordination in the 470-694 MHz band, as stated in item 4.4.2. of the Report in which the Albanian side would undertake to migrate the disputed transmitters working in this scope in the allotment zones of Skadar and Tirana by June 30, 2022. Given that the mentioned process has not been started, the draft agreement was again sent to the administration of Albania in July 2022, after the changes to the plans in all affected countries were agreed, with the proposal that the Albanian side commits to the agreement to migrate the interfering transmitters by September 30, 2022. To both proposals, AMA replied that it was not ready to guarantee that the process would be completed within the proposed deadlines. During the harmonization of the frequency plan for terrestrial radio broadcasting systems in the 470-694 MHz band in Albania, the Agency made a number of concessions and made a key contribution in finding

technical solutions that would be acceptable to all involved parties, all with the aim of creating the conditions for release of the 700 MHz band soon.



Finally, at the meeting of the regulatory bodies of Albania, Montenegro, Croatia, Kosovo, North Macedonia and Slovenia held in Durrës on August 30, 2022, representatives of the Albanian regulator AMA informed that the process of freeing up the 700 MHz band in Albania has not yet formally started, that at that moment, they cannot state the deadline for its completion, and that they are facing challenges on the technical (completion of the process of coordination of radio frequencies from the 470-694 MHz range

for digital terrestrial radio broadcasting), administrative (changes in legal regulations), financial (provision of funds to compensate broadcasting operators for migration to lower channels) and operational (procurement and installation of equipment at DTV transmitter locations) plan. At the insistence of the representatives of the Agency to determine the deadline for the migration of disputed DTV transmitters in the allotment zones of Skadar and Tirana, the representatives of the regulator AMA promised that by the end of September 2022 they would inform the Agency of the concrete deadlines of the transition plan, and that when creating an action plan of the plan to give priority to transmitters in the allotment zone of Skodar. However, the aforementioned data were not submitted by the specified deadline.

At the International Regulatory Conference entitled "Current and future regulatory challenges, harmonization with the European regulatory framework", which was held in Budva in the period 25-28 September 2022, AMA assured that the problem of harmful interference in the 700 MHz band in relation to Montenegro would be resolved by the end of 2022, and that the aforementioned regulator would take all measures so that the interests of mobile operators in Montenegro would not be threatened after the end of the spectrum auction procedure planned for the end of 2022.

In the light of this issue, in September 2022, the Agency sent a letter to the Ministry of Economic Development and Tourism with the request that they be involved in solving this issue with the competent ministry of the Government of the Republic of Albania. Also, information about this problem was given to the Ministry of Public Administration for the needs of the representatives of Montenegro at the Digital Summit of the Western Balkan countries, which was held in Pristina in mid-September 2022. Based on the agreement with the representatives of the Electronic and Postal Communications of Albania (AKEP) reached during the International Conference in Budva, a letter was prepared and sent to the President of AKEP on October 6, 2022 with a request that this regulatory agency be involved in the presentation and finding of solutions for these problems with the competent institutions in Albania. The Agency, additionally, for Negotiating Chapter 10 - Information Society and Media, at the session of the Subcommittee for Innovation, Human Resources, Information Society and Social Policy held on October 5, 2022, informed the representatives of the European Commission about the progress in the development of 5G in Montenegro, activities on the preparation of the spectrum auction for pioneering 5G bands, with a special emphasis on

the presence and importance of solving the problem of harmful interference in the 700 MHz band originating from DTV transmitters from Albania.

With regard to the DTT migration plan to the 470-694 MHz band and the release of the 694-790 MHz band from the broadcasting service in Albania, the Agency received information in November 2022 in which the AMA was informed about a significant delay in this process compared to the dynamics presented during a series of meetings in 2022, and therefore, in the same month, the Agency once again called on the Albanian administration to migrate DTV transmitters in the allotment zones of Skadar and Tirana to channels below 694 MHz as soon as possible.

On behalf of the administration of Albania, the Ministry of Infrastructure and Energy of the Republic of Albania addressed this issue in a letter dated December 20, 2022, informing the Ministry of Economic Development and Tourism of Montenegro that it will work in cooperation with the AMA to find a solution for the migration of channel 51, 59 as well as 53 and 57 in the allotment zones of Skadar and Tirana in the initial phase of the migration process. However, the start and end dates of that process were not specified in this address either.

As regards the use of other bands for mobile service in border areas, in 2022 the Agency started activities on the harmonization of technical agreements on cross-border coordination of the MFCN system in the bands 900 MHz, 1800 MHz, 2 GHz and 2.6 GHz with the competent administration of Croatia (HAKOM), as well as with the competent administration of Albania (AKEP) in the team and in the 800 MHz band. Also, the Agency is in communication with the competent administrations of the states of the region regarding the harmonization of the regional technical agreement on the cross-border coordination of the MFCN system in the 3.6 GHz band, which is particularly important for the development of 5G mobile communication networks in the coming years.

4.4.5. Coordination of radio frequencies in the bands used by satellite services

During 2022, the Agency also carried out activities related to the international coordination of radio frequencies of satellite systems in accordance with relevant international regulations, which include the analysis and preparation of the views of the Montenegrin administration on coordination requests submitted by other administrations, as well as on administrative circular letters submitted by the ITU, which referred to the special sections of the BRIFIC publication regarding the coordination requests of other administrations in all cases that are relevant for the analysis of compatibility with the allocations of Montenegro contained in the corresponding international radio-frequency plans.

4.5. Introduction of digital radio in Montenegro

Recognizing that radio has a very important social, cultural and democratic role and that the digitization of radio responded to the needs of listeners and provided an economic stimulus to the industry of countries that have advanced in this process, the Agency is part of the program of the International Regulatory



Conference held in the organization of the Agency in 2022 entitled "Current and future regulatory challenges, harmonization with the European regulatory framework" devoted to digital radio. Taking into account the differences regarding the application and development of digital terrestrial radio (DAB) in some member states of the European Union in relation to the countries of the Western Balkans region where Montenegro is located, presentations by representatives of the WorldDAB organization, the global industry forum for digital radio, regulatory

authorities and renowned companies from the region were held at the Conference. The presentations and discussions held by the participants of this Conference panel contributed to the establishment of a regional initiative to improve the implementation and development of DAB. This initiative aims to harmonize activities in our region in connection with the introduction of DAB services, which will speed up the entire process of introducing DAB and the further development of advanced technologies, contribute to the maximum harmonization of the legislative and technical framework with the digitalization process in the countries of the European Union, prevent policy fragmentation, technologies and markets, and also contribute to the sustainable development of the environment, given that the new technology of digital broadcasting significantly reduces the consumption of electricity.

On the occasion of the introduction of digital radio in Montenegro, the Agency carried out numerous activities that it was able to carry out in accordance with its competences. Thus, in 2015, it created a Study on the possibilities of introducing digital radio in Montenegro, with the aim of encouraging the consideration and strategic determination of relevant institutions regarding the development and application of new technologies in the field of digital terrestrial radio broadcasting. The Agency also made a significant contribution to the preparation of the Proposal of strategic starting points and guidelines for the introduction of digital radio in Montenegro, which was prepared by an interdepartmental working group in 2019. During the period 2020-2022, the activities in the field of replanning and coordination of radio frequencies with neighboring countries were carried out.

Bearing in mind that there is no obligation for broadcasters and operators, the introduction of digital radio is about using the possibilities offered by new technologies and overcoming the limitations of existing FM systems in terms of available radio-frequency resources in the range of 87.5-108 MHz, which is efficient but already maximally used, it was necessary to foresee the sources of financing the implementation of the first network with national coverage of Montenegro. The proposal of strategic starting points and guidelines for the introduction of digital radio in Montenegro provides an approximate estimate of the costs for transmitters and antenna systems of the DAB+ network with national coverage in the amount of EUR

2,427,000.00, which would be used by 12 radio stations in such a way that the reception of radio the signal of these stations can reach more than 90% of the population of Montenegro.

It is also important to note that in March 2021, the Agency submitted to the Ministry of Economic Development a Project Proposal for the support of digitalization of radio in Montenegro from the resources of the IPA III fund related to connectivity and broadband access. This project was proposed by the Agency primarily in order to provide a source of funding for the implementation of the first DAB+ digital terrestrial radio network with national coverage, which would be owned by the Broadcasting Center, in accordance with the strategic document of the interdepartmental group from 2019.

In 2022, the Agency requested information from the relevant ministry on the current status of the project proposal to support the digitalization of radio in Montenegro from the IPA III fund, and was informed in this regard that a decision by the European Commission regarding the proposal to support the introduction of digital terrestrial radio is expected by the end of October 2022 in Montenegro. Taking into account the importance of this process, the Agency offered expertise to the line ministry in the further process related to this process and pointed out that it is necessary to speed up further activities related to this project if it is accepted for financing from the IPA III fund, and if this is not the case it is necessary to provide financial resources for the introduction of digital radio from the resources of the state budget. Until the end of 2022, the Agency did not receive information about the status of the proposal of the mentioned project and/or further activities that it could undertake in cooperation with the relevant authorities in order to start the process of introducing digital radio in Montenegro.

It is worth mentioning a pilot project of Radio-difuzni centar and a test broadcasting of T-DAB+ from the location of Sjenica for covering Podgorica, the realization and operational costs of which during 2021 were financed from the resources of this company as it intended to contribute to the development of digital radio, but a test broadcasting was not performed in 2022 due to financial shortage. All further activities in this field depend on financial support from the budget of Montenegro and/or other resources necessary to be provided for that purpose.

In the context of the introduction of digital radio, the provision of the European Law on Electronic Communications (EECC) that stipulates that all car receivers installed in a new vehicle of category M, which is placed on the market of the European Union for the purpose of sale or rental starting from 21.12. 2020, they must contain a receiver with the ability to receive and reproduce at least digital radio services provided through digital terrestrial broadcasting. Therefore, in 2020, the Agency notified car distributors and device sellers in advance about the provisions of the EECC directive related to the interoperability of car radio receivers, consumer radio receivers and consumer digital television equipment. On this occasion, the Agency also submitted a questionnaire with the aim of collecting adequate information about the interest of buyers and manufacturers in the automotive industry, the presence and prices of suitable receivers for digital radio on the Montenegrin market, and also that the response of users could be taken into account in a timely manner, who would achieve DAB+ reception in vehicles and households during the pilot project and perform tests of their user experience. Although the EECC directive has not yet been transposed into the legislation of Montenegro, in January 2021 the Agency officially informed car distributors and device sellers about the entry into force of the aforementioned directive, taking into account that the timely implementation of the relevant provisions is very important from the aspect of protecting the interests of consumers.

During the update of collected information with a view to analyzing and making conclusions in order to have an efficient performance from the side of each institution and better inform the citizens of Montenegro on the availability of digital radio services and receiving equipment for digital radio, in September 2022 the Agency sent the questionnaires to:

- Car sellers: Efel motors, Efel travel, KIA motors Montenegro, Kov-car, Ljetopis Automotive, M auto, Osmanagić, Pegasus, Prokom, Renault Alliance Podgorica, Rokšped auto centar, Peugeot Crna Gora, Virage, Voli motors;
- Device sellers: Balex, Elektron, Elektro milenijum, Euro tehnika MN, Kips, Tehnolux, Tehnomax, Tehnoplus.

Based on the answers received to this questionnaire, the following conclusions were drawn:

- device and equipment sellers are not sufficiently familiar with the possibilities offered by the introduction of digital radio, which once again confirms the necessity of establishing a communication strategy and timely implementation of an information campaign by the competent authorities in Montenegro, as provided for by the strategic document created by the interdepartmental working group in 2019,
- receivers for digital radio are not available in stores, but they are installed in Volkswagen brand cars as part of an additional package at very high prices ranging from 550- 900 EUR depending on the model, and in Audi cars as part of the basic package, all built-in receivers in vehicles of the mentioned brands have the possibility of receiving DAB+ signals

4.6. Assigned numbers/addresses and assessment of their rationale use

The Agency's obligations regarding the management of numbers and addresses as limited resources, based on the Numbering Plan and the Addressing Plan adopted by the Agency, are determined by the Electronic Communications Act. The numbering plan is based on the E.164 recommendation of the International Telecommunication Union (ITU). The numbering plan contains definitions, structure and list of numbers and codes for the numerical area of Montenegro. The addressing plan contains the definitions and structure of the codes: international signaling points, national signaling points and mobile networks, as well as the identification code of the data transmission network and the method for their management.

In 2022, the Agency for the first time assigned non-geographic numbers for the service for communication between machines (M2M - machine to machine communications) with a designated national destination code 71 based on the Amendment to the Numbering Plan ("Official Gazette of the Republic of Montenegro", No. 21/14, 12 /17 and 09/22). The transitional provision indicates the following: "For the service for communication between machines (M2M - machine to machine communications) from 01.01.2023, only national numbers must be used for other non-geographic services with the national destination code (SDN) "71". All national numbers used for M2M services, which are not covered by the national destination code "71", must be replaced with national numbers for other non-geographic services with the national destination code (SDN) "71" by September 1, 2025". It was determined that this numbering cannot be assigned in blocks of less than 10,000 numbers.

Also, by amending the Rulebook on the methodology and method of calculating the amount of the annual fee for the use of numberings and/or addresses ("Official Gazette of Montenegro", No. 13/14 and 30/22) in accordance with Article 3 paragraph 2 serial number 5 in the part numbers, the value 0.10 was determined.

The agency manages numbering and addresses in order to meet the needs of operators who have the right to assign numbers and addresses in accordance with the Electronic Communications Act, taking care that the assignment is done in a fair and non-discriminatory manner. Based on requests for authorization for the use of numbers and/or addresses submitted by operators, the Agency issues authorizations for the use of these limited resources.

In 2022, operators submitted 48 applications for approval of numbers and/or addresses (38 applications for use and 10 applications for continued use of approvals that expired in 2022) and 9 applications for revocation of the right to use these resources. Requests for approval for the use of numbers and/or addresses were submitted by the following operators:

- Crnogorski Telekom - 15 requests: 7 requests for non-geographic numbers with access code 080 (*free phone*), 6 requests for short five-digit codes, 1 request for the block of 20,000 geographic numbers and one request for the use of the block of 10,000 non-geographic numbers for the service of communications between the machines (M2M-access code 71). Based on the submitted requests this operator was granted 15 approvals.
- Mtel - 17 requests: 2 requests for 2,000 geographic numbers each, 5 requests for short five-digit codes, 2 requests for assignment of National Signaling Points (one for 27 and another for 3) and a request for assignment of one non-geographic number with access code 080 (free phone). Mtel also submitted 7 requests to extend the validity of approvals, which indicated the validity period in 2022, so they were issued 7 approvals. Based on all requests, 17 approvals were issued.
- One Crna Gora - 14 requests, namely: 7 requests for a short five-digit code, 1 request for a National Signaling Point, 1 request for an International Signaling Point, 1 request for 1,000 geographic numbers and 1 request for 10,000 non-geographic numbers for the machine-to-machine communication service (M2M access code 71). Based on the requests submitted to the One Montenegro operator, 11 approvals were issued. One Montenegro also submitted 3 requests for the extension of the validity of approvals, which pointed out the validity period in April 2022, so they were issued 4 approvals. Based on all requests, a total of 15 approvals were issued.
- Telemach – 1 request for assignment of one non-geographic number with access code 080 (free phone). Based on this request one approval was issued.
- Orion Telekom – 1 request for assignment of short five-digit code. Based on this request one approval was issued.

In 2022, the operators submitted to the Agency nine requests for suspension of the approvals for the use of numbers and/or addresses.

- Crnogorski Telekom submitted a total of 2 requests: one for a block of 100,000 non-geographic numbers for mobile networks - access code 66, 8 blocks of geographic numbers, 20 short five-digit codes, 4 numbers with a free call service (free phone) and 7 non-geographic numbers with a service with additional value - access code 95 and others for 4 short four-digit codes, 31 short five-digit codes, 4 non-geographic numbers with access code 080 (free phone) and 1 non-geographic number for services with additional value - access code 94. Based on these requests, two decisions on the termination of validity of the approval.
- Mtel submitted a total of four requests: the first for 2 short four-digit codes and 8 short five-digit codes, the second for one National Signaling Point, the third for a block of 20,000 numbers for voice transmission over the Internet (VoIP) - access code 78 and the fourth for five short five-digit codes

and one non-geographic number with access code 080 (free phone). Based on these requests, 4 decisions on the termination of validity were issued.

- One Montenegro submitted a total of three requests to terminate the validity of the approval, the first for 3 short five-digit codes, the second for two National Signaling Points and one more for five short five-digit codes. Based on these requests, three decisions were issued on the termination of validity of the approval.

Overview of numerical resources for the use of which the approval was issued in 2022, is given in the Table below:

Numbering type	Operator					Total of numbers
	Crnogorski Telekom	One Crna Gora	Mtel	Telemach	Orion Telekom	
Geographic numbers	20,000		4,000			24,000
Non-geographic numbers 071	10,000	10,000				20,000
Non-geographic numbers 078						
Non-geographic numbers 077						
Non-geographic numbers 080	7		2	1		10
Non-geographic numbers 094 i 095						
Short codes – three-digit numbers						
Short codes – four-digit number		3	2			5
Short codes – five-digit number	7	37	43		1	88
Non-geographic numbers for mobile networks		1,000,000	1,000,000			2,100,000

Overview of numerical resources for the use of which the approvals were revoked during 2022 is given in the Table below:

Numbering type	Operator					Total of numbers
	Crnogorski Telekom	One Crna Gora	Mtel	Telemach	Orion Telekom	
Geographic numbers	67,000					67,000
Non-geographic numbers 078			20,000			20,000
Non-geographic numbers 077						
Non-geographic numbers	8		1			9
Non-geographic numbers	8					8

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Short codes – three-digit number						
Short codes – four-digit number	4		2			6
Short codes – five-digit number	51	8	13			72
Non-geographic numbers for mobile network	100,000					100,000

Overview of address resources for the use of which the approval was issued in 2022 is given in the Table below:

Type of signalling point/code	Operator			Total of codes
	Crnogorski Telekom	One Crna Gora	Mtel	
International signalling point		3	2	5
National signalling point	12	12	39	63
Mobile network code (MNC)		1	12	2
Data network identification code (DNIC)				

Overview of the addresses for the use of which the approval was revoked in 2022 is given in the Table below:

Type of signalling point/code	Operator			Total of codes
	Crnogorski Telekom	One Crna Gora	Mtel	
International signalling points				
National signalling point		2	1	3
Mobile network code (MNC)				
Data Network Identification Code (DNIC)				

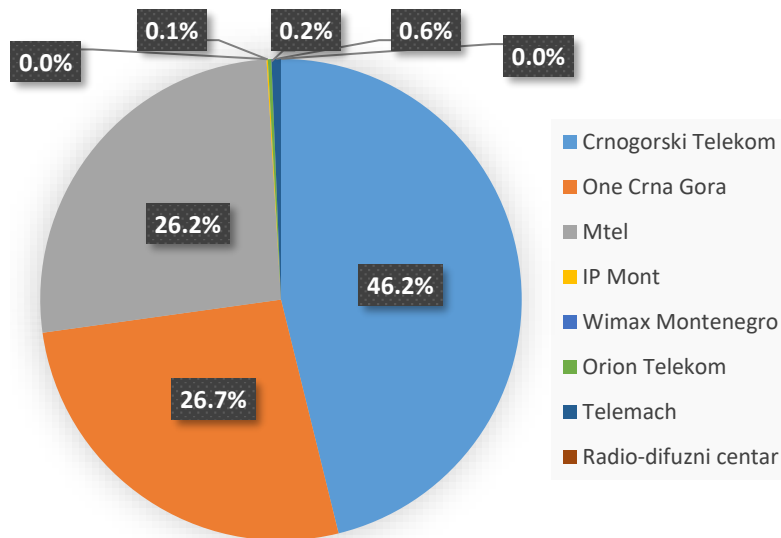
Overview of the approved numbers on 31.12.2022 is given in the Table below:

Numbering type	Operator								Total of numbers
	Crnogorski Telekom	One Crna Gora	Mtel	IP Mont	Wimax Montenegro	Orion Telekom	Telemach	Radio-difuzni centar	
Geographic numbers	799,000	11,000	102,000	1,000		11,000	24,000		948,000
Non-geographic numbers 071	10,000	10,000							20,000

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Non-geographic numbers 078				3,000			5,000		8,000
Non-geographic numbers 077	5,300								5,300
Non-geographic numbers 080	48		5			1	1		55
Non-geographic numbers 094 and 095	16								16
Short codes – three-digit number	2								2
Short codes – four-digit number	16	11	5				1		33
Short codes – five-digit number	191	67	68			3	1	1	331
Short codes – six-digit number	1								1
Non-geographic numbers for mobile networks (assigned)	1,300,000	1,200,000	1,100,000						3,600,000

Overview of approved numbers in percentages on 31.12.2022 is given in the chart below.

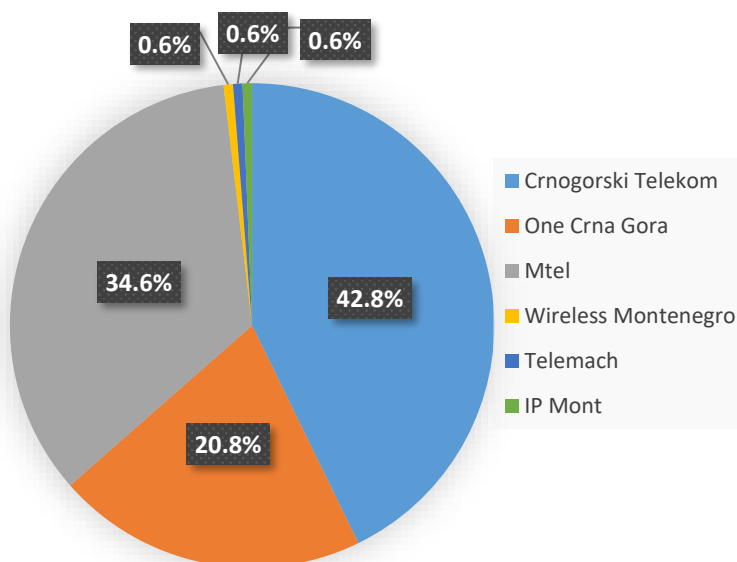


Overview of approved addresses on 31.12.2022 is given in the Table below:

Type of signalling point/code	Operator						Total of codes
	Crnogorski Telekom	One Crna Gora	Mtel	Wireless Montenegro	Telemach	IP Mont	
International signalling point	4	3	4				11

National signalling point	62	29	50		1	1	143
Mobile Network Code (MNC)	1	1	1	1			4
Data Network Identification Code (DNIC)	1						1

Overview of approved address resources given in percentages on 31.12.2022 is given in the chart below.



Data on assigned resources of numbers and addresses, procedure for acquiring the approvals for the use of numbers and addresses, and form of request are announced on the web page of the Agency. The operators of electronic communications services have enough available resources of numbers and addresses. In 2022, the Agency fulfilled requests of the operators for issuing the approvals for the use of numbers and addresses.

4.7. The use of the single European emergency number "112"

The single European number "112" for emergency calls is not only an area code, but also a synonym for modern, unified systems for receiving emergency calls and responding to a wide variety of emergency and emergency situations. The "112" system is primarily a technical-technological solution that uses highly trained operators, according to strictly defined operational procedures. The system represents the integration of electronic communication and information systems, which enables operators to respond promptly and quickly to citizens' calls and manage the resources needed to provide assistance. Modern technological solutions that are applied include automatic identification of the geographic location of the caller, software support for shortening the time for obtaining information from the caller, reliable forwarding of voice and/or non-voice information to the nearest units of the services responsible for responding, geographic information system (GIS), support for deployment and response of units, mechanisms for reporting and analysis of events, statistical tools and more.

Legal basis for establishing single European emergency number “112” was laid down in the Council Decision 91/396/EEC of 29 July 1991 on introducing Single European Emergency Number. The number “112” is the only number for emergency calls available in all member states of the European Union and is introduced to enable citizens to have the access to all services in the event of emergency, such as a fire department, police and health service.



Organization of the work of emergency services in each country of Europe varies. Also, among emergency services (police, fire service, and ambulance) there are often significant differences in their functioning. Applying new information-communication technology solutions in order to improve the operation of the

service for emergency response has to certain extent, changed the work of emergency services and their operating procedures; but essentially, technical items is what needs to be adjusted to the procedures and methods of the work of these services. Due to the above said, there are no two “112” services operating in Europe in the same way, and often within one country there are several models of functioning in different regions. Therefore, there is no standard clue, but the tendency is on standardization of certain components of the system. The European Emergency Number Association - EENA defined five basic models of emergency services, which are applied in the European countries, with small variations among them.

According to ZEK, the operators of public telephone networks shall provide free calls to the Single European Emergency Number “112” to all users of the services. The operator shall forward all available information about the calls made to the number “112” and to other emergency numbers, to the Operational Communication Centre, without delay and without charge. The operator shall also to enable the user to make a call to the Single European Emergency Number “112” in another way, especially through short text messages (SMS).

In Montenegro, the calls to the number “112” are received in the Operational Communication Centre 112 (OCC 112), located within the Directorate for Emergency Situations of the Ministry of Interior. They forward the calls to the appropriate emergency services, as for example: police, protection and rescue service, and emergency medical help. These services can still receive calls through national emergency numbers 122, 123, 124, and 129.

This method of work corresponds to the combination of the models 1 and 2. In order to better coordinate the work of emergency services and use of the capacities, the Minister of Internal Affairs, in the Decision No: 01- 113/13-60010 of 7 October 2013 formed a working group with the task to examine the possibilities of unifying the centers to use the numbers 112, 122, 123, 124, and 129 within single Operational Communication Centre 112.

As set out by adopted plan, OCC 112 shall be at the locations of regional centers in Podgorica, Bijelo Polje and Bar. New OCC 112 system was established, supplied with new equipment and new version of CoordCom software, covering the territory of Montenegro, according to appropriate regions.

122
POLICIJA



123
VATROGASCI

124
HITNA POMOĆ



129
POMOĆ NA MORU

Since 20.01.2016, the calls made to "112" number have been received through the centers located in Podgorica, Bijelo Polje and Bar. Terminal equipment of OCC 112 for receiving the calls from fixed and mobile networks has been connected to the IMS of Crnogorski Telekom through two E1 links in Podgorica (copper), two E1 links in Bijelo Polje (fiber and copper), and E1 link in Bar (copper).

In 2022, OCC 112 received 220,220 calls being 0.38% more than in 2021. Overview of the calls per month is given in the Table below.

Number of the calls to the number 112 in 2022	
Month	Number of the calls
January	14,036
February	13,847
March	16,471
April	16,049
May	17,753
June	19,193
July	24,375
August	24,247
September	17,777
October	18,641
November	17,703
December	20,128
Total in 2022:	220,220

Due to a large number of tourists, call frequency increased during the summer.

The operators began to submit data on the location even in 2016, but not yet met the all the requirements regarding precise data submission with regard to user location, stipulated by the Regulations on the Unique European Number "112" for emergency calls ("Official Gazette of Montenegro" 44/14).

Due to problems with the application of the Rulebook on the unique European number "112" (accuracy of data on the located user), during 2019, activities were started, and during 2020 and 2021, activities were started to implement the AML method of locating callers of the number "112", which provides high precision for new generation Android phones and IP phones. In 2022 testing of telephones with iOS operational systems was successfully carried out, and at the end of 2022 initiated the testing of the telephones with iOS operational system. Starting from the data showing that there were more than 70% of such phones in the networks of mobile operators in Montenegro, that a significantly higher percentage of these phones are used by tourists-roamers, taking into account that almost all countries of the European Union have decided to introduce this method (AML), an initiative was launched to introduce this method of locating in mobile networks in Montenegro, especially since in the countries of the European Union that have already introduced this method, it gives excellent results. We should also not ignore the fact that according to the old method of locating, existing mobile networks should be improved (construction of new base stations), which would require significant financial resources that operators would have to invest in increasing the density of base stations in existing networks. Even if this were to be done, the precision of locating according to the existing Rules could hardly be achieved within the limits prescribed by it.

Using the AML method, the user can be located with an accuracy of 50m for 87% of the obtained locations. This GNSS-based method is used in combination with other known locating methods: locating based on WiFi connection and locating using mobile network configuration. With the AML method, the location is determined by automatically activating the application for locating the user when the number "112" is called, and when the user is located, the data is automatically sent via SMS (data SMS-invisible to the user) to a predefined number of the national network in the form of E164 format. When sending an SMS, the SMS is sent to the SMS center of the user's home country so that it can be routed according to the number and country where the user is at the time of the call and whose help was requested by calling the number "112". When it is taken into account that the introduction of AML will cause almost no costs for mobile operators, and bearing in mind how important it is to determine the user's location as accurately as possible for the efficient work of rescue services (MUP, Mountain Rescue Service, Emergency Medical Services, Fire Service....) in order to save human lives, the decision to implement AML is justified.

In the middle of 2019, the first steps for AML introduction were made in the middle of 2019 through contacts with Ericsson as the vendor and OCC "112", by introducing the AML method in Montenegro and Google (procedures for introducing the service). After completing the organization and receiving test applications at the end of August and beginning of September, commenced testing in the mobile network of Crnogorski Telekom. Testing results proved the expectations as introduction of AML method in Montenegro was proved as justifiable.

In the course of 2020, the renewal of software and hardware was carried out in OCC 112, which created the conditions for the introduction of AML and advanced services such as e-Call. At the beginning of 2021, the administrative procedure was completed, certain numbers (14678 for SMS messages and +38267114512 for calls) and a contract with Google on the provision of services for the operation of the AML service were signed. Google approved a one-year free license for the operation of the AML service.

Currently, AML works thanks to a test license, although budget funds should be provided in order to purchase a license. If this is not resolved, there is a risk of significantly degrading the AML service and jeopardizing the accuracy of locating users when calling the number 112 by users using new generation phones that have the ability to locate and send the coordinates of their location. For old phones, the old method of locating the user remains, but we will continue to work on its improvement.

At the beginning of 2021, e-Call testing was completed, and after that the service was put into operation within OCC 122. In the middle of 2021 was one real e-Call, automatically initiated during a traffic accident after which OCC immediately informed local police center with precise data on the place of accident.

In order to increase the reliability of the work of OCC 112 center, a redundancy of the actual optical line was successfully implemented through optical network of Crnogorski Telekom. In 2022 is planned an increase in improving of the work of OCC 112 by all operators. It was also planned to make Telenor and Mtel directly connected OCC 112 for voice call via the SIP Protocol so that the first choice of calls to the number 112 would end up within its own network, which would avoid the situation from October 2021, when due to problems in the operation of the Crnogorski Telekom network, calls to numbers were difficult or interrupted for almost a day emergency services. Already at the end of 2021, Mtel was connected via SIP to OCC 112 and testing began. After the end of testing, commissioning is planned, followed by connection, testing and commissioning with Telenor via the SIP protocol. When this is finished, there will be a change in the routing

of calls to the number 112, so that the first choice would be through the own network, and the second choice would be through another operator.

When OCC 112 Bar creates the conditions for connecting links for data communication, the operators: Crnogorski Telekom, Telenor and Mtel will be notified to fulfill their obligation to send data according to OCC 112 Bar. Telenor has withdrawn the router that was intended for Bar (still not released as the OCC 112 is not ready) and is keeping it as a reserve, with another one in the reserve set, in case of failure of the router towards Podgorica and Bijelo Polje. Telemach should be connected by links with OCC center.

5. DEVELOPMENT OF THE POSTAL SERVICES MARKET

5.1. Regulatory framework

The Law on Postal Services (Official Gazette of Montenegro, 57/11, 55/16 and 55/18) regulates the conditions and manner of performing universal and other postal services, and other issues relevant for the provision of postal services. The Law on Postal Service defines the competences of the Agency's responsibilities as an independent regulatory authority in the postal service market, especially in the part related to the issuance and revocation of licenses, issuance of extracts from the Registry, definition of the criteria for determining the prices of the universal postal services, reserved postal services, verification of calculation of net costs of the universal postal service, monitoring the state and development of the postal services market, taking measures to ensure competitiveness on the market, expert supervision of the work of postal operators, deciding on user complaints, international cooperation with institutions and bodies of the World Postal Union and European Union, as well as with regulatory bodies competent for the regulation of postal services.

In December 2018, the Government of Montenegro adopted new strategy of postal services development in Montenegro for the period 2019-2023 with an Action Plan 2019-2020. The goals as well as medium-term policy of development of the postal market are defined pursuant to the Strategy and to Article 62 of the Law on Postal Services. With a view to performing strategic goals was defined the Action Plan 2021-2022, which along with operations goals with results indicators determines the measures, competitive bodies and timeframe for their realization, and also indicators of the effectiveness of the measures.

5.2. Development of secondary legislation

In 2022, the Agency adopted the Ordinance on Amendments to the Ordinance on the Type and Method of Submitting Data of Postal Operators ("Official Gazette of Montenegro" No. 146/22). The main reason for the adoption of the Ordinance on Amendments to the Ordinance on the Type and Method of Submitting Data of Postal Operators is alignment with the provisions of Regulation (EU) 2018/644 on cross-border parcel delivery services. By adopting this Ordinance, the Agency also contributed to the realization of the Action Plan for the implementation of the Postal Strategy for the period 2021-2022, which was adopted by the Government of Montenegro at the session of July 1, 2021, and which, among other things, defined that it is necessary to The Agency adopts the Ordinance on Amendments to the Ordinance on the Type and Method of Submitting Data of Postal Operators in order to harmonize it with the Regulation on Cross-Border Parcel Delivery, and the deadline for this activity is the fourth quarter of 2022. Adoption of the aforementioned Ordinance, as an activity of the Agency, is also defined by the Program for the Accession of Montenegro to the European Union 2022-2023, which was adopted by the Government at the session of January 26, 2022.

Article 65 point 2 of the Law on Postal Services stipulates that the Agency prepares the professional basis for drafting regulations adopted by the relevant Ministry in accordance with this law, so the representatives of the Agency, as members of the Working Group appointed by the Ministry of Economic Development and Tourism, participated in the drafting of the Ordinance on Amendments to the Ordinance on the Nomenclature of Postal Services, which was published in the "Official Gazette of Montenegro" 137/22 of 12 December 2022.

5.3. Analysis of the postal services market

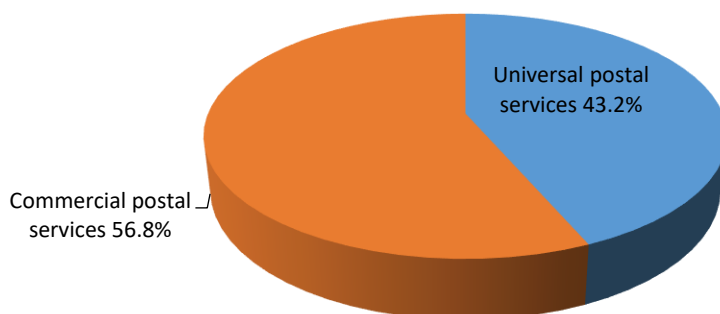
5.3.1. Pošta Crne Gore

Pošta Crne Gore, as the universal postal operator, has a right and obligation to conduct universal postal services throughout Montenegro.

In 2022, Pošta Crne Gore provided in total 35,519,563 postal services, which is 2.2% less than in the previous year, when 34,743,988 postal services had been provided. Out of the total of delivered postal services, 15,329,815 were universal postal services, and 20,189,748 commercial postal services, or in percentages 43.2% services referred to universal services, while 56.8% referred to commercial postal services.

In 2022, Pošta Crne Gore carried out 1.2% more universal postal services, i.e. 3% more commercial postal services in relation to 2021.

Share of universal and commercial postal services in the total of postal services carried out by Pošta Crne Gore in 2022



An analysis of the volume of postal services provided by the Post of Montenegro in 2022 shows an increase in hybrid mail services, express services, money order and letter carrier services, as well as a decline in telegraphic services, while financial services are at approximately the same level compared to the previous year.

In the structure of the volume of services for the year 2022, the largest participation in the amount of 43.6% is held by letter-post services. Namely, the Post of Montenegro provided 15,477,314 letter services in 2022, which is 1.3% more than the volume of letter services provided in the previous year.

At the second place in terms of volume are hybrid mail services, whose share in the volume of services provided by the Post of Montenegro in 2022 is 32.8%. The Post of Montenegro provided 11,648,824 hybrid mail services. The volume of hybrid mail services was increased by 6.2% compared to the previous year.

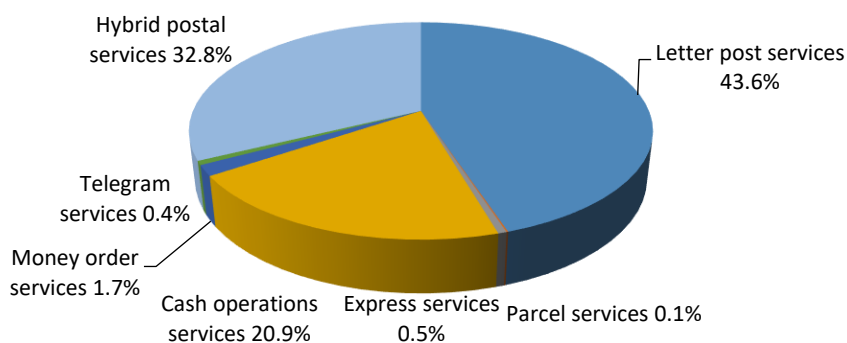
The share of money business services in the total volume of services provided by the Post of Montenegro for the year 2022 is 20.9%. Namely, in 2022, the Post of Montenegro provided 7,413,355 financial services. The volume of financial services decreased by 0.1% compared to the previous year. In the total scope of money business services, payment transactions (payments-withdrawals) make up 56%, account collection 39.8%, and money transfer 4.2%.

In 2022, Pošta Crne Gore rendered 609,913 money order services, which is an increase of 3.2% in relation to 2021 when 590,936 of these services had been rendered.

During 2022, Pošta Crna Gore rendered 165,683 express services, being an increase of 5.5% in relation to previous year, when there had been 157,113 express services.

Pošta Crne Gore rendered 47,939 parcel services in 2022, and it makes a 3.9% decrease in relation to previous year when 49,891 services had been rendered.

Share of individual postal services in the total of postal services rendered by Pošta Crne Gore in 2022



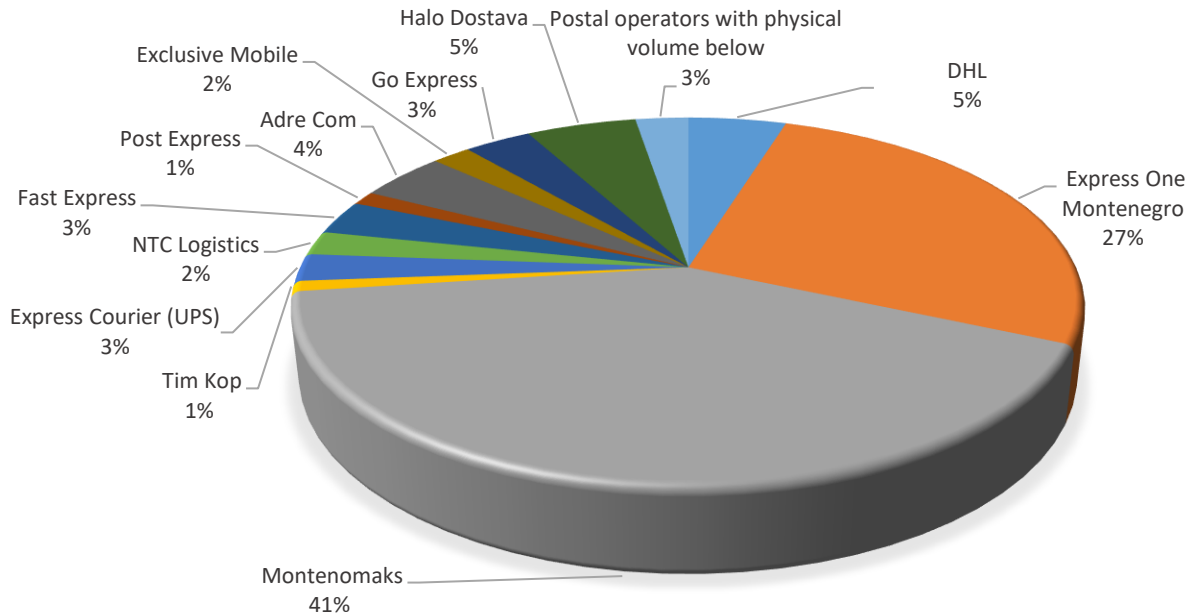
5.3.2. Other operators

In 2022, along with Pošta Crne Gore, the following operators also provided postal services in Montenegro:

- Kingscliffe Distribution Montenegro (DHL) d.o.o. Podgorica;
- *Montenomaks Control & Logistics d.o.o. Danilovgrad;*
- *Express One Montenegro d.o.o. Podgorica;*
- *Express Courier d.o.o. Bar;*
- *Tim Kop d.o.o. Podgorica;*
- *NTC Logistics d.o.o. Nikšić;*
- *Alo Kurir Expres d.o.o. Plav;*
- Fast Express d.o.o. Danilovgrad;
- Purić Trade d.o.o. Podgorica;
- Arde Com Pljevlja;
- Exclusive Mobile d.o.o. Podgorica;
- Go Express - Braća Kastratović d.o.o. Podgorica;
- Italicom d.d. Podgorica;
- Lancer d.o.o. Kolašin;
- MG Express d.o.o. Podgorica;
- Post Express Padrino d.o.o. Tivat;
- Pro Express d.o.o. Podgorica;
- Rabbit Courier Express d.o.o. Podgorica;
- Royal Express d.o.o. Podgorica;
- Žvaka d.o.o. Podgorica;
- Naš Express d.o.o. Podgorica;
- TT Phoenix d.o.o. Budva;
- Halo dostava d.o.o. Podgorica;

- Post Express d.o.o. Bar.

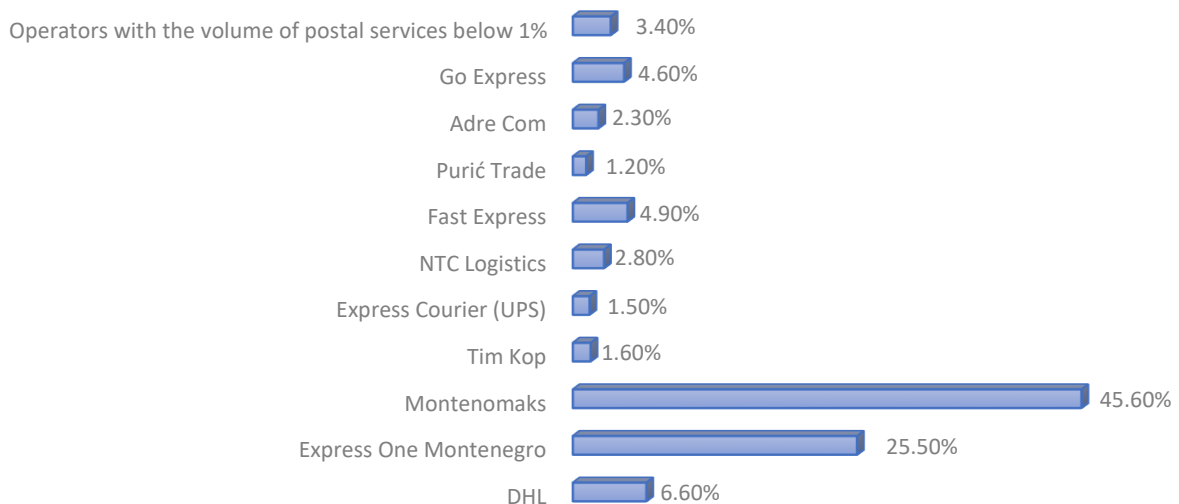
The pie-chart below show a total physical volume of postal services rendered by other postal operators in 2022.



Total physical volume of postal services realized by other postal operators in 2022 amounted to 616.079 delivered postal services, which is 3.8% less than in 2021, when realized physical volume of postal services was 593.419.

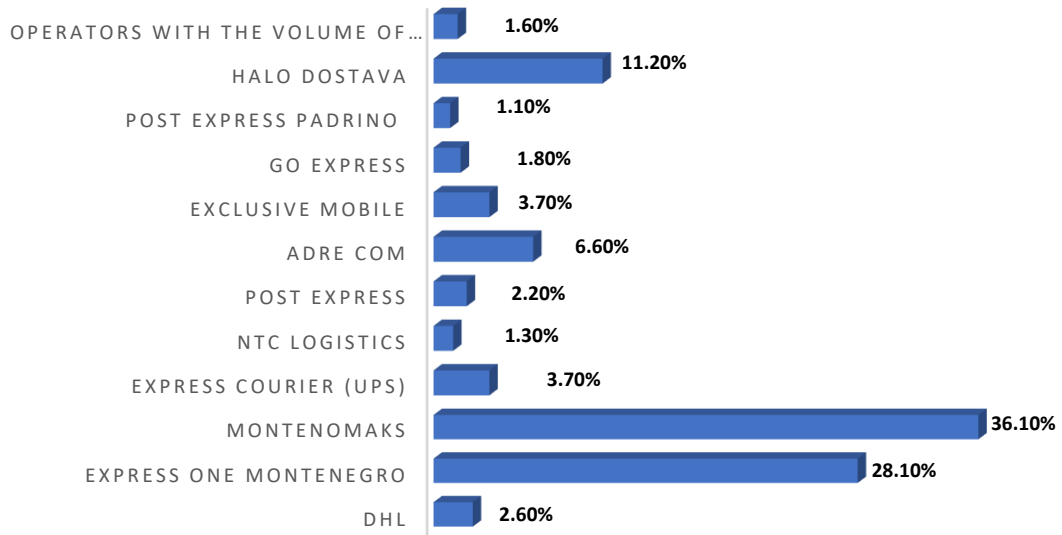
The greatest share in the total physical volume of all postal services provided by other operators holds Montenomaks, as its volume of delivered postal services is 41% and Express One Montenegro, with the volume of delivered postal services of 27% of the total of delivered postal services of other operators.

In the graphic below is given an overview of the share of express services delivered by other operators in 2022.



In the structure of express services with other operators in 2022 a leading position holds Montenomaks which covers 45.6% of the market of express services of other operators, followed by Express One Montenegro which covers 25.5% and DHL which covers 6.6% of this market.

In the graphic below is given an overview of the share of parcel services with other operators in 2022



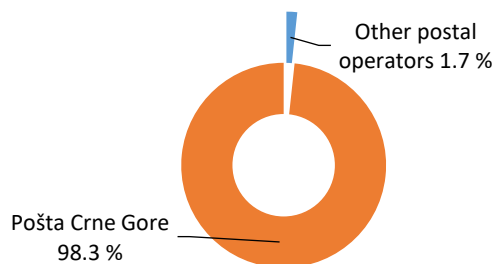
In the structure of parcel services rendered by other operators leading positions hold Montenomaks, which covers 36.1% of the market of parcel services of other operators in 2022, City Express One Montenegro covering 28.1% and Halo dostava which covers 11.2%.

5.3.3. Comparative analysis of the postal service market

In 2022, all postal operators rendered a total of 36,135,642 postal services, which is 2.3% more than in the previous year.

Of that number, Universal Postal Operator rendered 35,519,563 postal services, which is 98.3% of the total volume of rendered services, while other postal operators rendered 616,079 postal services, i.e. 1.7% of the total volume of rendered services.

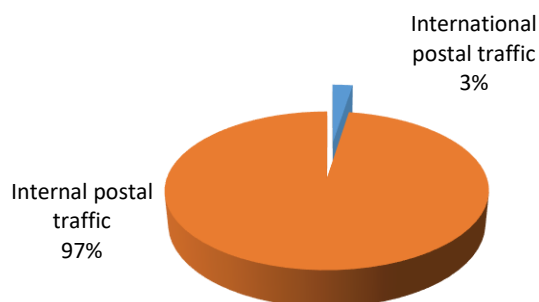
The pie-chart that follows shows a total of physical volume of postal services in 2022.



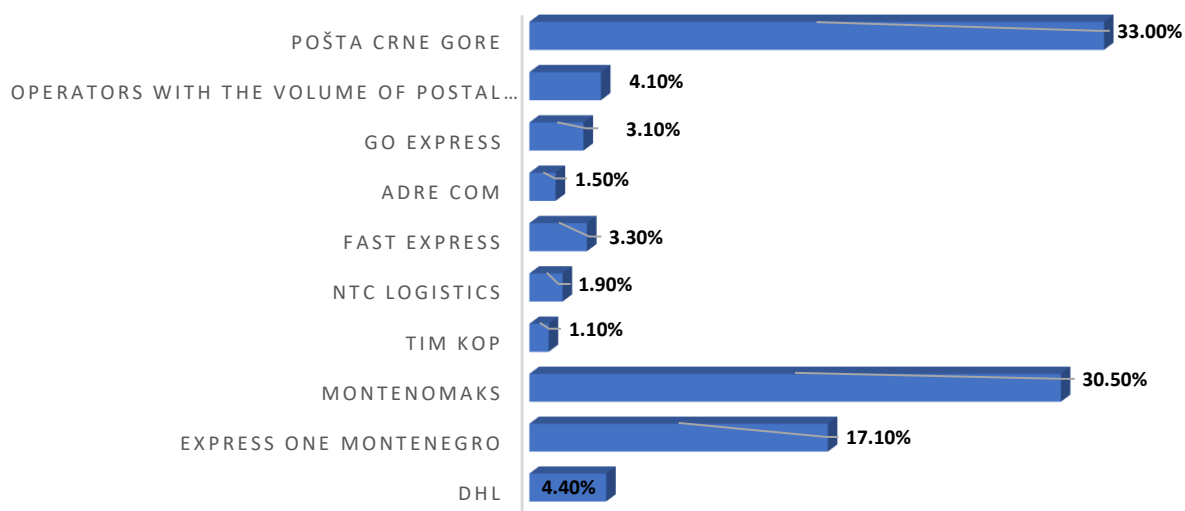
Pošta Crne Gore still holds a leading position at the postal services market and its share is 98.3%, while the share of other operators is 1.7%.

Out of the total number of postal services of all operators which amounts to 36,135,642, in the internal market were rendered 35,039,303 postal services, i.e. 97%, while in international postal traffic were rendered 1,096,339 postal services, i.e. 3%.

Overview of postal services rendered in international and internal postal traffic for 2022 is given in the pie-chart below.

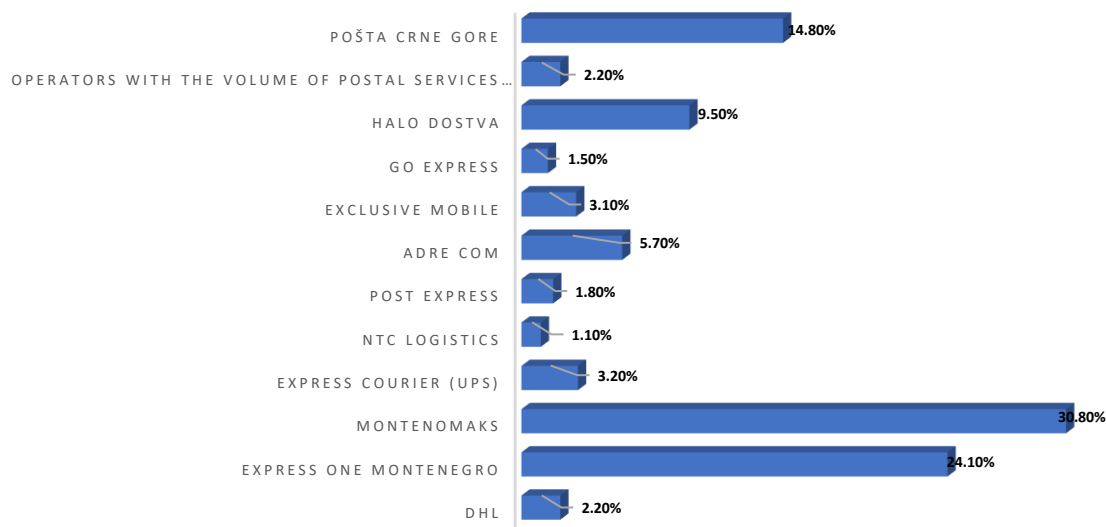


Share of the postal service operators in the market of express services in 2022 is given in the graphic below.



The leading position in the provision of express services in 2022 is held by Pošta Crne Gore with the share of 33% in the market, Montenomaks with 30.5%, Express One Montenegro with 17.1%, DHL 4.4%, Fast Express 3.3%, Go Express 3.1%, NTC Logistics 1.9%, Adre Com 1.5%, Tim Kop 1.1% and other operators with parcel share below 1% participate with the total of 4.1%.

Share of postal service operators in the market of parcel services in 2022 is given in the graphic below.



A dominant position in the provision of parcel services in 2022 is held by Montenomaks with the share of 30.8% in the market, followed by Express One Montenegro with 24.1%, Pošta Crne Gore with 14.8%, Halo dostava with 9.5%, Adre Com with 5.7%, Express Courier (UPS) 3.2%, Exclusive Mobile 3.1%, DHL 2.2%, Post Express 1.8%, Go Express 1.5%, NTC Logistics 1.1%, while the share of other operators whose parcel volume is below 1% participate with the total of 2.2%.

5.4. Implementation on of the Rulebook on the manner of keeping accounting records and calculation of net costs of the performance of universal postal service

During 2022, in coordination with external Konzorcijum Ernst&Young Montenegro d.o.o. Podgorica, the Agency continued to control implementation of the Rulebook on the manner of keeping accounting records and calculation of net costs of the Universal Postal Operator (hereinafter referred to as the Rulebook).

Implementation of separate accounting records, pursuant to Article 96 of the Law on Postal Services, and/or internal calculation system complied with the requirements of the Rulebook are pre-conditions and the base both for calculation of net costs for providing universal postal services and for the pricing of these services which would be based on the real costs and criteria stipulated by the Postal Services Act and the acts of the Agency.

During 2022, the procedure of control regarding implementation of the subject Rulebook included control by the universal postal operator Pošta Crne Gore, of the manner of keeping accounting, accounting records, and/or control of the implementation of the cost model based on HCA/FAC methodology, pricing of the universal services based on the criteria defined by the Agency, especially the criteria stipulating that these prices shall be based on the actual costs in order to have the services efficiently performed.

Postal Services Act lies down that, if the performance of universal postal services is unjustified financial burden for the universal postal operator, it has the right for reimbursement if the calculation of net costs, proved to be an unjustified financial burden. Based on the above said, Pošta Crne Gore submitted the request for verification of net cost calculation for 2021 in the amount of €613,970.65. Upon receipt of the request of Pošta Crne Gore, in line with Postal Services Act, in the verification procedure of net cost calculation of universal postal services for 2021, the Agency was assessing whether Pošta Crne Gore fulfilled a set of laws

and bylaws relating to the way of keeping accounting records and the way of calculation of determined amount itself; this was intended to check if the submitted request and net cost amount being the subject of the request have been reasonable. In performing the verification process of net cost calculation of universal postal service for 2021, the Agency also engaged an independent auditor HLB Mont Audit, respecting Article 100 (3) of the Postal Services Act.

Based on the assessment which are the result of detailed analysis of the request submitted by Pošta Crne Gore for the verification of net costs for 2021, and accompanying accounting documentation, the analysis of the Report of Ernst&Young Montenegro, as well as the appraisal of independent auditor HLB Mont Audit, by its Decision No 0102-3246/14 dated 25.11.2021, the Agency determined that Pošta Crne Gore did not keep separate accounting in 2021 in accordance with the Postal Services Act and the Rulebook on the method of accounting and calculation of the net costs of the universal postal operator, so the request of Pošta Crne Gore for the verification of the calculation of the net costs of the universal postal service was rejected as unfounded.

5.4.1. Regulation of the prices of universal postal services

As laid down by Postal Services Act, the price of universal postal service shall be equal for each user at the whole territory where the universal postal operator renders its services, and shall be affordable, based on real costs and for efficient performance of universal postal services, free of charge for certain kind of services used by visually impaired persons and persons with partially impaired vision, shall be transparent and determined in a way not to give advance to certain users in relation to other users, under the same or similar conditions.

Prices of universal postal service shall be determined by the postal operator under criteria stipulated by the Agency. Based on the authorizations as referred to in Article 15 paragraph 1 and 2 of the Postal Services Act, the Agency adopted Rulebook on the criteria for determining the prices of universal postal service.

In order to follow the status, changes within it, i.e. development of the postal services market and its regulation, the Agency has performed the analysis of postal market periodically, so for 2022 was also done the analysis of prices of universal postal services of Pošta Crne Gore, where these prices were compared with the prices of the same services rendered in the countries of the region and in certain EU countries.

For the purpose of supervision of the implementation of the Rulebook on the way of keeping accounting records and net cost accounting, and after conducting public procurement procedure, the Agency engaged Ernst&Young Montenegro as an external consultant, and one of the project assignments laid down by tender documentation was to analyze the basis for the pricing of universal postal service on the territory of Montenegro. This is why was performed the analysis of the actual pricelist of the postal services of Pošta Crne Gore, being an universal postal operator, data submitted by Pošta Crne Gore to the Agency, with net cost calculation for 2022, as well as the prices of universal postal services on the territories of the surrounding countries, the EU countries, along with an additional analysis of the criteria for determining the prices.

The analysis was done by benchmark method and on the results of the analysis, considering data available from selected group of the countries in the region, that is data on the European countries for certain categories and rate of the mass of universal postal service, it is to conclude that prices of universal postal service do not deviate systematically in relation to prices of selected set in the comparable countries and that

through the greatest number of observed parameters, these prices are at medium value. However, in the case of international traffic prices, the prices deviate for different zones and mass rates in relation to the medians of the observed countries.

The prices of universal postal services provided by the Pošta Crne Gore have not been changed since 2012, despite the changes in the market of postal services and the Agency's constant requests that the Pošta Crne Gore determine and submit the Price List of the universal postal service, in which the proposed prices will be based on defined criteria, and above all, based on real costs for their efficient performance.

Adequate management of separate accounting, prescribed by Postal Services Act and the Agency's Rulebook, is a prerequisite, not only for calculating the net cost of providing universal postal service, but also for forming the prices of these services, which would be based on real costs and criteria defined by the law and by-laws. Bearing in mind that during the verification procedures of the calculation of the net cost of the universal postal service for the year 2020, which was carried out during the year 2021, the progress of Pošta Crne Gore in keeping separate accounting was recorded, which resulted in the verification of the net cost of the universal postal service for 2020, the Agency in 2021 indicated to Pošta Crne Gore that the necessary preconditions for the intensification of the activities of Pošta Crne Gore on the preparation of the proposal for the Price List of the universal postal service have been achieved. Bearing in mind this recommendation of the Agency, Pošta Crne Gore, by letter number 0102-4041/1 dated June 16, 2022, submitted to the Agency working versions of the Methodology for determining the prices of the universal postal service and the Price List of the universal postal service. Within the aforementioned project of Supervision over the implementation of the Rulebook on the method of keeping accounting and calculating net costs, Ernst & Young Monetenegro analyzed the submitted working version of the Methodology of the Price List of Pošta Crne Gore and submitted to the Agency in July 2022 a Report containing comments and recommendations on the established prices and improvement of the cost model, stressing that a review of the proposed Price List and the working version of the Methodology revealed inconsistencies of the submitted documents with the provisions of the Rulebook on the manner of accounting and calculation of the net cost of the universal postal operator, which define that prices must be based on real costs. After the analysis of the working versions of the aforementioned Methodology and Price List by the Agency, in July 2022 a meeting of the Agency and Pošta Crne Gore was held, at which it was jointly concluded that, after harmonizing the Methodology with the Agency's comments and recommendations, Pošta Crne Gore will submit a new Price List proposal to the Agency the prices of which will be based on the costs from 2021 and will be in accordance with the new nomenclature of postal services that should be prescribed by the Ordinance of the competent Ministry.

At the beginning of August 2022, the Agency submitted to Pošta Crne Gore dostavila comments and recommendations on the working version of the Methodology and calculation of the prices of universal postal services, so that Pošta Crne Gore could, based on these, make corrections in the Methodology for determining the prices of the universal postal service and submit a new version of the Price List based on the approved costs for Pošta from 2021.

Further activities on the creation of the Price List of the universal postal service of Pošta Crne Gore based on the approved costs from 2021 were hampered by the fact that in the process of verifying the calculation of the net cost for the year 2021, by the decision of the Agency dated 30 November 2022, it was established that Pošta Crne Gore in 2021, it did not keep separate accounting in accordance with the Postal Services Act and the Rulebook on the method of keeping accounting and calculating the net cost of the universal postal

operator, so the request of Pošta Crne Gore ad Podgorica for the verification of the calculation of the net costs of the universal postal service for the year 2021 was rejected, as unfounded. In addition, the Government of Montenegro concluded at the session of August 3, 2022, "that the conditions for the adoption of the Annual Report on the work and financial operations of Pošta Crne Gore for 2021 with the Independent Auditor's Report on the Audit of the Financial Statements for 2021 have not been met." With the same conclusions, the Government obliged Pošta Crne Gore to submit to the Government of Montenegro, by October 31, 2022, the revised Annual Report on the work and financial operations of Pošta Crne Gore for the year 2021. With the conclusions from the session of December 8, 2022, the Government of Montenegro changed its conclusions from August in relation to the deadline for the delivery of the revised Annual Report on the work and financial operations of Pošta Crne Gore for 2021, and with the amended conclusion obliged it to submit these reports no later than June 30, 2023.

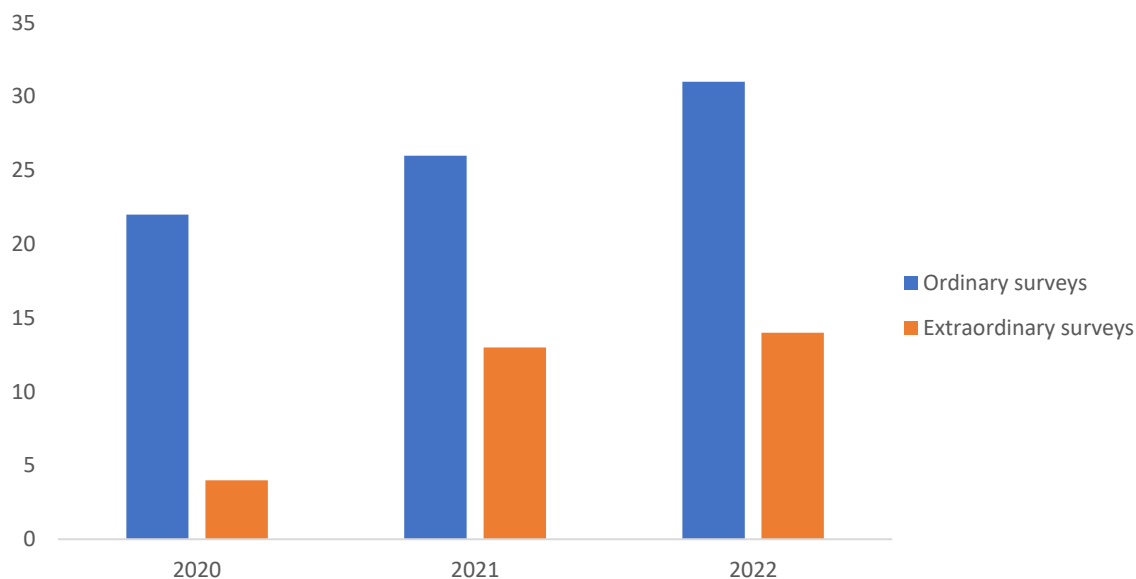
Despite the above-mentioned circumstances that made it impossible to create the Price List of Pošta Crne Gore based on the approved costs for 2021, work continued on the process of calculating the prices of the universal postal service, which is the subject of the Methodology for calculating the prices of the universal postal service of Pošta Crne Gore, in order to create the preconditions for forming the prices of the mentioned services in accordance with the criteria prescribed by the legal and by-law regulations. For these reasons, the Agency continued with the analysis of the new Methodology proposal for determining the price of the universal postal service submitted by Pošta Crne Gore on November 3, 2022, which, according to the Pošta Crne Gore, was corrected in accordance with the previously given recommendations and comments Agencies. In order to finalize the activities on the development of the Methodology, during November and December 2022, the Agency had intensive written and oral communication, both with its external consultant Ernst & Young Montenegro, and with Pošta Crne Gore, with which several meetings were held, and all with the aim of additional correction of the submitted Methodology. At the last meeting held on December 27, 2022, which was attended by representatives of Pošta Crne Gore and the Agency, as well as representatives of Ernst & Young Montenegro, the issues that were recognized in the previous work as parts of the Methodology that were not sufficiently well and precisely defined and explained, after which the minutes from the aforementioned meeting, together with recommendations for possible ways of resolving disputed issues, were submitted to Pošta Crne Gore on December 28, 2022.

5.5. Professional supervision in the field of postal services in 2022

Professional supervision over the work of postal operators registered with the Agency for electronic Communications and Postal Services, in accordance with the Postal Services Act, shall conduct the Agency's inspectors for postal services. Inspectors for postal services perform their inspection activities in line with the Postal Services Act ("Official Gazette of Montenegro", 57/11, 55/16 i 55/18) , Law on Inspection ("Official Gazette of Montenegro", 39/03, 76/09, 57/11, 12/14, 11/15, 52/16), and Law on prevention of money laundering and terrorism financing ("Official Gazette of Montenegro" 33/14, 44/18, 73/19, 70/21), and with the Plan for professional supervision in the field of postal services for 2022.

In 2022, regular and extraordinary professional inspections were carried out. A total of 45 inspections of the work of postal operators were carried out, of which 31 regular inspections and 14 extraordinary inspections. The minutes were made of the performed inspections. The authorized representatives of the subjects of supervision had no objections to the prepared minutes. The copies of the minutes were delivered to the

authorized representatives of the subjects of supervision. The comparative presentation of the number of regular and extraordinary controls performed for the last 3 years is given in the following graphic.



In the focus of the professional supervision conducted during 2022 were: Control of the provision of postal services of the operator, control of the compliance of performing postal services with the Postal Services Act, bylaws, and specially with general conditions for conducting postal services, control of the pricelist for the provision of postal services, control of keeping the records and type of postal services records, and control of the measures undertaken for identifying and preventing money laundering and terrorism financing.

When carrying out professional inspections, the Agency's supervisors, in the event that irregularities were found, pointed to them, along with setting a deadline for their elimination. Elimination of established irregularities or submission of additional data and information was ordered in 42 cases.

Identified irregularities regarded the following:

- Lack of an adequate work space for the provision of postal services;
- Compliance of general conditions with the provisions of Postal Services Act;
- Publishing general conditions on the official web site of the operator;
- Publishing the pricelist on the official web site of the operator;
- Irregularities with regard to the preparation and update of the official web site of the postal operator;
- Keeping the evidence on the rendered postal services, daily and annually;
- Delivering data to the Agency with regard to the provision of postal services, expending postal network of operators, i.e. familiarising the Agency with the cooperation agreement of certain postal operators;
- Submitting to the Agency the information on improving the information system of the universal postal operator with a view to implementing SPNFT measures¹⁴.

Adequacy of business premises for the provision of postal services at all postal operators was controlled by supervision. It was established that the subjects of supervision TT Phoenix and Post Express Padrino do not

¹⁴ SPNFT – sprječavanje pranja novca i finansiranja terorizma

have adequate business premises for the provision of postal services. These postal operators were given a deadline to correct the irregularities, after which it was determined that they had been corrected.

Supervision was carried out to check the compliance of the general conditions for the performance of postal services by postal operators with the Postal Services Law for all postal operators. It was established that Montenomaks Control & Logisticis and NTC Logistics did not fully harmonize, or sufficiently elaborate, the general conditions for providing postal services with Article 22 of the Postal Services Act, which prescribes all the elements that this act must contain.

A review of the official websites of postal operators determined that the subjects of supervision: Purić Trade, Express One Montenegro, Post Express Padrino, TT Phoenix, Go Express, Royal Express, Rabbit Courier Express, Exclusive Mobile, Žvaka, Post Express, Naš Express, DMC Logistics¹⁵ and Lancer have not highlighted their general conditions on their official website, or have not highlighted them in a clear and visible way, so that they are easily accessible to service users, as prescribed by Article 24 of the Postal Services Act. Postal operators who have been found to have irregularities have been given a deadline to rectify them, after which it has been established through checks that the irregularities have been rectified.

Supervision was carried out to check the compliance of the application of the price list of postal services with Postal Services Act by all postal operators. A review of the official websites of postal operators revealed that the subjects of supervision Post Express Padrino, TT Phoenix, Go Express, Royal Express, Rabbit Courier Express, Exclusive Mobile, Žvaka, Post Express, Naš Express, DMC Logistics and Lancer did not publish price lists on their official website page, as prescribed by Article 17 of the Postal Services Act. Postal operators who have been found to have irregularities have been given a deadline to rectify them, after which it has been established through checks that the irregularities have been rectified.

A review of the websites of all postal operators found that the websites of the control subjects Post Express Padrino, TT Phoenix, Go Express - Braća Kastratović, Royal Express, Rabbit Courier Express, Exclusive Mobile, Žvaka, Post Express, Naš Express, DMC Logistics and Lancer are not created, i.e. not updated, in a way that would enable easier use and provide a sufficiently clear overview of prices and services, as well as an overview of valid regulations, reports and information whose publication on the postal operator's website is prescribed by the Postal Services Act. Postal operators who have been found to have irregularities have been given a deadline to rectify them, after which it has been established through checks that the irregularities have been rectified.

Through supervision, the control of keeping records on the postal services provided by all postal operators was carried out. It was established that the subjects of supervision: Post Express Padrino, TT Phoenix, Royal Express, Rabbit Courier Express, Post Express, Arde Com, Naš Express and Lancer do not keep completely proper records of the postal services performed. The postal operators were given a deadline to eliminate the irregularities, after which it was determined that they had been eliminated.

After reviewing the business cooperation agreement between Kingscliffe Distribution Montenegro and DHL, as well as based on the statement of the executive director of the postal operator, it was determined that the delivery of the parcels of this postal operator in the northern part of Montenegro is carried out by subcontractors See All Express and Pošta Crne Gore. The supervisors informed the executive director of this

¹⁵ DMC Logistics d.o.o. Podgorica was a commercial postal operator which ceased operations during 2022 when it was deleted from the Register of postal operators

postal operator about the fact that the legal entity See All Express is not in the Agency's register of postal operators and ordered the subject of supervision to submit detailed information on business cooperation with See All Express. This postal operator informed the supervisors about the termination of the contract with See All Express along with the submission of supporting documentation.

Through the supervision was carried out a verification of the measures taken to detect and prevent money laundering and financing of terrorism at Pošta Crne Gore, during which it was determined that the Pošta Crne Gore had significantly improved the information system in terms of innovation and adaptation of existing counter applications for the implementation of measures to prevent money laundering and financing of terrorism, i.e. software solutions for client risk assessment, monitoring of client business relationships and control of financial transactions. A review of the official website of this postal operator revealed that the regulations related to the prevention of money laundering and financing of terrorism were not published on the website. The subject of supervision was given deadlines for eliminating this irregularity, which this postal operator did within the prescribed deadlines.

5.6. The research on the level of satisfaction of the postal services users

The Agency conducts biannual research on the level of satisfaction of users of postal services in Montenegro. The results of the survey for 2022, as well as the one conducted in 2020, show that citizens and businesses still use the services of postal operators in a significant percentage and that the majority of citizens and business users are generally satisfied with the provision of postal services.

In order to obtain the most accurate picture of the state of the postal services market, the Agency, in cooperation with the public opinion polling agency "Damar plus", conducted a survey on the level of user satisfaction with postal services in Montenegro. The research was conducted during December 2022. The obtained results were also analyzed based on a comparison with the results obtained in surveys of the level of user satisfaction from 2018 and 2020.

The research showed that 77.5% of individual users and 77.1% of business users in Montenegro use the services of sending and receiving postal items. In the case of individual users, there is a noticeable downward trend of about 3.2%, and in the case of business users, an upward trend of 6.4% compared to the 2020 survey.

The greatest share of individual users use: financial postal services (74.7%), sending and receiving parcels (59.4%), courier services (58.9%), telegram services (50.6%) and services for sending and receiving letters (46.4%).

The largest percentage of business users use: services for sending and receiving letters (84.8%), sending and receiving parcels (83.5%), telegram services (82.9%), courier services (79.1%) and express mail services (75.9%).

The most recognizable operator of postal services in Montenegro among both individual and business users is Pošta Crne Gore, followed by Montenomaks, DHL and NTC Logistics.

Individual users most often use the postal services of the Post of Montenegro - 75.8%, then DHL - 5.1%, Montenomax - 4.6%, and Express Courier - 3.1%.

Business users most often use the postal services of Pošta Crne Gore - 63.9%, followed by Montenomax - 20.9%, DHL - 7.6%, and Halo Dostave - 3.2%.

By comparing the results of the 2020 survey, it can be seen that the percentage participation of the universal postal operator (Pošta Crne Gore) and other postal operators is similar to the 2020 survey.

Therefore, this research has determined that Pošta Crne Gore still holds a leading position in the provision of postal services in Montenegro, i.e. that both citizens and business entities continue to use its services the most, but also that there is a significant percentage of the participation of other postal operators.

As in the surveys from 2018 and 2020, the majority of Montenegrin citizens, i.e. 72.5%, are generally satisfied with the services provided by their chosen postal service providers.

In the segment of business users, satisfaction with the provided postal services was expressed by 74.1% of respondents.

For those individual and business users who expressed dissatisfaction with the services provided by the chosen operator, the key reason for dissatisfaction, as in previous surveys, is the price of the services.

Of the individual users of postal services, 44.4% estimate that the price of postal services is at a satisfactory level, i.e. that they cost exactly what they should, or that they are cheap (in 2020, this percentage was around 50%), while 43.9% of respondents estimate that the prices of postal services are expensive, or very expensive (in the survey from 2020, this percentage was 39.1%).

From the research it is concluded that there has been an increase in the number of citizens who think that the prices of postal services are expensive, while the percentage of those who think that the prices cost just as much as they should, or that they are cheap, has decreased. Among business users, approximately 57% of them estimate that the price of these services is at a satisfactory level (they cost just as much as they should and are cheap), which, compared to previous surveys, represents an increase in satisfaction with the price of postal services.

The research also included the use of the Internet and Internet-related services. The results show that 90% of individual and 97% of business users use the Internet every day. 70% of individual and 93.7% of business users have completely or partially replaced traditional mail with the Internet and electronic mail. Electronic banking services are used by 36% of individual and 86% of business Internet users, while 52.7% of individual and 52% of business users have purchased some goods or services over the Internet in the past six months. All the mentioned parameters have been significantly increased compared to the researches from 2018 and 2020.

There have also been some changes in the use of delivery services, i.e. postal operators that deal with the delivery of products purchased over the Internet. Overall, the leaders in the delivery segment are still Pošta Crne Gore, DHL and Montenomaks. However, while there is a noticeable increase in the participation of

business users in this segment, there is a decrease in the participation of these operators in the case of individual users, as well as an increase in the participation and number of users of the services of other postal operators, primarily Express Courier, NTC Logistics and Express One Montenegro.

6. REALISATION AND QUALITY OF UNIVERSAL POSTAL SERVICES

U Universal postal service is a postal service of general interest continuously conducted on the whole territory of Montenegro. That is the service of specified quality and standard, provided at affordable prices and under the same conditions for all customers in internal and international postal traffic. The users shall be provided with universal postal service every working day, not less than five days a week, with at least one receipt and one delivery of postal items from the scope of universal service.

Quality of universal postal service is defined based on the following:

- Availability of postal services,
- Speed and reliability of transfer and delivery of postal items, and
- Safety of postal items.

6.1. Availability of postal services

Availability of postal services is reflected in the availability of postal network units (JPM) and mailboxes, working time of postal network units, as well as in the population coverage with postal items.

Pošta Crne Gore has 159 postal network units, of which 108 permanent postal network units, 47 franchise units (i.e. 156 postal network units for the provision of services to the users), and 3 postal network units are for processing postal items (Alternating Mail, Customs Clearance Mail and Postal Center).

As laid down by Article 9 of the Rulebook on more detailed conditions required for performing the universal postal service ("Official Gazette of Montenegro" 29/17 and 114/20), the operator of universal postal service shall provide JPM network so that one JPM comprises the area of maximum 100 km² and for up to 5,000 inhabitants.

Comparing the area and number of inhabitants of Montenegro with the number of JPM, it is concluded that in average, one post office covers 88.99 km² and serves 3,975 inhabitants, which is in accordance with the prescribed standards.

In 2022, Pošta Crne Gore had 194 mailboxes in operation, which is 24 mailboxes more than in the previous year.

Comparing this number with the number of inhabitants in Montenegro, the data shows that in 2022 there are 3,196 inhabitants per mailbox, which is still not in accordance with the standard prescribed by Article 8 of the Rulebook on closer conditions for the provision of universal postal services, which requires that one mailbox is set for 1,500 inhabitants.

Non-compliance with that standard (even though the deviation from it is less than in the previous year) is still explained by Pošta Crne Gore with the statement that practice for years has shown that mailboxes are used more intensively only in larger cities and tourist places, while in other areas their use has been reduced to minimum.

Pošta Crne Gore makes regular changes in working hours JPM - post. These changes refer to the beginning and end of work, the duration and schedule of working hours during the day, week and year. This is particularly important for the operation of post offices in tourist centers, but, if there is a need for it, it is also applied to other post offices. Working hours are displayed on the entrance doors of postal network units. Post office hours on holidays are highlighted on the website of Pošta Crne Gore and in post offices.

The management of post office working hours is carried out on the basis of monthly analyzes of data on post office operations, on the basis of the number of services performed, data on business results and data obtained through various forms of communication with users of postal services and feedback obtained from these communications (e.g. working hours in larger shopping centers, which, due to the expressed needs of users, are mostly all day, until 10 p.m, with the exception of Sundays when the post offices are closed).

Determining the working hours and shifts of all post offices - JPM, the Post of Montenegro determines based on the criteria prescribed in Article 12 to Article 16 of the Rulebook on closer conditions for the provision of universal postal service.

The coverage of the population by delivery is evaluated by looking at the number and distribution of delivery post offices, as well as the organization of the delivery of postal items.

Pošta Crne Gore has 91 delivery pot offices (47 permanent and 44 franchise post offices) with 257 delivery areas, which are defined as narrow, wide and the widest, as well as a combination of these three basic types, depending on the topography, traffic network, population density, quantity shipments for delivery and others. In this way, the entire territory of Montenegro was divided and covered.

There are 1,079 active (in use) mailboxes in Pošta Crne Gore.

6.2. Speed and reliability of transfer and delivery of postal items

Speed and reliability are the quality parameters for the transfer of postal items, which imply that the consignment is safely transferred and delivered within the delivery time measured from the date of receipt to the date of delivery.

The Postal Services Act („Official Gazette of Montenegro“, 57/11, 56/16 and 55/18) and the Rulebook on detailed conditions for performing postal services determine quality standards in internal and international postal traffic.

Under the term quality of universal postal service in internal postal traffic is considered delivery of minimum 95 % postal items within 3 working days.

The quality of universal postal services in international postal traffic means delivery of 85% of letter post items withing a maximum period of 3 working days and an average of 97% of letter post items within a maximum of 5 working days.

The time of receipt of the consignment is determined based on the stamp of the postal operator on the receipt of the registered shipment, or on the shipment for unregistered shipments.

The deadline for delivery of postal items is considered the time from the receipt of postal item until its delivery to the recipient. Deadlines in domestic and international postal services do not include:

- Delays due to incorrect or incomplete address of the recipient,
- Delays due to force majeure, or traffic delay which has not been caused by postal operator,
- Non-working days and days when delivery of postal items is not performed.

Deadlines for delivery of postal items in international postal traffic depend on the distance of the recipient country, traffic connections and quality standards of national operators of the universal postal services.

The quality of delivery of postal items ensures the competitiveness on the postal services market and the user confidence. Postal Services Act laid down the obligation of the universal postal operator to provide an annual quality measurement of the delivery of postal items, in order to determine the ratio of delivered items, and other data necessary for determining the quality of performing universal postal services, by engagement of an independent institution for the research and/or monitoring.

In 2022, Pošta Crne Gore engaged an independent institution for measuring the quality of delivery of postal items (StartPro company from Podgorica), which in the period June - August 2022, carried out the control and measuring of the quality of transfer and delivery of ordinary and registered letter-post items in the territory of Montenegro.

6.2.1. Quality measurement of the transfer of ordinary letter-post items over the counters of post office boxes, in internal postal traffic

Measuring the quality of transfer of ordinary letter-post items in domestic postal traffic is conducted on the sample of 796 test letters.

**Control of the quality of transfer and delivery of ordinary postal items
(the results achieved for D+3 standard and for standard higher than D+3)**

Transfer and delivery time	Number of postal items	%
1 day	328	41.3%
2 days	240	30.2%
3 days	95	12.0%
Total up to 3 days	663	83.5%
Longer than 3 days	133	16.5%
Total of samples	796	100%

Regarding the delivery deadlines of ordinary letter items for D+3 Standard, with achieved result of 83.5% there is a small decrease of 0.2% in relation to measuring results from the previous year, when it had been 83.7%.

Out of 701 ordinary postal items, within a 3-day period 663 postal items were delivered, or in percentages 83.5%, being below 95%, which is the prescribed standard (Article 59 of the Postal Services Act). This results is at the level close to the one from the previous year, when delivery of the letter-post items in a 3-day was 83.7%.

P In its reports, Pošta Crne Gore, in order to explain the reasons for not achieving the prescribed standard, notes that there are still long-standing problems of anonymity and insufficient marking of streets and buildings, buildings not being equipped with mailboxes, and where there are in new buildings, the absence of data on tenants of these buildings, the emergence of new suburban settlements without street names and numbers, which still significantly affects the quality of service and makes it impossible to achieve those results of a universal postal operator that would be within the prescribed standards. It is also pointed out that in the course of 2022, many streets and buildings in suburban settlements have received numerical designations instead of names, but that the invoice issuers and other users of postal services continue to use designations bb, or only the names of settlements.

6.2.2. Quality measurement of transfer and delivery of registered postal items in internal postal traffic

Quality measurement of transfer and of delivery of registered postal consignments in internal postal traffic was carried out on the sample of 497 registered consignments.

**Control of the quality of transfer and delivery of ordinary postal items
(the results achieved for D+3 standard and for standard higher than D+3)**

	Sample	Up to 3 days	Longer than 3 days
Number of consignments	497	481	16
In percentages	100%	96.8%	3.2%

Processing the samples in 96.8% of registered postal items delivered in the period of three days, meaning that the quality of 95% of internal postal traffic defined by D+3 Standard was achieved (Article 59 of the Postal Services Act).

6.2.3. Quality measurement of transfer and delivery of letter-post items from international traffic

During 2022, in Pošta Crne Gore were carried out two quality measurements of letter-post items in international postal traffic, according to following:

- Quality measurement of transfer and delivery of postal items from international traffic by participating in the GMS Project (Global Monitoring System) E2E Internal, in the organization of the World Postal Union. The measurement was carried out through exchange of test letters with postal administrations of: Croatia, Serbia, and all three administrations of Bosnia and Herzegovina;
- Quality measurement of transfer and delivery of registered postal items from incoming international traffic, relying on data from application of the World Postal Union, referring to Montenegro.

6.2.3.1. Measurement of the quality of transfer of postal items organized by the Universal Postal Union for ordinary postal items

In August 2014 Pošta Crne Gore started to carry out quality measurement of transfer of ordinary postal items in international traffic, by participating in the GMS project E2E Internal, organized by the Universal Postal Union. In the first cycle, the measurements included Bosnia and Herzegovina, Croatia, Serbia and Turkey.

The first cycle was till the end of December 2015.

The second cycle started in January 2016 and ended in December 2017. Exchange of test letters done in this cycle was conducted with postal administrations of: Croatia, Serbia and Turkey.

The third cycle started in 2018 and ended in December 2019. Exchange of test letters is in this cycle done between postal administrations of: Croatia, Serbia, Turkey and Bosnia and Herzegovina—Hrvatska pošta Mostar.

The fourth cycle commenced in January 2020, and will end in December 2021. Exchange of test letters in this cycle is done with postal administrations of Croatia, Serbia, all three administrations of Bosnia and Herzegovina, Ukraina and Singapore.

The fifth cycle commenced in January 2022 and will end in December 2024. Exchange of letters in this cycle is done with postal administrations of Croatia, Serbia and all three administrations of Bosnia and Herzegovina.

This measurement is conducted based on determined international routes in the air traffic, with its defined scheduled routes and time of movement.

Analyzing the achieved results during 2022 the following conclusions are made:

- With regard to **import**, request for meeting D+3 Standard (85%) D+5 Standard (97%) no postal administration involved in the exchange of test letters was achieved;
- With regard to **export**, request for meeting D+3 (85%) Standard and D+5 (97%) Standard was achieved with no postal administration involved in the exchange of test letters.

Pošta Crne Gore considers that the achieved results are as such due to limiting factors defined by mentioned Article 58 of the Postal Services Act, stating that deadlines in consignment transfer in international postal traffic depend on the distance of country of receipt, traffic connections and quality standards of national operators of universal postal services.

6.2.3.2. Measurement of the quality of transfer and delivery of registered postal items from incoming international traffic based on data from application of the Universal Postal union, with regard to Montenegro

Pošta Crne Gore conducted measurement, for the control of transfer of registered letter - post consignments coming from international traffic, using data prepared in cooperation with the Universal Postal Union (data from Quality Control System application of the Universal Postal Union).

This data does not allow measuring the quality within the time limits required by the prescribed standards, because in the application in question there is no data for a maximum period of 3 days, but it still gives the

result of measuring the end-to-end transmission speed (from the place of sending to the place of reception) for a period of up to 5 days.

Measurement period covers the period from 01.01.2022 - 31.12.2022.

Quality control of transfer and delivery of registered letter-post items from incoming international traffic

Number of consignments	Up to 5 days	More than 5 days
127,877	41,941	85,936
100%	32.80%	67.20%

Quality measurement of transfer and delivery of registered letter-post items from incoming international traffic prove that within five days are delivered 32.80% of the consignments, thus showing that the quality does not meet the prescribed quality standard for performing universal postal services in international postal traffic for the term/deadline D+5, which approximately amounts to 97% of letter-post items, and it decreased in relation to the previous year, when the measuring results for the period up to 5 days amounted to 45.30 %. Pošta Crne Gore sees the causes of such results, as in the case of the transfer of ordinary letter items in international traffic, in the limiting factors that arise due to the fact that the deadlines for the transfer of items in international postal traffic depend on the distance of the recipient country, traffic connections and the quality standards of national operators of universal postal services

6.3. Safety of postal items

One of the most important criteria of the quality is the safety of postal items.

Pošta Crne Gore undertakes the following measures for the safety of postal items:

- Control of the contents of postal items, at the stage of receipt, for internal and international traffic, to prevent from sending the contents prohibited by the law, which might endanger human health and life. Additional control measures of the contents of consignments performed at the Airport Podgorica;
- Tracking of registered postal items in internal and international traffic;
- Training of the employees on the implementation of measures for the safety of postal items.

At the request of the Civil Aviation Authority, Pošta Crne Gore prepared the Procedure for working with postal items on preventing despatch of dangerous goods through Pošta. The Procedure provides for a special training for treating dangerous goods for certain employees in Pošta Crne Gore.

6.3.1. Postal services customer care

The requests of the postal services users were sent to the Call Center of Pošta Crne Gore – the users may send their requests:

- Via the operational telephone number: 19895 and 067/096-924;
- Via an official e-mail of Pošta Crne Gore: info@postacg.me.

In the period 01.01-31.12.2022, the Customer Care Service received 31,641 enquiries of the postal services users of Pošta Crne Gore, which is an increase of 17.1% in relation to 2021.

The cause of the increase in the number of calls from users to the Call Center is, according to the Post of Montenegro, the introduction of a new Call Center access channel at the number 067/096-924, which made it possible for users to contact the Call Center in a more accessible way, at the price of a local call, for all types inquiries, information, remarks, etc. Also, the increase in the number of calls to the Call Center is caused by the increase in the volume of work that the Post of Montenegro had during 2022, such as the payment of child allowance.

Recipients of the child allowance contacted the Call Center because, due to incomplete or incorrect addresses, the payment of the child allowance could not be made to the address. In view of the received complaints from users related to the payment of child benefit checks, the Post Office of Montenegro opened another delivery post office in the village of Konik (Pošta 81124 Podgorica) in December 2022 so that users whose address belongs to the new delivery post office could pick up checks in the nearest branch located in their settlement. The opening of this delivery Post also resulted in the relief of the previously only delivery Post 81102 Podgorica, which reduced the waiting time of users, both recipients of child allowances and users of other services of Pošta Crne Gore. All complaints related to untimely delivery of child allowance were resolved immediately upon reporting.

6.3.2. Received and completed enquiries in internal and international traffic

Internal traffic

Total of received queries in internal traffic is 398.
Positively resolved 398 which is 100%.

International traffic

Total of received queries in international traffic is 300.
There were 293 positively resolved (97.67%) and 7 negatively resolved queries (2.33%).

The achieved results in 2022, in the part with regard to internal traffic is good as the percentage of positively resolved queries is 100%. As regards international postal traffic, the achieved results are slightly lower in relation to the achieved results in 2021, as there were 97.67% positively resolved queries while in 2021 the achieved results amounts to 99.37%.

During 2022 the Agency continued to perform the activities on implementation of the Rulebook on more detailed conditions for the performance of universal postal services ("Official Gazette of Montenegro", No. 114/20), indicating to Pošta Crne Gore on the importance of timely and adequate preparation of the universal postal operator for the application of regulated quality standards for the performance of universal postal services. In May 2022, as laid down by Article 20a of the Rulebook on more detailed conditions for the performance of universal postal services, Pošta Crne Gore initiated the implementation of the MEST EN 14012 Standard – Measurement of the number of complaints and compensations.

7. EXERCISE OF RIGHTS AND PROTECTION OF ELECTRONIC COMMUNICATIONS AND POSTAL SERVICES

7.1. Exercise of rights and protection of users of electronic communications and postal services

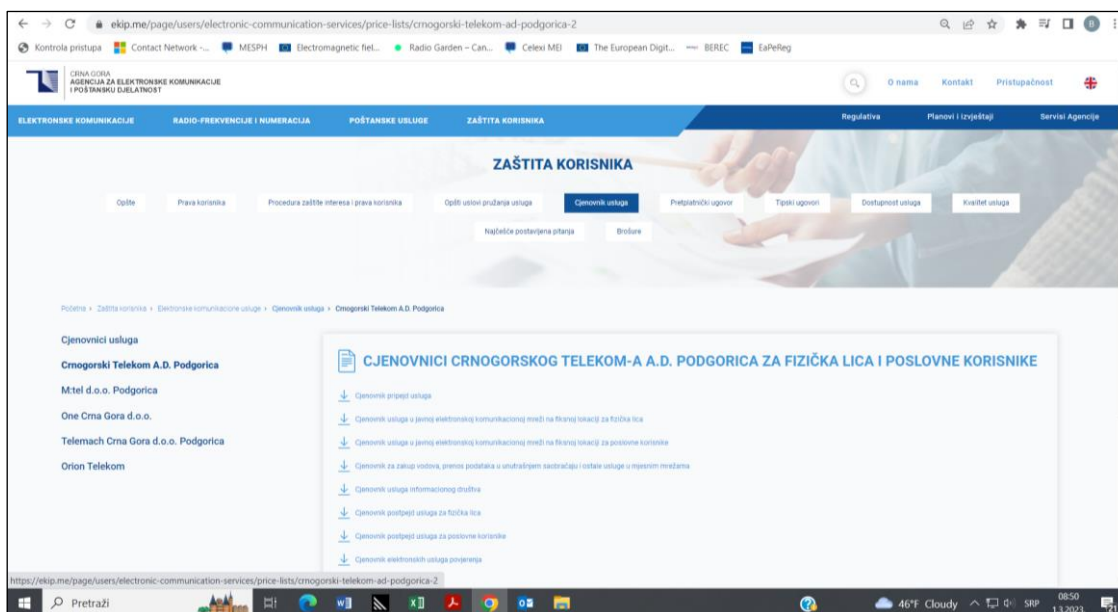
7.1.1. Issued consents to standard subscription contracts and general conditions to operators of electronic communications

Pursuant to Articles 149 and 153 of the Law, the Agency gives consent to the general terms of service provision to operators of public electronic communication services and standard subscription contracts.

In the course of 2022, acting on the requests of the operators, the Agency passed a total of 29 Decisions on giving consent to general terms and standard subscription contracts. All decisions of the Council of the Agency on granting consent to operators, as well as standard subscription contracts, general conditions and official offers for the provision of public electronic communication services by operators, are published on the Agency's official website: www.ekip.me .

7.1.2. Control and publication of the operators' offers

The Agency monitors market developments, monitors the prices of electronic communications operators, controls the application of cost accounting by operators, all with the aim of improving efficiency and sustainable competition, development goals and increasing profits for consumers. Based on Article 150 paragraph 4, operators are obliged to submit information about their offers to the Agency. The Agency monitors and considers the offers of operators (promotional, promotional), monitors changes in tariffs for existing services or formation of tariffs for new services offered by operators. Taking into account the end users, the Agency controls the submitted price lists, their compliance and matching with the price lists published on the official websites of the operators. On the Agency's website (<https://ekip.me/page/users/electronic-communication-services/price-lists/cjenovnici-usluga>) are available the latest price-lists of the operators for all services they provide.



7.1.3. Resolving upon user complaints

The development of new technologies and services, which are becoming indispensable in people's daily lives, leads to continuous growth of the electronic communications market and the number of its users.

According to the Agency's data, at the end of 2022, there were 190,595 users of fixed telephony, 1,274,031 users of mobile telephony and 196,270 broadband connections, regardless of the technology used for access. All this points to the increasingly complex protection of users of electronic communication services and the need to monitor and adapt to changes in the market.

Issues of the rights and protection of the interests of users of public electronic communication services are regulated by the Law on Electronic Communications, which, among other things, prescribes that the user of public electronic communication services in particular has the right to:

- access to the public electronic communication network within eight days from the date of submission of the request, if there are technical possibilities;
- unhindered use of public electronic communication services, of declared quality, availability and security, at publicly available prices;
- invoice for services rendered, detailed by separate items, which enables a clear insight into the items and verification of the amount calculated for the service provided or an invoice that is not separated by items, if requested by the user;
- protection of the confidentiality of electronic communications, in accordance with this Law and the law regulating data confidentiality, protection of personal data and protection of unpublished data;
- realization of other rights, in accordance with the law.

The same Law regulates the procedure, as well as the deadline for solving user complaints about access, quality and the bill for the services provided. The user has the right to submit a complaint to the operator regarding the access and quality of services immediately after identifying irregularities, without delay, and a complaint about the service bill within eight days from the day of receipt of the bill, in writing. The operator is obliged to decide on the complaint within 8 days from the day of receipt of the complaint and deliver the reasoned decision to the user, in written form. If the operator rejects the complaint or does not make a

decision within 8 days from the date of its submission, the user can submit a complaint to the Agency for Electronic Communications and Postal Services, within 15 days from the expiry of the deadline for the operator to decide on the user's complaint. The Agency makes a decision on the appeal within 30 days. An administrative dispute may be initiated against the decisions of the Agency in accordance with Article 32 of the Law. There is a Complaint Form on the Agency's website, which serves to make it easier for users to write a complaint, after which they can send it by email, by regular mail, or by submitting it in person in the Agency's archives.

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During 2022, 332 user complaints were submitted to the Agency. When the number of complaints submitted to the Agency is compared with the number of complaints submitted to the operators of public electronic communication services (around 7,700), it is concluded that only 5% of the total number of complaints resulted in further proceedings before the Agency as a second-level body authorized to deal with complaints.

Total of submitted complaints of the users per municipality and the manner of handling by the Agency is given in the Table below:

Municipality	Adopted	Rejected	Resolved in some other manner: without grounds for initiating the procedure, rejected as messy, as untimely, forwarded to Inspection Administration	Decision on suspending the procedure due to withdrawal of complaint and absence of a reason for further processing	Total in 2022
Podgorica	26	33	10	114	183
Nikšić	3	10	3	4	20
Cetinje	1	1	1	1	4
Herceg Novi	7	8	2	9	26
Bijelo Polje	5	5	-	4	14
Bar	3	13	2	5	23
Danilovgrad	1	2	-	1	4
Budva	3	6	1	2	12
Kotor	2	3	2	4	11
Kolašin	1	-	1	1	3
Berane	-	1	-	1	2
Tivat	2	4	-	3	9
Rožaje	-	3	-	2	5
Pljevlja	1	2	-	1	4
Žabljak	-	-	-	2	2
Plav	1	1	1	1	4
Andrijevica	-	-	-	-	-
Mojkovac	1	-	-	-	1
Ulcinj	1	1	1	-	3
Gusinje	-	-	-	-	-
Tuzi	-	1	-	-	1

Plužine	-	-	-	-	-
Šavnik	-	-	-	1	1
Total:	58	94	24	156	332

In 2022, 332 procedures were conducted based on user complaints, of which 58 procedures ended with a decision to approve the complaint, 94 procedures ended with a decision to reject the complaint due to unfoundedness, while 156 procedures initiated by user complaints ended with decisions to suspend the procedure for the reason that in the meantime, after submitting complaints, and with the mediation of the Agency, the operator changed its decisions, that is, acted in accordance with complaint requests, which is why users gave up complaints. In the mentioned situations, the Agency suspended the procedure, referring to the provision of Article 102 of the Law on Administrative Procedure, and after the beneficiaries submitted a statement that they were giving up on further conducting the procedure.

This number of decisions on the suspension of proceedings, together with the number of accepted complaints, indicates that 214 compls were resolved in favor of subscribers, which accounts for 65% of the total complaints submitted

A number of submissions by users (sorted in the column "resolved in other ways") related to user issues where there were no grounds for initiating proceedings, some related to issues whose solution is not within the competence of the user protection service, so they were forwarded to supervisors for electronic communications, and a part for the breakdown and servicing of telephone devices, so they were forwarded to the Directorate for Inspection Affairs, since they are within the scope of their competence.

In the case of rejection decisions, which are most often made due to the lack of competence of the Agency or the expiration of the legal deadlines for initiating procedures, a decrease was recorded compared to 2021. In 2021, the share of rejection decisions in the total number of complaints received was 15%, while in 2022 the share of such decisions was 7%, so it can be concluded that users were better informed about their rights to submit complaints and the prescribed legal deadlines.

The analysis of the reasons why users initiate procedures shows that the majority of complaints related to bills (calculation of realized traffic), and then to the failure to accept the request for unconditional termination of the contract in the event of the inability to move the equipment to another location, changed contractual conditions and untimely submission of the request for termination (within 30 days from the day when the operator informs the users about the planned changes to the general conditions).

In 2022, the number of complaints about the calculation of roaming services and the calculation of the Internet in national traffic was noticeably reduced, which indicates a greater level of information among users in Montenegro about the use of these services via smartphones, as well as how to deal with the device when they are abroad. Namely, users are aware of the possibility that even without their knowledge internet consumption can be achieved in such a way that certain applications automatically connect to the internet every day at certain time intervals in order to download the latest data necessary for their use from the internet, which is why recommendations are given to users to either turn off the internet service or adjust the parameters on the device before going abroad and thus protect themselves from unwanted costs.

A small number of complaints related to the quality of the provided landline telephony services, Internet speed and reception of TV services within the framework of individual service packages. In all cases, when it

was deemed necessary, the Agency's supervisors determined the factual situation that is the basis for deciding on appeals, which resulted in the appeals being approved and returned to the operators for re-decision in accordance with the guidelines given in the Agency's decisions.

Given that the General Terms of Service are an integral part of every subscription contract, Operators are obliged to submit the General Terms to the Agency, in accordance with Article 149 of the Law on Electronic Communications, for approval 30 days before the start of their application. The agency checked their compliance with the applicable legal and by-law regulations, monitored their changes and, if necessary, demanded certain corrections from the operator.

Bearing in mind that a prerequisite for successful protection is a well-informed user, the Agency focuses a large part of its activities on the well-informed users, who are enabled to get all the necessary information and answers to specific questions, in addition to all the information found on the official internet station (ekip.me) various communication channels - personal communication with the employees of the User Protection Department by coming to the Agency's premises every working day from 09:00 to 13:00, contacting by telephone, via e-mail zaštikakorisnika@ekip.me , via social networks and announcements in the media.

One of the forms of communication between users and the Agency is the Central Information System for Consumer Protection - CISZP, which was officially launched on November 19, 2021. The system enables consumers to file a complaint or ask a question regarding their rights and/or obligations in any area through the web address (www.potrosac.me), after which the complaint or question is immediately forwarded to the authority responsible for resolving it. Therefore, all supervisory entities covered by the mentioned Decision have access to the CISZP and from the system take over the questions and complaints of consumers related to the area for which they are responsible.

In order to improve user information, the Agency distributed to users and directed them to brochures with appropriate content in order to familiarize them with their rights and opportunities arising from their contractual relationship. The contents of the brochures refer to the rights of users of electronic communication services, number portability service, measuring the quality of broadband internet connection, calculator service, use of smartphones and can be found on the Agency's website, protection of children when using the internet, protection against electromagnetic radiation, broadband internet access , emergency numbers and postal services.

Along with the aforementioned brochures, the Agency offers users various free applications and services on its website in order to improve their user experience and increase their level of protection: an application for measuring the speed of Internet access (nettest. ekip.me), the "Tariff Calculator" application (kalkulator. ekip .me), protection of users from receiving unwanted messages and calls for the purpose of direct marketing Agency at www.nezovime. ekip.me (detailed information can be found in point 7.1.5 of this report).

During 2022, the "Joint Action" of online trade was carried out, the first market control of its kind, carried out by ten different inspections/authorized services of national bodies from the Network of Authorities of Montenegro responsible for consumer protection, with the coordination of the Directorate for Inspection Affairs, which performed on the model of identical "system checks" (sweeps) that are carried out at the EU level. The joint extensive action was carried out in the period from December 30, 2021 to March 15, 2022 and included the control of the websites of 62 economic entities engaged in sales in various sectors. During

the implementation of the action, the Agency established that three mobile operators have published the necessary data and forms concerning the conclusion of distance contracts, but for the purpose of improving the quality of the published data, and in order to make them more accessible to users, guidelines were issued with the aim of improving them.

The representative of the Department for User Protection is a member of the Negotiation Working Group for the preparation and management of negotiations on Montenegro's accession to the EU for the area of the acquis of the European Union that refers to negotiation chapter 28 - Consumer and Health Protection, as well as a member of the Council for Consumer Protection appointed by the Government of Montenegro.

As part of the evaluation of the fulfillment of the criteria for the temporary closure of Chapter 28: Consumer Protection and Health, the Agency was visited by an expert of the European Commission in September 2022 and on that occasion had a meeting with the employees of the Department for User Protection.

Also, employees of the User Protection Department monitor the work of BEREC working groups, which take positions on the most important issues concerning end users.

7.1.4. Court proceedings on lawsuits against the Agency's decisions made in the second-instance procedure on user appeals.

Court proceedings on lawsuits against the Agency's decisions made in the second-instance procedure on user appeals. During 2022, 13 lawsuits were filed against the Agency's decisions in the field of user protection, which is less than 4 percent compared to the total number of complaints received, and they were answered within the legal deadline. According to the judgments of the Administrative Court passed in 2022, 7 lawsuits were rejected and the Agency's decisions were confirmed, while 6 lawsuits were accepted and the Agency's decisions were annulled. The reasons for the annulment of the decisions were mostly of a formal nature. Based on the Verdicts, which annulled the decisions, the Agency made new ones in the retrial.

7.1.5. Education of users

The Agency focuses a large part of its activities on raising the level of education of users, who are enabled to obtain, in addition to the information found on the Agency's official website (ekip.me), all the necessary information and answers to specific questions through other communication channels: personal communication with employees in The Department for User Protection by coming to the Agency's premises every working day from 09:00 to 13:00, by contacting by phone, by e-mail at zastinakorinika@ekip.me, via social networks and announcements in the media. By using the above communication channels, users are enabled to receive all the necessary information about their rights and obligations, procedures for protecting those rights, official offers of operators, service price lists of all operators, subscription contracts, general terms and conditions of service provided by this Agency, availability and quality service.

In order to better communicate with users, the Agency opened its official account on the social network Instagram (ekipcg) in order to make information about the Agency's activities and user rights more accessible to its users, especially the younger population. Users are able to ask questions via direct messages, to which they receive answers within 24 hours.

For the education and protection of the rights and interests of users, the applications and services that the Agency offers to users are very important and useful:

- an application for measuring the speed of internet access (nettest.ekip.me) through which users can check the speed of data transmission themselves (detailed information can be found in point 1.13.1 of this report);
- "Tariff calculator" application (kalkulator.ekip.me) which provides assistance to users when choosing electronic communication services;
- in order to protect users from receiving unwanted messages and calls for the purpose of direct marketing, the Agency has established a Register in electronic form at the address www.nezovime.ekip.me, which contains the telephone numbers and e-mail addresses of users who do not want to receive such messages or calls. Entry/deletion of data in/from the Register, free of charge, based on the user's request, is performed by the operator with whom the user has concluded a subscription contract. By registering in the Register, the user opts not to receive electronic messages and phone calls for the purpose of direct marketing and thereby withdraws all previously given consents.

In order to improve information, in direct communication with users, the Agency shared and referred to brochures with various contents, wanting to educate users in this way as well. The brochures cover the following topics:

- Rights of users of electronic communication services,
- Use of smartphones,
- Emergency numbers,
- Tariff calculator,
- Measuring the quality of broadband Internet connection,
- Protection of children when using the Internet,
- Broadband Internet access,
- Electromagnetic radiation,
- Number portability service, and
- Postal services.

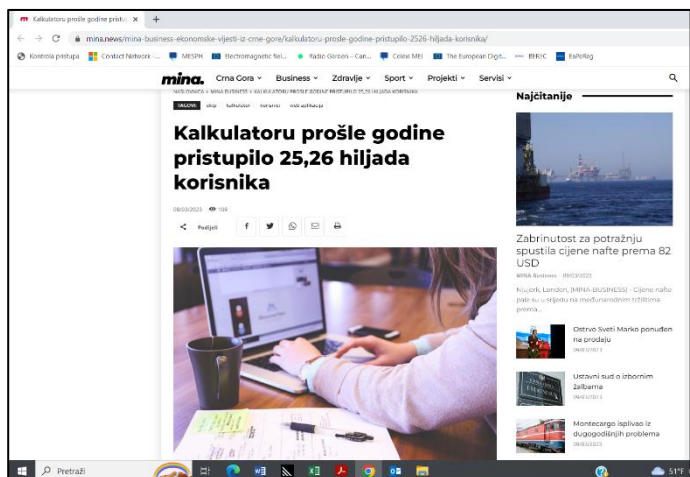


7.1.6. Tariff calculator

The Agency implemented web application to assist the users in the selection of electronic communications services in Montenegro still on 22.03.2016, and is on the address: kalkulator.ekip.me.

'Calculator' is an interactive tool for comparing the offers of public electronic communications services in Montenegro, as regards fixed and mobile telephony, Internet access services, distribution of TV and radio program (AVM contents) and combined packages of above mentioned services.

'Tariff Calculator' assists the user while selecting electronic communications services which suit his/her needs and is of informative nature. It is based on the data on tariffs and description of the services uploaded by the operators of electronic communications. In order to compare the costs needed for providing certain type of service, the user first needs to enter his/her requests, and according to the requests, through this application he/she gets the most affordable tariff packages. There are two entry methods - basic and detailed. With a simple entry, the user enters less data and certain assumptions apply based on the data on the average consumption of users in Montenegro for the selected service. To define the distribution of traffic to specific destinations, a detailed entry is used.



Based on the information about the desired electronic communications service entered by the user and the data uploaded by the operators of electronic communications, 'Calculator' provides a rank list of the most favorable services offered by the operators responding to the requests of users. The results obtained with the help of 'Calculator' do not represent monthly bills for the use of public electronic communications services. For the actual calculation, obtaining the offer and conclusion of the contract the user is required to address directly the operator of electronic communications chosen by the user on the basis of recommendations/calculations of 'Calculator'.

Electronic communications operators enter into the application data on prices, conditions and description of the services they offer, and the Agency, in accordance with market developments (new offers of the operator), approves the entered data or returns it to the operator for revision (if compared with the data and prices in the Price List determines that the entry of data and conditions is incorrect). In this way, the Agency ensures that the user who accesses the calculator has accurate information and data.

The Agency monitors the analytics of the use of this application. In this way, he gets information about the use of the "Calculator". The total number of users who used the application during 2022 is 25,263. Average holding time of the user is 3.8 min.

7.2. Exercise of rights and protection of users of the postal services

The procedure for the protection of users of postal services is regulated by the Law on Postal Services, in Chapter II Postal Services - Section 5. Protection of users of services and resolution of disputes. There is a prescribed complaint procedure to the postal operator due to:

- non-delivery or late delivery of the postal parcel, non-performance of a specially contracted service or non-performance of the service as a whole (Articles 44 and 45), when a request can be submitted to start the claim procedure for the parcel, and the complaint can be submitted within 6 months from the date of delivery of the postal item;
- damage or reduction of the contents of the postal parcel (Article 46), when the complaint must be submitted immediately upon delivery of the parcel, i.e. no later than the next day.

It is also prescribed that the postal operator is obliged to declare the validity of the complaint within 10 days from the day of receipt of the complaint in domestic traffic or within 60 days in international traffic. Against the postal operator's decision to resolve the complaint, or in case of non-delivery of an answer to the submitted complaint, a complaint can be submitted to the Agency within 15 days from the date of receipt of the decision on the complaint, i.e. the expiration of the deadline for responding to the complaint. The Agency

is obliged to decide on the complaint within 30 days from the day of receipt of the complaint. By deciding to resolve the complaint, the Agency can reject the complaint as untimely, accept the request and oblige the postal operator to compensate damages, reject the complaint as unfounded or suspend the procedure and direct the user to pursue his claims before the competent court.

The Agency's decision is final in the administrative procedure, in accordance with Article 32 of the Law and Article 70 of the Law on Postal Services, and an appeal can be filed against the same to the Administrative Court of Montenegro within 30 days. In the event that the postal operator does not act according to the decision of the Agency, the Agency can start the procedure of revocation of the special license and license, that is, deletion from the register of postal operators.

In addition to the aforementioned provisions of the Act that prescribe the submission of a complaint to the operator, i.e. the submission of a complaint to the Agency, Article 109 of the Postal Services Act stipulates that the Agency, through supervisors, performs expert supervision over the application of this Act, regulations adopted on the basis of the Act and the general conditions of postal service providers, which the performance of postal services, the quality of universal postal services, network access, prices, accounting of postal service providers, as well as the supervision of the implementation of individual acts adopted within its jurisdiction, are regulated.

7.2.1. Dealing with complaints of the users of postal services

During 2022, 8 users addressed the Agency in writing, directly or through the Directorate for Inspection Affairs, with complaints about the operator's work, or requests for supervision, however, no complaint was submitted to the Agency in terms of Article 48 of the Postal Services Act. Although the users who contacted the Agency did not have a legal basis for the implementation of the complaint procedure, in all cases the Agency implemented the procedure of control, i.e. extraordinary supervision of the operator in order to determine whether in specific cases the operator acted in accordance with the law, by-laws acts and general conditions of the operator, about which all users have been informed in writing. In addition to the above, and in accordance with the Decision on determining the list of authorities responsible for inspection supervision over the implementation of laws containing provisions on consumer protection ("Official Gazette of Montenegro", 53/21), users of postal services also addressed the Agency via the web address (www.potrosac.me), that is, through the Central Information System for Consumer Protection - CISZP, which was established in November 2021.

In the reporting period, there is a noticeable trend of a decrease in the number of complaints from users about the provision of universal postal services, that is, about the failure of the Post of Montenegro to respond to complaints from users of its services, compared to the previous year.

In addition to the mentioned written complaints from users about the operator's work, during the reporting period, users addressed the Agency with written and oral requests for expert opinions regarding the application of regulations. Various questions of users of postal services were also answered, in connection with which the necessary data were collected from postal operators and the same, with detailed explanations, were forwarded to users.

7.2.2. Court procedures initiated by postal services users

In 2022, only one legal proceeding was conducted before the Administrative Court of Montenegro. The proceeding was conducted upon the complaint of the user as from 2020, for deleting the Agency's Act No. 0102-3168/5 from 30.07.2020. In June 2022, Administrative Court issued a verdict rejecting the claim of the user.

8. TASKS PERFORMED BY THE AGENCY IN ACCORDANCE WITH THE 2022 WORKPLAN

8.1. Preparation of the regulations in the field of electronic communications

As laid down by Article 11 paragraph 1(1) of the Law on Electronic Communications, the Agency adopts regulations based on the competences established by this Law. In line with the competences from the Law, the Agency adopted the following bylaws in 2022:

- Decision on determining the monetary value of the point on the basis of which the amount of the annual fee for the use of radio frequencies for 2022 is calculated, number 0504-132/1 dated January 13, 2022;
- Decision on determining the monetary value of points on the basis of which the amount of the annual fee for the use of numbers and/or addresses for 2022 is calculated, number 0402-330/1 dated January 21, 2022;
- Amendments to the Numbering Plan ("Official Gazette of Montenegro", 9/22);
- Decision on the amount of compensation and the method of payment of costs in the dispute resolution process before the Agency for Electronic Communications and Postal Services between the network operator and the operator of the public electronic communication network number 0901-2392/1 dated March 31, 2022;
- Decision on determining the annual fee for performing tasks of regulation and supervision of the electronic communications market for the year 2022, number 0901-3759/1 dated June 2, 2022;
- Decision on supplementing the radio frequency distribution plan in the range of 87.5-108 MHz for FM radio ("Official Gazette of Montenegro", 77/22);
- Rulebook on amending the rulebook on the methodology and method of calculating the amount of the annual fee for the use of radio frequencies ("Official Gazette of Montenegro", 137/22);
- Allocation plan for radio frequencies in the range 1710-1785/1805-1880 MHz for GSM/DCS1800 and MFCN systems ("Official Gazette of Montenegro", 142/22).

In 2022, the Agency prepared professional basis for the regulations, adopted by the Ministry of Economic Development and Tourism, as follows:

- Rulebook on amending the Rulebook on the methodology and manner of calculation of the annual fee for the use of radio frequencies ("Official Gazette of Montenegro", 137/22), and
- Rulebook on amending the Rulebook on radio frequencies and conditions in which these radio frequencies may be used of without approval ("Official Gazette of Montenegro", 119/22).

8.2. Control and monitoring of radio frequency spectrum

According to the Law on Electronic Communications, the Agency was competent to perform the control and monitoring of radio-frequency spectrum (hereinafter referred to as: RF), and in line with this to plan, develop and improve the system of control and monitoring of RF spectrum.

At the first place, purpose of the control and monitoring of RF spectrum is to provide the support to RF spectrum management, which inter alia, includes the functions of planning and assignment of approvals for the use of radio frequencies. With this regards, in the procedures of control and monitoring of RF spectrum the following tasks have been performed:

- measurements of the parameters of radio frequencies in order to control harmonization with the conditions of assigning radio frequencies,
- following RF bands and measurement of occupancy of RF channels,
- examining the cases of interferences,
- detection, identification and positioning of unauthorized radio emissions,
- measurements of the parameters of coverage and quality of radio communications services,
- support in coordination of radio frequencies with neighbouring countries,
- participation in international programs (campaigns) of the control and monitoring of RF spectrum.

Control and monitoring of RF spectrum is performed in accordance with the relevant ITU recommendations for the monitoring of RF spectrum (ITU-R SM recommendations), CEPT/ECC recommendations, ETSI standards and other documentation issued by ITU, CEPT/ECC and BEREC.

In 2022, the Agency conducted the control and monitoring of RF spectrum on the territory of Montenegro in continuity, from the fixed control and measurement stations, i.e. in the form of one-day or multi-day control and measuring campaigns, when the control and monitoring of RF spectrum was carried out by using mobile control and measuring stations and portable equipment. The activities were done in accordance with the Plan for regular control and monitoring of RF spectrum in 2022, No. 0503-1734/1 from 24.02.2022 (hereinafter referred to as: Regular Monitoring Plan), mostly in the 80 MHz - 3 GHz band, in the following way:

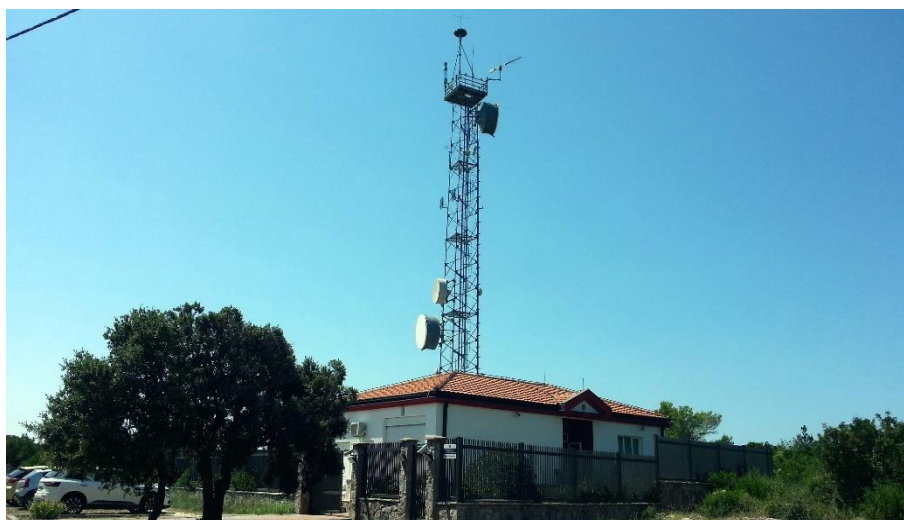
- from main control-measuring center on Dajbabska Gora (hereinafter referred to as: GKMC) for the municipalities of Podgorica, Tuzi and Zeta, in the 20 MHz – 3.6 GHz band, and partly for the municipalities of Danilovgrad and Bar;
- from regional control-measuring center on Crni rt near to Sutomora (hereinafter referred to as: RKMC) for the municipality of Bar in the 20 MHz – 3.6 GHz band, and in part, for the municipality of Budva;
- from remote-controlled control-measuring station on Crljenice (hereinafter referred to as: DUKMS Pljevlja) for the municipality of Pljevlja, in the 20 MHz - 3 GHz band;
- from remote-controlled Control-measuring station in Bijela Crkva (hereinafter referred to as: DUKMS Rožaje) for the municipality of Rožaje in the 20 MHz - 3 GHz band;
- from remote-controlled control-measuring stations on Trojica (hereinafter referred to as: DUKMS Kotor) for the municipalities of Kotor and Tivat u opsegu od 20 MHz do 3 GHz, te dijelom za opštinu Herceg Novi;
- from remote-controlled control-measuring station on Bijela Gora (hereinafter referred to as: DUKMS Ulcinj) for the municipality of Ulcinj in the 20 MHz to 3 GHz band;
- from remote-controlled control-measuring station on Mrkošnica (hereinafter referred to as: DUKMS Nikšić) for the municipality of Nikšić in the 20 MHz - 3 GHz band;
- using mobile control-measuring station in the vehicle Mercedes® Sprinter (hereinafter referred to as: MKMS) in the municipalities of Danilovgrad, Budva, Herceg Novi, Cetinje, Kolašin, Mojkovac, Žabljak, Berane, Bijelo Polje, Plav and Gusinje, in the 20 MHz – 3.6 GHz band.



Main control-measuring center on Dajbabska gora in Podgorica

Control and monitoring of RF spectrum were done by using control-measuring equipment and software installed in RKMC, DUKMS Pljevlja, DUKMS Rožaje, DUKMS Kotor, DUKMS Ulcinj and DUKMS Nikšić only

remotely, in the so called „remote desktop“ work regime, via telecommunications links based on the leased digital radio-relay links. On the other side, control and monitoring of RF spectrum from GKMC were performed directly from the building of GKMC. Through internal coordination, at the first place taking account of the priority extraordinary tasks of control and monitoring of RF spectrum, as well as other



Regionalni kontrolno-mjerni centar na Crnom rtu kod Sutomora, opština Bar

delegated tasks, the periods and tasks performers per premise were determined. These tasks included performance of the following activities:

- monitoring broadcasting from broadcasting objects (hereinafter referred to as: EO) in the receiving zone of fixed control-measuring stations i.e. monitoring from the local EO when MKMS is used, in order to determine compliance with granted approvals and relevant regulations;
- monitoring RF band and determining the occupancy of certain RF channel (frequency);
- detection, identification and locating illegal radio broadcasting.

Upon collection of control-measuring results in ordinary or extraordinary procedures of the control and monitoring of the RF spectrum, further activities which mostly referred to processing and professional analysis of the collected control-measurement results, and preparation of proper information and reports on the performed control and monitoring of the RF spectrum and their further processing within the Agency were done, and when necessary, to other institutions. Measurement results for the performed measurements are stored in electronic form within control-measurement software of relevant monitoring station.

In accordance with the above, during 2021, procedures for regular control and monitoring of the RF spectrum were carried out in individual municipalities, and relevant reports were prepared.

According to reports of disturbances sent to the Agency by holders of authorizations for the use of radio frequencies, as well as on the basis of internal requests of the Agency's organizational units, extraordinary measurements were made. For most of the extraordinary controls and measurements, reports were formally prepared, while for a few of them they were not, but notes and internal comments were made, all through e-mail correspondence.

In the period from 10.10. to 25.11.2022, extensive measurements of the parameters defined by the Instructions for verifying the fulfillment of requirements regarding the extent and dynamics of mobile network signal coverage were carried out after the expiration of the third year of validity of the authorization for the use of radio frequencies in the 800 MHz band, 900 MHz, 1800 MHz, 2 GHz and 2.6 GHz for the realization of public mobile electronic communication networks, issued on the basis of the public bidding procedures carried out in 2016 and 2021. The subject of measurement was the public mobile electronic communication networks of the operators (One Crna Gora, Crnogorski Telekom and Mtel), which prescribed appropriate requirements regarding the scope and dynamics of coverage of the population of Montenegro with the network signal, including requirements related to the quality of service. Extensive work was done to collect measurement samples in all municipalities in Montenegro, because the measurement process itself lasted more than 200 working hours. After the completed measurements, a demanding analysis of the obtained measurement results was carried out, on the basis of which a report was drawn up at the beginning of 2023 on the conducted measurements and a general assessment of the fulfillment of the requirements from the relevant approvals.



Mobile control-measuring station (MKMS) in the vehicle Mercedes-Benz® Sprinter



Mobile control-measuring station (MKMS) in the vehicle Renault® Traffic Passenger

8.3. Activities on further implementation of the System for control and monitoring of RF spectrum

Activities on the realization of the System for control and monitoring of radio frequency spectrum of Crna Gora (hereinafter referred to as: the System) in 2022, in its most important elements, are given per item and with important details.

8.3.1. Provision and upgrade of the control-measuring equipment in the System

In the repeated public procurement procedure, on August 24, 2021, the Agency signed with the bidder Ibis Instruments the Contract on the public procurement of a new portable measuring system for measuring the quality of services provided by GSM/UMTS/LTE/5G mobile networks (Part 1) and the Contract on public procurement of the upgrade of the existing portable measuring system for measuring the quality of service for GSM/UMTS/LTE mobile networks (Part 2). The goods were delivered within the agreed deadline of



11/17/2021. In order to determine the completeness of the delivered goods in accordance with the Agency's requirements, immediately after the delivery of the goods, the procedure for their quantitative-qualitative acceptance was started, which continued throughout 2022. Since all observed defects in the functioning of the delivered equipment have not been completely eliminated

(primarily instability in the same operation), after the warnings it sent to the supplier, the Agency extended the deadline for the supplier to complete the contractual obligations with annexes from February 10, 2022. On November 17, 2022, the commission concluded that the problems in the stability of the equipment's operation were eliminated, and that the measuring equipment that meets the technical requirements required by the above-mentioned contracts and annexes was finally completed and delivered.

Basically, it is about equipment and software packages manufactured by Keysight® (Nemo Outdoor and Nemo Analyze). This equipment is of great importance for the Agency, i.e. the measurement of the service quality of mobile networks. It also enables measurements of the fulfillment of conditions from the approvals issued to mobile operators, which the Agency carried out with this equipment in the period from October 10 to November 25, 2022.

8.3.2. Maintenance of the System for control and monitoring of RF spectrum

Today, the system consists of seven fixed control-measuring stations throughout Montenegro (Bar, Pljevlja, Podgorica, Rožaje, Kotor, Ulcinj and Nikšić), two mobile stations, one vehicle for various purposes, and portable (manual) control-measuring equipment. During 2022, the functionality of control and measurement equipment, devices and software in the System was regularly monitored and maintained. In this regard, the employees of the Agency, to the best of their ability, independently and/or in coordination with the authorized contracted service support, eliminated certain problems that arose during the year. Continuity of providing calibration services, repairs and regular maintenance of control and measuring equipment, which break down during exploitation or due to age begin to deviate from the declared factory values of their individual parameters, is of great importance for the normal functioning of the System. Accordingly, in the public procurement procedure, the Agency concluded a framework agreement with the authorized entity - Sitexs IT Solutions in 2018 on the provision of calibration services, repairs and regular maintenance of control and measurement equipment and System software for a period of the next four years. In accordance with that agreement, on October 14, 2021, the Agency signed a contract with the aforementioned entity on the public procurement of services for the fourth year of its application. According to this contract, during 2022, services were provided that chronologically related to the following activities:

- assistance in regular inspection of GKMC;
- assistance in regular inspection of RKMC;
- assistance in regular o inspection of DUKMS Pljevlja;
- assistance in regular inspection of DUKMS Rožaje;
- assistance in regular inspection of DUKMS Kotor;
- regular calibration of monitoring receiver R&S® ESMB za DUKMS Ulcinj.



DUKMS Pljevlja



DUKMS Kotor



DUKMS Rožaje



DUKMS Ulcinj



DUKMS Nikšić

According to the Financial Plan and Public Procurement Plan for 2022, after public procurement procedure was completed, the Agency signed a framework agreement and a contract on the provision of the services of calibration, repairs and regular maintenance of control-measuring equipment and system software, on a four-year period.

8.3.3. Telekomunikaciono povezivanje kontrolno-mjernih stanica u Sistemu

In the public procurement procedure number 29/2020, which was launched on October 16, 2020, after all legal prerequisites were finally met, on August 18, 2022, the Agency signed a framework agreement and a contract for the provision of services of telecommunication connection of control and measurement stations in the System. Within the agreed period, the provision of services of the required quality began. In the period from October 13 to November 22, 2022, the Agency performed commission acceptance of the contracted services, in accordance with the manner defined in the contract. Compared to the previous period, the quality of the telecommunications connection of the control and measurement stations in the System has been technologically improved. Namely, with the increased bit rate of 16 Mb/s symmetrically, it is technically possible that in the next four years, the capacities of these connections, in addition to working with control and measurement equipment and software, are also used for incorporating the video surveillance system of the System's facilities.

8.4. Implementation status of digital terrestrial broadcasting

Pursuant to the Law on Digital Broadcasting ("Official Gazette of Montenegro" 34/11) on June 17, 2015, analog broadcasting of television signals in Montenegro ceased. Since that date, the development of exclusively digital terrestrial broadcasting, i.e. a broadcasting service that uses terrestrial stations for digital broadcasting of television signals, has continued.

The radio frequency band 174-230 MHz in Montenegro is currently not used for commercial digital broadcasting of broadcast signals, however, this band is used from March 2021 for testing radio communication equipment, i.e. test broadcasting of digital terrestrial radio signals.

For this purpose, the Agency, in accordance with Article 116(1) of the Law, issued temporary authorization to the Broadcasting Center for the use of radio frequencies for the purpose of testing radio communication equipment for the needs of the pilot project. Test broadcasting continued from the Sjenica location during 2022. In accordance with the temporary approval issued by the Agency, radio-frequency block 11C was used, the central frequency of which is 220.352 MHz, given that the area of the Capital City is an integral part of the Lovćen allotment zone. The activities for the implementation of the pilot project were financed from the RDC's own funds, in order to contribute to the development of digital radio. Further activities in this regard depend on the strategic guidelines for the development of this technology at the level of Montenegro and the financial support provided for this purpose.

During 2020, the Agency informed the agents of car receiptment equipment and car distributors on future activities relating to radio digitalisation, including also introduction of the implementation of the pilot project according to recommendations given within the Proposal for strategic standingpoints and guidelines for introduction of digital radio in Montenegro. During 2021 and 2022, the Agency continued to monitor further situation regarding development of digital radio in Europe and beyond in order to timely implement the best solutions in Montenegro.

Directive of the European Parliament and Council (EU) 2018/1972 on the establishment of the European Law on Electronic Communications in Article 113 or Annex XI EECC prescribe provisions on the interoperability of car radio receivers, consumer radio receivers and consumer digital television equipment, where it is especially emphasized that all car receivers that are installed in a new vehicle of category M (passenger motor vehicle with at least four wheels) which has been placed on the Union market for the purpose of sale or rental starting from 21 December 2020, must contain a receiver capable of receiving and reproducing at least digital radio services that are provided via digital terrestrial broadcasting. Therefore, in September 2022, the Agency again sent a questionnaire to vehicle dealers and device sellers in order to update the collected information, which will be used for the preparation of appropriate analyzes and conclusions with the aim of efficient operation of all institutions, which is also provided for in the guidelines, in order to increase the information of citizens of Montenegro on the availability of digital radio services and the availability of receiving equipment for digital radio.

Radio frequency band 470-694 MHz for digital broadcasting of television signal via terrestrial network of receivers, have been used by two operators, RDC and RTV Mir&Teuta from Ulcinj.

RDC has the status of the operator of the first multiplex of digital terrestrial broadcasting with coverage of the entire territory of Montenegro (MUX1), which it partially uses as a platform with free access. For the

realization of MUX1, radio frequencies or channels in allotment zones are used: Lovćen channel 35, Bjelasica channel 43 and Tvrdaš channel 46, which define certain geographical areas covered by the DTT signal, and this multiplex is realized with transmitters at a total of 112 broadcast locations. RDC also has the status of the operator of the second digital terrestrial radio broadcasting multiplex covering the entire territory of Montenegro (MUX2), whose capacities are used as a platform with conditional access. For the implementation of MUX2, radio frequencies or channels in allotment zones are used: Lovćen channel 27, Bjelasica channel 25 and Tvrdaš channel 22, which define certain geographical areas covered by the DTT signal, and the multiplex was realized with transmitters at a total of 39 broadcast locations.

In accordance with the approvals issued by the Agency, the distribution of radio and television programs to end users, apart from the terrestrial platform with free access, is carried out through different platforms with conditional access (KDS, IPTV, DTH including DVB-T2). From the Report of the Agency for Electronic Media on the state of the radio and television program distribution market from September 30, 2022, which refers to the state in September 2022, it follows that the DVB-T2 platform has a share of 3.04% of the total number of connections, which is approximately compared to the same period in 2021. Please note that this number of connections applies only to those households that do not use any other platform for the distribution of radio and television programs. The number of real users of the DVB-T2 platform is significantly higher, considering that many households use several platforms, and especially DVB-T2 as a platform with free access.

RDC also has the status of operator for 15 local multiplexes, which are also only partially used as a platform with free access. The radio frequency range 470-694 MHz is also used for the realization of these multiplexes, and so far local multiplexes have been realized in the Capital City of Podgorica and the municipalities of Nikšić, Plužine, Pljevlja and Budva using the channel: channel 21 at the Velja Gora location (MUX PG -DG L1), channel 23 at the locations Suđina Glava-Tović, Nikšićka Župa, Ostrog and Zavorovi (MUX NK-PZ L1), channel 26 at the location Tvrdaš (MUX PV L1) and channel 46 at the location Spas (MUX BD L1).

MUX1 and MUX2, as a platform for the needs of the Pay-TV service called "TV for ALL", realized by RDC and Crnogorski Telekom, is available to all users who are in the area covered by the DVB-T2 signal, and that is in this phase 97% of the population of Montenegro. Within the postpaid contract for 12 or 24 months, a total of 17 television programs are offered in the basic package and 33 in the extended package.

The operator of the local multiplex MUX UL L1 for the municipality of Ulcinj is the company Radio Television "MIR&TEUTA" DOO Ulcinj. The capacities of this multiplex are used as a platform partly with free and partly with conditional access, and channel 39 is used for the realization of the network at the locations of Možura and Pinješ.

Bearing in mind the above, it is concluded that the radio frequency spectrum is used efficiently by the network operator for digital terrestrial radio broadcasting, and based on a comparative analysis with the Plan for the distribution of radio frequencies in the range 174-230 MHz and 470-694 MHz for DTT and T-DAB systems, it is also concluded that there are available radio-frequency resources in the mentioned bands for the realization of new DTT networks with national, regional and local coverage, depending on the needs of the audiovisual media content market, including the realization of future T-DAB+ networks.

8.5. Preparation of Guidelines for the authorization of 5G base stations from the aspect of EM radiation

The issue of the harmful impact on the environment and human health of electromagnetic (EM) radiation generated by base stations and terminals of mobile communication networks has occupied the professional and lay public on a global level since the beginning of mass implementation and use of these systems. Reference international bodies, above all ICNIRP (International Commission on Non-Ionizing Radiation Protection) and the Council of the European Union, have adopted appropriate recommendations in order to eliminate the harmful effects of EM radiation on the environment and human health. Thirty years of experience in the use of mobile communication networks, from analog cellular systems, through GSM and UMTS, to LTE technology, confirms the effectiveness of the prescribed measures. In Montenegro, the limits of permissible exposure to high-frequency electromagnetic fields, which includes radiation from radio base stations of mobile networks, for general public exposure are prescribed in accordance with international recommendations, while for areas of increased sensitivity (public, residential and commercial buildings where people stay: schools, pre-school institutions, maternity wards, hospitals, tourist facilities and children's playgrounds) twice as strict as those recommended at the global level.

Pursuant to the Law on Electronic Communications, the Agency has the obligation to check whether the conditions regarding the prescribed limits of exposure to EM fields are met when issuing authorizations for the use of radio frequencies, including the determination of technical and operational conditions for the installation of radio base stations of mobile communication networks.

The concept of planning and implementation of future 5G mobile networks, unlike the concept applied in mobile networks of previous generations, implies a much denser spatial distribution of radio base stations, including the installation of base stations inside buildings where people live, as well as in some scenarios a completely different way of using them networks (a large number of connected devices in the immediate living and working environment, network interfaces that are carried next to or implanted in the human body, etc.). Also, for the implementation of 5G mobile networks, it is planned to use frequency bands that are identical or close to the bands used by existing networks (from 700 MHz to 3.6 GHz), but also millimeter wave bands (initially only 26 GHz, and in the future also 40 GHz and 66 GHz), which are being used for these applications for the first time. When you add to that the need for parallel operation of 2G, 3G, 4G and 5G networks, at least in the initial phase of 5G network implementation, as well as certain characteristics of 5G technology that were not present until now (massive MIMO systems, beamforming, etc.), modeling of the expected strength distribution of the electric field in the environment of multiband multitechnology base stations and the assessment of compliance with the conditions concerning the limits of exposure to EM fields becomes a very complex and challenging task. At the same time, the only reliable way of checking compliance with these conditions remains the measurement of the equivalent electric field strength, which corresponds to the cumulative effect of radiation originating from several sources, which is not available to the Agency in the procedure of authorization of radio base stations.

Given that it is necessary to ensure that 5G NR radio base stations are implemented exclusively in a way that implies that in places where people can be found for a long period of time, the parameters of the EM field will not exceed the maximum allowed limits, there was a need to create a professional scientific document that will Provide the agency with guidelines for assessing in which scenarios the installation of 5G radio base stations is possible without detailed analysis, in which scenarios detailed analyzes need to be carried out and in what way, and in which situations the installation of a 5G radio base station at the planned location is not

possible. The document is expected to, based on measurements in the field, analysis of the configurations of existing radio base stations and the associated environment, as well as the expected contribution to the cumulative radiation of a 5G radio base station of the appropriate type and configuration, offer typification of locations and for each type provide guidelines for assessing compliance with the conditions concerning the prescribed limits of exposure to EM fields.

During 2022, the Agency initiated the procedure of public procurement of the service of preparation of the aforementioned professional scientific document on two occasions. However, both procedures were canceled due to the fact that no bids were submitted. During 2023, the Agency will ensure the creation of this document through a new public procurement procedure or by engaging its own expert resources.

8.6. Professional supervision in the field of electronic communications

The expert supervision in the field of electronic communications, based on the Law on Electronic Communications, is conducted by the Agency through supervisors for electronic communications.

Planned expert regulators with operators registered with the Agency and subject to which the Agency had issued a permit for the use of radio-frequencies, are committed in accordance with the Plan on the supervision in electronic communications for the year 2020.

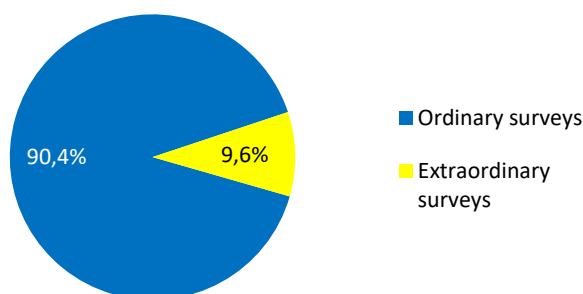
Extraordinary examinations have been conducted when needed, in the following cases:

- Radio stations disrupted the operations of other radio stations,
- The reports of monitoring the radio spectrum have pointed to some irregularities in the operations of radio stations,
- The operator, user or some other subject issued an initiative to conduct expert supervision,

There were indications that the operator or some other subject does not act in accordance with the law.

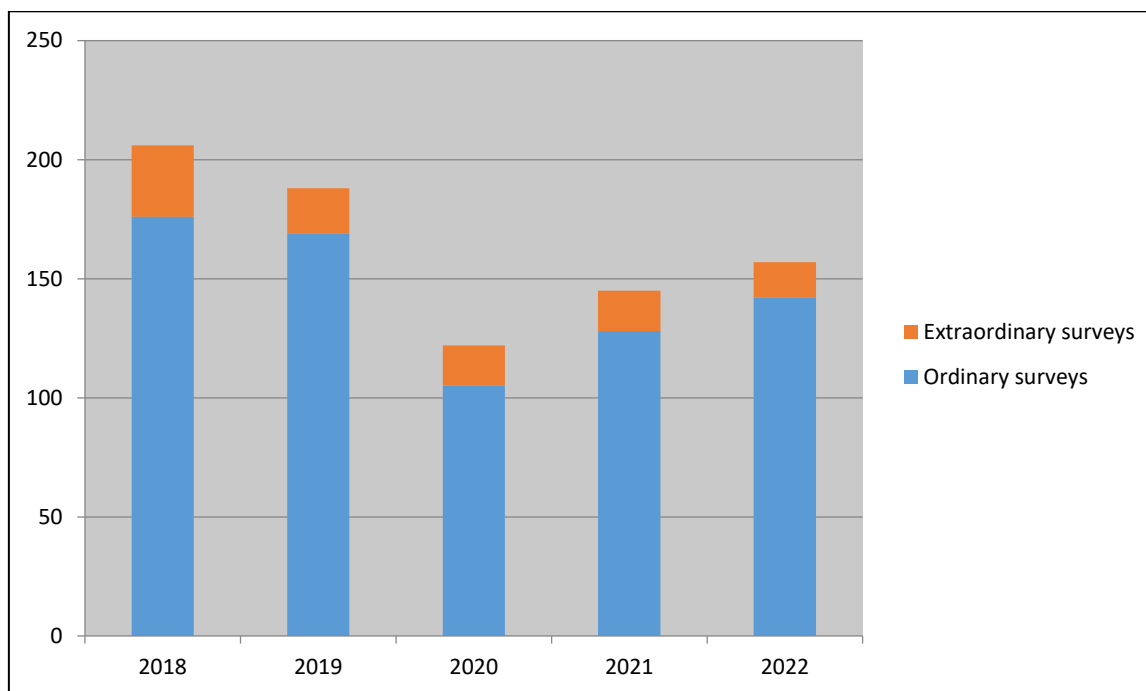
When conducting a professional supervision, the supervisors mostly acted preventively. The identified irregularities were indicated and the date for their removal was determined.

In 2022, a total of 157 surveys were conducted, of which 142 planned surveys and 15 extraordinary surveys.



Comparative overview of the number of conducted professional surveys in the period from 2018 – 2022 is given in the Table below, and presented in the chart down below.

Year	Planned surveys	Extraordinary surveys	Total of surveys
2018	176	30	206
2019	169	19	188
2020	105	17	122
2021	128	17	145
2022	142	15	157



The records were written on the completed surveys. The authorized representatives of the entities subject to supervision did not have any objections. Records copies were delivered to official representatives of the entities subject to supervision and the evidence was neatly kept in accordance with the Law on Inspection Supervision.

U 13 cases the removal of the established irregularities was ordered, of which in 11 cases it was order through the records, and in two cases the decision to the records was made. There was 8.3% of the irregularities established in the total number of the surveys conducted in 2022. The irregularities regarded the following:

- use of addresses without the approval of the Agency,
- impossibility of identifying the user of the Internet access service only on the basis of a public IP address,
- inadequate notification of the user about the change in the conditions of use of the package,
- non-compliance of the calculation of services with the prices from the publicly published price list,
- non-compliance with the provision on public availability of prices, tariffs and general terms of use of public electronic communication services,
- non-delivery of data at the request of the Agency,
- lack of attestation of electrical and lightning protection installations of buildings.

Table below gives a comparative overview of the established irregularities as a result of the supervision conducted in the period 2018 - 2022.

Year	Number of conducted surveys	Number of established irregularities	Percentage of the established irregularities
2018	206	46	22.3%
2019	188	24	12.7%
2020	122	25	20.5%
2021	145	23	15.8%
2022	157	13	8.3%

Based on the initiatives for taking the supervision procedure, the surveys were also conducted upon operators' requests and the unit of the Agency for the protection of rights and interests of the users. The requests referred to the control of the compliance of the operators' work with the provisions of the Law, inappropriate service quality and a lack of the provision of the services.

8.7. Submission of data and giving opinions on spatial planning documents

As referred to in Article 40 of the Law on Electronic Communications, the obligations of the Agency and the operator are prescribed to submit data on existing and planned electronic communication networks, electronic communication infrastructure and related equipment in the area covered by the planning document at the request of the holder of preparatory work for the preparation and adoption of the planning document. Also, the same article of the Law prescribes the obligation of the Agency to give an opinion on the compliance of the planning of electronic communication networks, electronic communication infrastructure and related equipment in the process of preparing the planning document.

As referred to in Article 38 of the Law on Spatial Planning and Building Construction ("Official Gazette of Montenegro", No. 51/08, 40/10, 34/11, 47/11, 35/13, 39/13 and 33/14), and in relation to Article 217 of the Law on Spatial Planning and Building Construction ("Official Gazette of Montenegro", No. 64/17, 44/18, 63/18, 11/19 and 82/20), the Agency, in its capacity as a legal entity responsible for telecommunications affairs, is obliged to, at the request of the holder of the preparatory work, within 10 days, submit the available data, as well as its proposals and opinions, which are necessary for the preparation of planning documents. Also, according to Article 39 of the same law, and in connection with Article 217 of the Law on Spatial Planning and Building Construction ("Official Gazette of Montenegro", no. 64/17, 44/18, 63/18, 11/19 and 82/20), the holder of the preparatory work submits the opinions of the competent authorities, institutions and public enterprises of the local self-government along with the draft of the planning document.

In accordance with the regulations, the holders of preparatory work for the preparation and adoption of planning documents: Ministry and local self-government bodies - secretariats responsible for spatial planning and construction of buildings address the Agency with requests for submission of data and recommendations. Based on 10 submitted requests, in 2022 the Agency submitted appropriate data and recommendations for the creation of spatial planning documentation. Data and recommendations were submitted to the Ministry of Ecology, Spatial Planning and Urbanism, and they were requested for the preparation of 10 planning documents, namely in the municipalities: Bar (1), Berane (1), Herceg Novi (1), Mojkovac (1), Pljevlja (1), Rožaje (1), Tivat (2) and Ulcinj (1), as well as data for the DPP concession area of the Brajići wind farm located in the territory of the municipalities of Budva and Bar.

In addition, the holders of preparatory work (local self-government bodies and the Ministry of Ecology, Spatial Planning and Urbanism) submitted drafts of spatial planning documents to the Agency for its opinion. Based on 8 submitted requests for opinions, the Agency submitted opinions on 8 drafts of spatial planning documentation in 2022. All opinions on draft planning documents have been submitted to the Ministry of Ecology, Spatial Planning and Urbanism and refer to prepared planning documentation in the municipalities of: Herceg Novi (1), Kolašin (1), Nikšić (1), Podgorica (3) and Ulcinj (2). Also, the Ministry of Ecology, Spatial Planning and Urbanism submitted proposals for spatial planning documents for approval. The Agency responded to the requests by submitting 3 consents to proposals for spatial planning documents in the municipalities of: Bijelo Polje (1) and Podgorica (2).

The Agency bases its opinions on draft planning documents on the Law on Electronic Communications and regulations that are in line with the same and new trends represented in the field of modern electronic communications. By giving opinions on draft planning documents, the Agency strives to create preconditions for:

- further and accelerated development of the ICT sector, primarily broadband access,
- stimulating interest and attracting investments in the ICT sector,
- encouraging competition on the electronic market through the application of modern technological solutions communication,
- use of available ICT tools and services in everyday life and business by citizens and business entities

In this way, the Agency provides guidelines that are the basis for the development of a strong and generally accessible infrastructure, which enables joint use by several operators in providing high-speed broadband connections and the use of modern and demanding services for all households and businesses under equal conditions.

When providing data and recommendations as well as opinions on planning documentation, the Agency uses data on electronic communication infrastructure, which operators submit in accordance with Article 55 of the Law on Electronic Communications and the Ordinance on the type, method of submission and publication of data on electronic communication infrastructure and related equipment that can be of interest for joint use ("Official Gazette of Montenegro" 48/18), as well as data on the number of users of individual services (fixed telephony, fixed broadband Internet access, fixed-wireless broadband Internet access, mobile electronic communications and distribution of AVM content). Also, the Agency refers to the importance of adequate assessment of the level of development of electronic communications within the limits of the planning document, in relation to the average level of development of electronic communications in Montenegro.

On the basis of continuous insight into the spatial planning documents, which are submitted to the Agency for opinion, it is evident that in the part related to electronic communications, they are of better quality and content than in the previous period. The above indicates that the processors of spatial planning documents complied with the recommendations received from this Agency, which confirms that the Agency's participation in the process of creating spatial planning documentation had positive effects on its quality and content and that it justified its legally prescribed role in this area.

8.8. Research on the degree of satisfaction of the users of electronic communications services

Public Opinion Research Agency “Damar Plus” conducted the research on user satisfaction level with regard to electronic communications and postal services in Montenegro. The research is conducted at the beginning of the second half of April 2022, on the sample of 1,009 respondents, aged 15 years and over.

The research refers to the level of user satisfaction with fixed and mobile telephony services, Internet and distribution of television and radio programs, information about individual telephone numbers, as well as the level of information on the rights of users of electronic communication services. The following results were obtained per individual segments.

8.8.1. Fixed telephony

47.1% of respondents use a fixed telephone line, and 78.5% of them are satisfied with the fixed telephony services, while 69.1% of them are satisfied with the prices of services in the fixed telephony. The share of users who had problems in the use of telephony amounted to 40.1%, and with the speed of their elimination were satisfied 59.6% of the users. In the previous year 40.8% of the users contacted the customer support service of their operators, while 68.4% of the users were satisfied with the service provided.

8.8.2. Mobile telephony

Mobile telephony service in Montenegro use 99% of the respondents. Share of the users with mobile telephones with which they can access the Internet is 89.3%, while 88.9% of the respondents have the so called smartphone. The telephones which support 5G network are used by 30.3% of the respondents. Out of the total number of mobile services users, 94.5% use the service of telephone calls, 77.3% use the service of SMS messages, and 76.9% use the Internet access service. Some Internet applications for the communications (Viber, Facebook Messenger, Instagram, WhatsApp) use 96.4% of mobile telephony users use the so called smart phones. 85.2% of the respondents have mobile Internet service in their house/home and 80.4% are satisfied with the speed of mobile Internet. General level of satisfaction of the users with mobile networks is 82.3%, while the level of satisfaction with their prices is 67%. In the previous year 30.4% mobile telephony users used the service of user support, while 78.4% were satisfied with the service provided. Roaming service used 19.7% of mobile telephony users, mostly for incoming calls. 45.2% of the users think that the prices of mobile telephony services are high while the level of satisfaction with mobile telephony services in roaming is 75.8%. 79.9% of the respondents are familiar with the level of prices of roaming services in the Western Balkans which are the same as if they were used in its own network in Montenegro, and 75.4% of them used it.

8.8.3. Television

The number of Montenegrin citizens who watch TV programs through one of the TV signal distribution systems is 93.4%, while 2.9% of users watch TV programs broadcast through broadcasting systems. The level of satisfaction with picture quality is 81.5%, 81.5% are satisfied with the quality of the program offer, and 61.9% with the prices of users who use the services of TV program providers. The number of citizens who in the previous year noted disturbances or interruptions in signal reception is 39.6%, while 67.6% of

respondents are satisfied with the speed of elimination of these disturbances. The customer support center (call center) was contacted by 36.2% of users in the previous year, while 72.9% of users were satisfied with the quality of the support services. As a key reason when choosing a TV program provider, citizens single out the price of services, followed by the choice of programs, quality and service package.

8.8.4. Internet use

The number of Montenegrin citizens who have the possibility to use the Internet at home is 90% of the population, while 87.3% of respondents stated that they use the Internet. 84% of respondents were satisfied with the quality of internet services in Montenegro, and 71.7% with the price. The number of Internet users who have noticed certain disturbances and interruptions in the use of the Internet in the previous year is 39.4%. 74.6% of them were satisfied with the speed of elimination of disturbances and service interruptions. The percentage of Internet users who used the customer service support service in the last year is 32%, while 74.1% of these users are satisfied with the service they received.

8.8.5. The number 1180 – Universal information service

The number of the citizens informed on the number 1180 (universal information service on telephone numbers of fixed and mobile telephony) is 39.5%. In the last year 24.9% of those respondents used that service, and 89.9% users were satisfied with its quality.

8.8.6. Single European Emergency Number “112”

28.6% of the population know about the Single European Emergency Number „112”, while only 19.5% of the population is familiar with the purpose of this number.

8.8.7. Emergency service numbers

The police call number 122 is recognized by 75.2% citizens of Montenegro, 59.8% of the citizens are familiar with the number 124 for emergency medical help, the service for the protection and rescue (firefighters) number “123” is recognized by 56.1% of the citizens, while 10.8% of the respondents know that the number 129 is provided for the maritime assistance.

8.8.8. Number for reporting interferences

Most of the citizens of Montenegro (55.1%) are not familiar with special numbers for reporting interferences, but compared to the research results from the previous year, there is a slight increase in this area.

8.8.9. Agency for Electronic Communications and Postal Services

42.7% of the citizens of Montenegro heard of the Agency, while 19.3% are familiar with the Agency's activities. When it comes to the source of information about the Agency, television is still the dominant source for the majority of Montenegrin citizens (49.7%). Of those respondents who have heard about the Agency, 68.9% are not familiar with the Internet address of the Agency's official website. For those citizens

who visited the Agency's website, the possibility of information availability from this website is very high and amounts to 87.6%.

8.8.10. Protection of user rights and interests

The percentage of Montenegrin citizens who are familiar with the rights of users of electronic communication services is 35.6%, while the percentage of those who are familiar with the procedure for protecting their rights is 43%. The number of citizens who addressed the operator or the Agency with a complaint or complaint amounted to 9.6%, while the percentage of those who were satisfied with the timeliness of the response to the same was 56.7%. As in the previous year, the majority of Montenegrin citizens (78.2%) are still not aware of the fact that on the Agency's website they can ask questions regarding various aspects of the protection of their rights in the domain of electronic communications and postal services. The largest percentage of surveyed citizens (73.8%) has ever received a phone call for direct marketing or an advertising message via SMS, Viber or other services, while the aforementioned activities are a nuisance for 63.4% of respondents.

Results of the research on the level of satisfaction of the users of electronic communications services in Montenegro are available on the Agency's website: <https://ekip.me/page/reports/istrazivanja/content>.

Research results prove a high level of the use of electronic communications services in Montenegro and a high level of satisfaction with the quality of electronic communications services, but also that the citizens are not enough familiarized with important telephone numbers, rights and procedures for the protection of their interests in the field of electronic communications.

8.9. System for collecting data from the operators

With a view to fulfilling their legal obligations, more efficient collecting, storing, and processing collected data, as well as preparing the reports on electronic communications market and postal services market, in 2015, the Agency implemented a system for collecting and processing of data about electronic communications market and postal services market. The system is located in the Agency's domain, and it is connected with the systems of the electronic communications operators and postal services operators. The data is entered into the system by the operators in accordance with their obligations set out by ZEK. The data is entered weekly, monthly, quarterly, semi-annually, and annually, which depends on the need to collect and process them. In 2022, the system was used by 14 operators for electronic communication services, who entered the data within a specified time frame. The system for collecting and processing of data was construed to enable a continuous upgrade and development, so it is neither limited to the number of the operators that are entering the data nor with the number of forms and parameters, i.e. data of different type, and it can support an unlimited number of market segments for electronic communications and postal services.

During 2022, the system was used by 14 operators of electronic communication services who entered the data within the time limit. The system for collecting and processing data is designed in such a way that it enables continuous upgrading and development, and is therefore not limited by the number of operators whose data is entered, nor by the number of questionnaires and parameters, i.e. data of different types, and

it can support an unlimited number of segments of the electronic communications market and postal services.

8.10. Activities on switching to IPv6 Protocol in Montenegro

Based on the Development Strategy of the Information Society of Montenegro until 2020, a Migration Plan to the IPv6 protocol was prepared, in accordance with the standards, decisions and recommendations of competent European and international bodies.

The main goal of transition to the Internet protocol of the new generation IPv6 is to overcome the problem of the lack of Internet addresses, which occurred with the IPv4 protocol. The advantages of this protocol are, in addition to the expansion of the address space, increased efficiency, security and the possibility of implementing modern IoT solutions.

The analysis of the state of the ICT infrastructure showed that Montenegro is one of the few countries in Europe where it is not possible to connect to the Internet via IPv6, although there is a certain level of initiative, readiness and thinking about migrating to the new IP protocol. On the other hand, a breakthrough has been identified in the introduction of new innovative ICT solutions (IoT, M2M, sensor networks, smart solutions, etc.) which, in their full implementation, will require the functionality of the new protocol.

Having in mind that state institutions, public entities and local self-government bodies are among the largest users of ICT solutions and resources in Montenegro, and that Migration to IPv6 has been defined as a strategic goal at the state level, it was necessary to submit separately a Migration plan for this group of the subjects.

As laid down by the Plan, the following activities are recommended:

As laid down by the Plan, the following activities are recommended:

Establishing a national body („IPv6 task force“) or a team which will prepare an action Migration Plan to IPv6 of the state institutions, coordinate the activities, promote and follow migration process. Team members should be the representatives of the subjects that will be the holders of migration process (state institutions, regulators, operators, academic communities, ICT business etc);

Encouraging and organizing promotion of the advantages of the IPv6 protocol and education on subject migration techniques at all levels of public administration and residential users;

Organization and realization of the survey of operators on their transmission plans to IPv6;

Preparation and formalization of the recommendations and the guidelines to state institutions with regard to IPv6 implementation at an administrative level;

Establishing a laboratory, within CIS UCG, for testing a transition to IPv6;

Encouraging planned migration to the network of the University of Montenegro to IPv6 through dual-stack technology according to the scenery "from the outside in", as a pilot project based on which the acquired experience and knowledge that can be applied to other state institutions will be documented;

Preparation of the migration for state institutions based on the Project and documented UCG activities;

Realization of the migration of state institutions by applying a dual-stack technology to IPv6 Protocol.

Based on the recommendations stated in the Migration Plan to IPv6 Protocol in Montenegro, continuing the activities initiated or planned for 2021, in which the Agency was involved, certain activities were carried out in 2021.

At the beginning of 2021, IPv6 implementation on a measuring server of the system for measuring and analyzing the quality of the Internet access service “EKIP NetTest”, was enabled. That way, the measuring and analyzing the Internet access service quality was also enabled through IPv6 Protocol.

The Agency conducted the survey of the operators regarding their plans of migration to IPv6. Based on the received replies, the following is concluded:

- Operators currently have no requests from users to provide services over IPv6. The mentioned fact largely determines their plans for the implementation of IPv6, i.e. it leads to the fact that they consider this possibility very carefully, due to the necessary investments. As the first step in the implementation of IPv6, according to the operators' answers, it will happen at the wholesale level (IP request), whereby some of the operators have already implemented IPv6 according to their upstream providers;
- Most operators in Montenegro have an IPv6 address space, which was assigned to them by authorized international organizations (RIPE NCC). Also, most of these addresses are globally visible;
- Operators are implementing different IPv6 models (dual-stack, stand-alone) as part of the modernization of their networks in the transport, aggregation and core IP network segments. One of the mobile operators in the core of its mobile network has activated functions that are necessary to provide users with resources from the IPv4 and IPv6 address space within the same session. Also, testing related to end-user traffic (end-to-end testing) was performed for a limited number of mobile users. The focus of the mentioned tests was on the performance of end users and the impact on the performance of the support system.

In cooperation with the ITU, the Agency organized workshops for policy makers, as well as technical workshops for future trainers for IPv6 in 2021. In addition, the implementation of participation in the financing of the procurement of IPv6-supporting equipment for the laboratory of the Information System Center of the University of Montenegro, by the ITU, has begun. The laboratory was supposed to be established in 2022, but due to the increase in equipment prices and the extension of delivery deadlines, the tender for the procurement of equipment was completed by the end of 2022, and the equipment will be delivered at the end of March 2023.

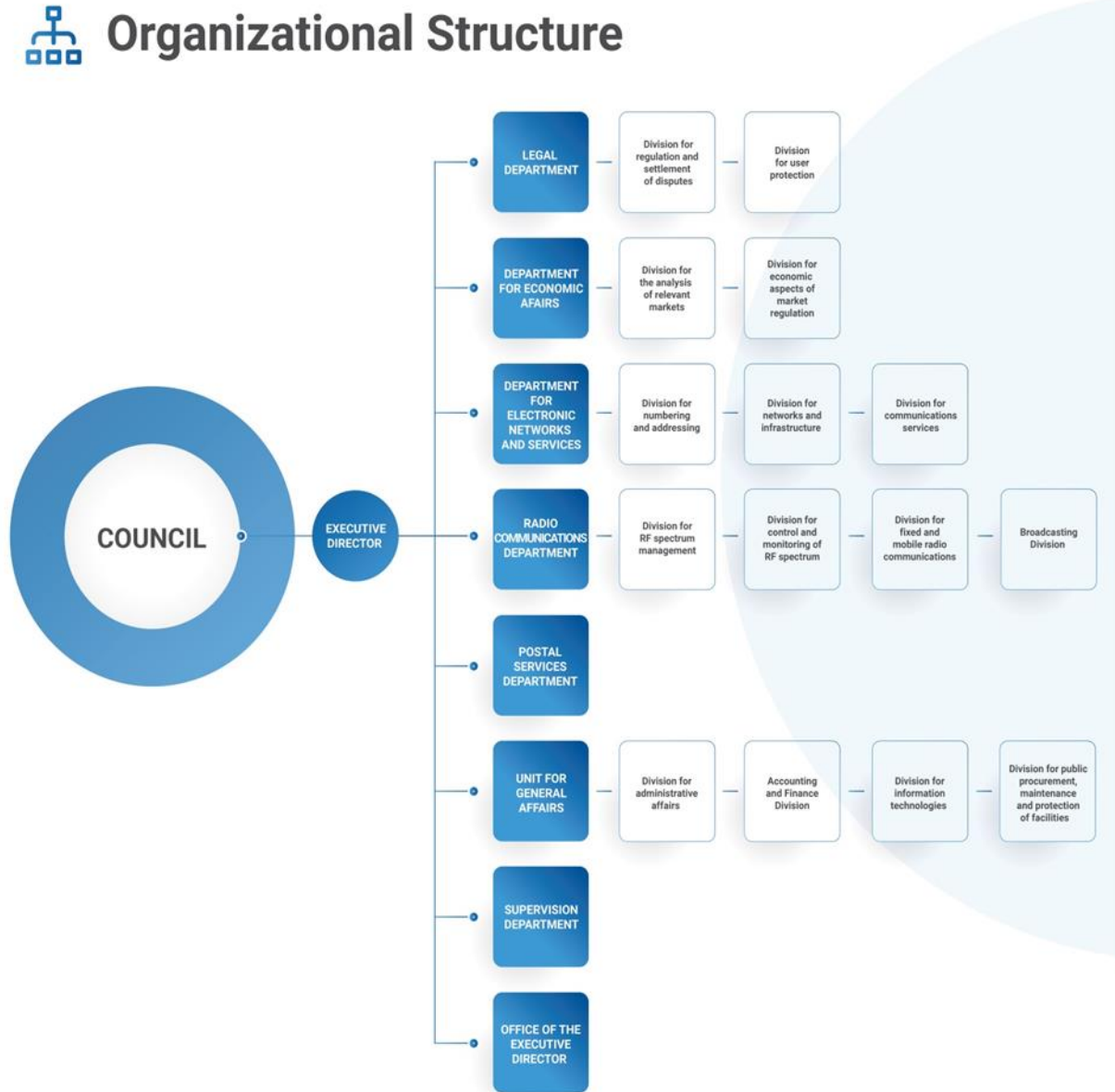
8.11. Development of human resources

As laid down by the Rulebook on the organization of work and job classification in the Agency for Electronic Communications and Postal Services, made by the Agency Council, the Agency is organized through the work of its departments, units and divisions.

The Agency includes the following stand-alone organizational units:

- Legal Department;
- Department for Economic Affairs;
- Department for Electronic Networks and Services;
- Radio Communications Department;
- Postal Services Department;
- Unit for General Affairs;
- Supervision Department, and
- Office of the Executive Director

Departments and Units are organized through internal organizations units – devisions. The organizational structure of the Agency is given in the following graph.



Administrative capacities of the Agency are at high level and it should be emphasized that, according to the mentioned Rulebook on the organization of work and job classification, all employees are in obligation to undergo professional development for achieving high quality of performance of the tasks and duties which are within their scope of work.

On 31.12.2022, the Agency had 67 employees, including the President of the Council, members of the Council and the Executive Director of the Agency. Qualifications structure of the employees in the Agency is as stated below:

- 1 employee with PhD degree,

- 3 employees with MA degree,
- 53 employees with high school degree, and
- 10 employees with secondary school degree.

8.11.1. Professional training of the employees

In accordance with the work organization and job classification in the Agency, all the employees are in obligation to undergo professional training for achieving high quality of performance of the tasks and duties which are within their scope of work. Concerning a new technological solutions in the field of electronic communications, radio communications and postal services, permanent professional training of the employees is reflected in their participation in professional gatherings, seminars, conferences and in the activities of the working groups in the organization of:

- International Telecommunication Union (ITU);
 - Conferences of European Administrations for Posts and Telecommunications (CEPT);
 - Bodies of European regulators for electronic communications (BEREC);
 - Regional Cooperation Council (RCC);
 - The body of the European Commission for Radio Frequency Spectrum Management (RSPG);
 - European Mediterranean Regulatory Group (EMERG);
 - European Regulatory Group for Postal Services (ERGP);
- as well as through the exchange of experiences on a bilateral basis with the regulatory agencies of countries from the Region, and countries with which this Agency has signed international agreements on cooperation, as well as various other trainings and improvements organized online, including the improvement of foreign languages.

8.12. Information System of the Agency

Maintaining and improving the information system of the Agency (hereinafter referred to as the System) in 2021 were carried out through regular maintenance procedures, increase of the safety and reliability of the System operations, including supplements to the system following the latest trends in technology, change of the amortized hardware and supply with the missing hardware, as well as obtaining new software licenses and renewal of software licenses, when needed. In the segment of purchasing devices and equipment, defined guidelines were respected. Each provision is, in line with the legal obligations, carried out after assessing the offers of goods demanded on the market and assessing the ratio price/performance, whereas the quality of goods is considered at the first place, which has long-term results in decreasing the maintenance costs. The warranty period of provided devices is also considered as very important matter, for decreasing the costs of potential defects rectification of the devices.

8.12.1. Network infrastructure

In 2022 ordinary controls, updates and maintenance of the network infrastructure of the Agency were conducted. Relevant annual licenses for supporting protection systems were renewed.

Network infrastructure is implemented in the central office of the Agency, ensuring the performance of traffic control, system access, collecting logs, analysis and reporting. Several protection levels are implemented

against malware, misuse, known vulnerabilities of the operation systems and software, leakage of information, identification, and control of applications; also, there was implemented prevention of infected systems to get in contact with the known C&C servers and enabled the analysis of actual network status and of traffic flow. The devices are redundant, thus avoiding a single point of failure when defect of one device is a threat to the whole information system. In the next year, it is planned to renew these devices and software that serve as protection of the Agency's system, in order to avoid the situation that the devices enter a phase in which there is no support from the manufacturer.

The connection of the Agency's headquarters to the Internet was achieved through FTTH technology and it is redundant, that is, the second operator is the provider of the secondary Internet connection. Internet connection download speeds are 200Mb/s and 1Gb/s. A technologically advanced Wi-Fi network has been implemented in the entire office space of the Agency with the possibility of adjusting parameters for each device of the system. For the needs of certain projects implemented by the Agency, which are physically located in the system hall of the Agency, a special symmetrical Internet connection of a third operator of 10 Mb/s is provided.

Network infrastructure at a remote location of GKMC on Dajbabska Gora, realized in the same manner as it was in the headquarter. It is connected to the network infrastructure of the Agency's headquarter and implemented, so that these devices and software will be replaced with the new ones during the next year.

GKMC's connection to the Internet was also achieved through FTTH technology, and it is also used to establish a VPN connection with the Agency's headquarters in such a way that the remote location is actually part of the local computer and telephone network, which were separated in 2021. Employees and their computers at GKMC are part of the local computer network and have all the rights and secured access as if they were physically located at the Agency's headquarters.

The Agency leased public fixed IP addresses for both internet connections at the headquarters and the internet connection at GKMC, which enables a better connection between these two locations as well as other services.

In the period ahead, it is planned to increase the speed of the local network infrastructure by implementing newer devices that will enable more optimal use of the capacity of Internet connections and faster access to all System resources.

8.12.2. VPN connection

In 2022 continued intensive use of VPN connections, as well as the improvement and development of new policy systems. VPN connections are provided for all the employees with the policies that are following their needs. The need for the realization of the on-line work from home for all the employees was enabled thanks to a good infrastructure of the Agency. The employees who are out of the Agency's premises can access only the approved Agency's systems, by applying relevant safety policies for performing their tasks.

8.12.3. Server infrastructure

In 2022 were conducted ordinary monitoring, update of software versions, control of the occupancy and expending the space and other server resources and maintenance of the server infrastructure of the Agency.

Server infrastructure includes virtual machines, storage and servers with the projects conducted by the Agency. In the Agency are implemented hardware and software for the virtualization and backup, and was performed virtualization of servers which are separate appliances; this means that was done implementation of "Private Cloud" Project. "Private Cloud" was introduced in accordance with the Agency's needs and it is physically consisted of three appropriately dimensioned servers with redundancy and storage. Data protection from the loss is provided replikacijom najbitnijih servera i na udaljenoj lokaciji.

U 2022 new virtual servers were created equipped with the latest operational systems and was carried out a migration of the old bases and applications in accordance with the system security requests in order to avoid the situations with no support for the operational systems they use.

At the end of the year initiated the procedure of the provision of resetting of the devices and software in the Agency's „Private cloud“ system i establishing of a full DR location in GKMC, of all the services in the Agency's headquarter.

The Agency also administers the systems and bases of data which are not included in the virtual platform, and two of these systems are placed in the Agency's premises. For the systems which are not in the Agency's servers two servers are used for each: production and redundant. They are also connected to the Internet through an independent connection that is not part of the Agency's local network infrastructure. Internet traffic of the public server segment is scanned and protected like the rest of the Agency's network infrastructure. At the end of the year, the procurement procedure of a new system that will be part of this public server segment was started.

8.12.4. Backup system

In 2022 was performed monitoring on daily basis of the following: work of backup system, analysis of the occupancy capacities and update of the related software and rectifying of the malfunctions.

For the purpose of virtual infrastructure backup solution with protection is implemented and is performed on the storage in the space planned for a backup procedure. Once a week is conducted a "full backup" of all servers, and on daily base is conducted "incremental backup" of data. "Online" replication of the domain controller and server file is performed to the remote location, and in the period ahead will be conducted for all systems when the initiated public procedure is completed, thus fulfilling the conditions for creating a complete DR location.

8.12.5. Telephone infrastructure

In 2022 were conducted ordinary maintenance of telephone infrastructure, transfer of local numbers per request, as well as the provision and replacement of necessary devices and i their integration in the system.

The basis of the telephone infrastructure is telecommunications switchboard, which enables connection to the local telephone network of telephones at a remote GKMC location. Connection was established through IP telephony at the remote location thus the main function and met the request for connecting local telephone numbers of all the employees in the Agency.

Separate channels of the telephone network and local computer network within the VPN connection of the headquarters and GKMC ensure good quality of communication and do not violate the security aspect of the local network. At the end of the year, the procurement procedure for a new IP telephone system was started, which will replace the old switchboard, telephone devices and outdated technology, and the Agency will switch to the use of IP switchboards and IP telephony in its entirety at the beginning of next year.

8.12.6. Video surveillance and access control system

In 2022 continued the performance of ordinary controls of the work of video surveillance and system for recording entry and exit checks in the Agency's premises and the system maintenance. Video cameras are placed on the appropriate places in the Agency, on the GKMC and in other premises of the Agency which are part of the System for control and monitoring of radio frequency spectrum, with clearly marked warnings for the performance of video surveillance. The Agency is provided with the approval given by the Agency for Personal Data Protection and Free Access to Information for the implementation of the video surveillance and the Access Control System. The Access Control System in the headquarter was replaced with a new modern system with more functions. The same Access Control System has been also placed in the GKMC and linked with the headquarter into one unit via an independent communications channel through the VPN between the headquarter and GKMC. In the period ahead, when the conditions are met, this system will be placed on the Agency's virtual platform.

8.12.7. Hall system

The devices of network infrastructure, server infrastructure, telephone exchange and appropriate devices of video surveillance system are stored in a special room, prepared for that purpose. The access to the hall system is allowed only to the authorized staff, through a double authorization procedure.

The equipment in the room is supplied with electricity through the UPS devices protecting from overvoltage and the loss in the supply. Equipment power supply redundancy is implemented in a high percentage, via redundant UPS devices. These activities proved to be very important and necessary considering the vulnerability in the power supply, and the lack of diesel electric generators. Its realization will ensure higher safety and shall prevent all the systems and appliances from malfunctions, as well as from potential data loss.

Hall system was appropriately equipped for the firefighting. Self-activating fire extinguishers are properly stored, so that they do not jeopardize the equipment once they are activated.

Cooling system of the hall system was introduced separately from the whole cooling/heating system in the Agency's premises and is consisted of two appliances. For that purpose were provided two professional devices working in a "load balancing" mode, ensuring maintaining comfortable temperature in all weather conditions with no excessive effort for either of the devices, and at the same time it ensures that the failure of one machine does not affect the risk of overheating of active devices in the hall system.

8.12.8. Video conference room

In accordance with the increased needs of online communication, and in order to overcome the problem of the non-ability of holding personal contacts and meetings, the Agency has equipped a video conference room for online meetings. In 2022, the hardware resources were increased and the necessary licenses of the videoconferencing system were renewed. Through the activities carried out, the Agency realized the possibility of online communication inside the hall in two ways: using licensed computer-related software and using licensed software related to the videoconference system, where care was taken to separate traffic from the local computer network, for its security.

8.12.9. Computer infrastructure

In 2022 continued the maintenance and improvement of the computer infrastructure of documents on the file server and the supply with new computers and equipment and replacement of amortized computers and equipment. On each of the computers of the Agency is installed licensed operations system, which in the time of its provision was a modern one. On each computer was installed an “office” software package. Operations system and “office” software is regularly updated. All the computers and all network peripherals are connected in the network infrastructure and are associated in one domain. Within controller domain, according to its policies and functions, are controlled the employees’ access and assignment of IP addresses to the computers in the computer network of the Agency. Each computer and server are protected with adequate antivirus software, which is regularly updated, and which scans the workstations and servers. In 2022, license validations of antivirus software were extended. Antivirus software is centralized and is subject to everyday analysis of the system safety from the scope of its operations in the whole domain of the Agency. Each employee can use domain resources according to required policies – sharing documents on a file server, keeping data which are not public, backup of data recorded on the server, access to peripherals, internet access.

8.12.10. Peripherals

In 2022, maintenance of available peripherals resources and the improvement and supply with the new ones, continued. Along with network and local printers, scanners and multifunctional machines used by the employees in their offices, in 2021 was provided and implemented the system of network printing and scanning. On each floor of the Agency’s headquarters and GKMC there is one network multifunctional machine connected to active directory and fitted in the network infrastructure, for optimizing total resources for maintaining peripherals and consumption of materials. The Agency now has seven multifunctional machines, two of which are with color printing. It is planned to further expand and maintain this system in accordance with the needs of the Agency's operations, and on the other hand, to further reduce the number of individual independent (office) machines, in line with greater profitability and reliability.

8.12.11. Independant information systems

In 2022, in accordance with the concluded agreements on maintenance were conducted ordinary maintenance and update of the projects and data basis kept by the Agency, and were also conducted ordinary procedures on the system maintenance in the Agency. The upgrades of certain systems and their renewal following the latest technological trends were completed and a new system was implemented.

Along with previously mentioned information systems deployed in special physical servers in the Agency, the Agency also has both physical and virtual servers, that is the projects hosted on other locations, while all other systems are placed on virtual machines within 'Private Cloud' Platforms. It is worth mentioning also has one information system deployed in the Montenegrin Internet Exchange Point (MIXP), due to the accuracy of measuring data collected in its data base.

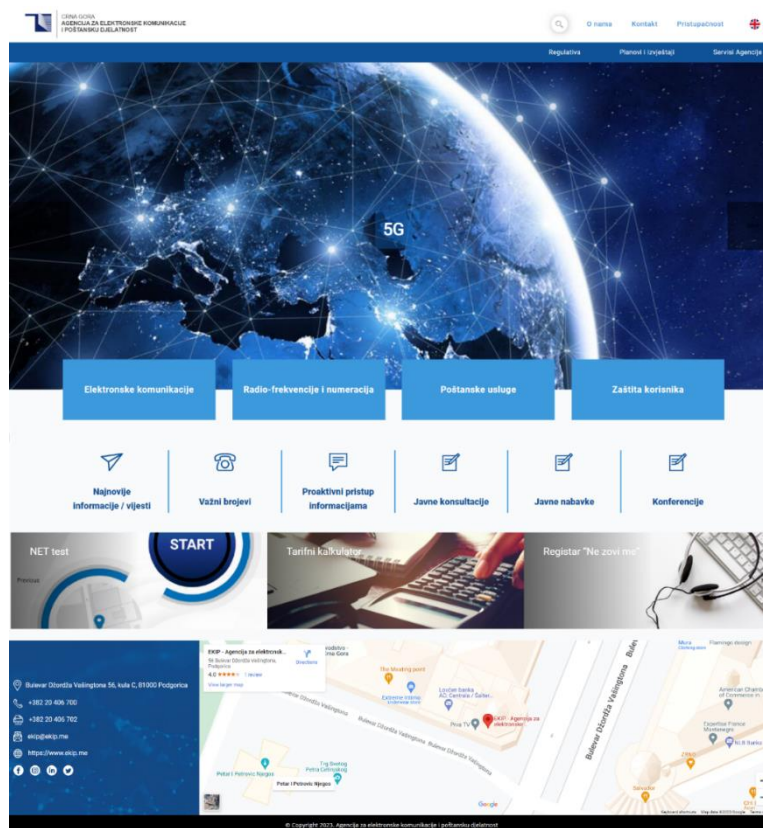
The projects and databases managed by the Agency are the following: Registers of electronic communications operators and operators of postal activities, Radio-frequency registers, Register of numbering/addresses, Register of georeferenced database of electronic communication infrastructure - Geoportal, System of Central Base of Transferred Numbers, System for collecting data of operators, Tariff calculator, Ekip Nettest, Register NeZoviMe, Benchmark portal, Agency website and document management system DMS. At the end of the year, the procurement procedure of a new system was started: the portal of signal coverage maps of public mobile communication networks, which will be implemented in the Agency at the beginning of next year.

The systems and databases maintained by the Agency represent independent information systems, and the technological improvement of the Agency's website created the possibility to supplement the documentation for the creation of new ones and the integration of all the Agency's information systems to the extent possible, which is planned in the next period.

8.12.12. Website of the Agency

The Agency's website www.ekip.me it has a modern and accessible design. It contains up-to-date, objective and accurate information that is important for the following target groups: citizens, operators, institutions, business entities, NGO sector, media and employees. In 2022, the practice of daily "on-demand" updating of the Agency's website with the help of specialized CMS software continued.

The website is hosted on a special virtual platform at the operator with an increased level of security and integrity of the network and services. SSL certificates have been renewed.



In the period ahead, the Agency's website will be covered by system integration and will enable connection with other systems, after which users will be able to get all information from the Agency's scope of work in one place.

8.13. Activities of the Agency on the implementation of measures from other actions plans and strategies in the implementation of which it is involved

8.13.1. The Agency's activities on the implementation of the Strategy on prevention and repression of radicalization and violent extremism for the period 2020-2024

On June 17, 2021, the Government of Montenegro adopted a new Decision on the appointment of the national coordinator and members of the National Interdepartmental Operational Team for the Suppression of Violent Extremism, Terrorism, Money Laundering and Terrorist Financing (hereinafter: NOT), which ensured coordination between two closely related strategies (Strategy for prevention and suppression of radicalization and violent extremism and Strategy for prevention and suppression of terrorism, money laundering and terrorist financing).

Bearing in mind that the NOT was formed only in June 2021, it was not expedient to prepare an Action Plan for the implementation of the Strategy for 2021, however, this did not affect the implementation of the measures provided for in the Strategy as well as the measures provided for in the Joint Action Plan for the fight against terrorism in the Western Balkans, signed in October 2018 in Tirana, as well as the Agreement on its implementation, signed in November 2019, which defined common goals that the six partner countries of the Western Balkans will implement with the support of the European Union.

The main goals refer to the harmonization of the legal and institutional framework with relevant EU instruments, efficient prevention and fight against violent extremism, intensive exchange of information and operational cooperation, as well as establishing capacities for the fight against money laundering and terrorism financing and encouraging the protection of the citizens and infrastructure.

In 2022, the Agency participated in the preparation of the 2022 Action Plan, in the part of measures related to the reduction of online radical and violent-extremist content as part of operational objective 1: Increasing the resistance of Montenegrin society to radicalism and violent extremism. The goal was to define the legal basis and procedures for filtering and blocking internet content that propagates radicalism and violent extremism, as well as to improve cooperation with digital platforms and social networks in order to remove content. During the year, there were no activities to fulfill these measures.

8.13.2. The Agency's activities on the implementation of the Strategy on the development of postal services in Montenegro for the period 2019-2023

At the proposal of the Ministry of Economic Development, the Government of Montenegro at the session held on 1.7.2021, it adopted the Action Plan 2021-2022 of the Strategy for the Development of the Postal Industry in Montenegro for the period 2019-2023, which, in addition to operational goals with performance indicators, established measures, competent authorities and a time frame for their implementation, as well as indicators of the results of the measures undertaken. The Action Plan for 2021-2022 defines four operational goals: ensuring the quality and sustainability of the universal service, modernization of existing and development of new services based on the synergy of postal and electronic services, strengthening the postal market in Montenegro by encouraging competition and access to the network of the universal postal operator and strengthening protection end users. The competent authorities for the implementation of the activities determined by the aforementioned Action Plan are the Agency, the Post of Montenegro and the Revenue and Customs Administration.

In January 2022, at the request of the Ministry of Economic Development, the Agency submitted a Report on the implementation of activities under its jurisdiction in 2021, which were determined by the Action Plan 2021-2022 of the Strategy for the Development of Postal Activities in Montenegro for the period 2019-2023. The report on the implementation of the mentioned activities was also an integral part of the Annual Report on the Agency's work for the year 2021. The Ministry of Economic Development submitted to the Government of Montenegro the Report on the implementation of the Action Plan for 2021, which was adopted at the Government session in April 2022.

Within the defined deadlines, the Agency carried out all the activities within its jurisdiction, determined by the Action Plan 2021-2022, and whose realization was foreseen for the year 2022. In order to realize the operational goal of strengthening the postal market in Montenegro through encouraging competition and access to the network of the universal postal operator, at the initiative of the Agency, in cooperation with the Post of Montenegro, two workshops were held in May and June 2022 for all postal operators in Montenegro. , where the participants were presented with relevant regulations, as well as financial and other aspects of access to the network of the universal postal operator. With the operational goal of strengthening the protection of users of postal services, and in order to improve the transparency of data related to cross-border parcel delivery services, the Agency adopted the Rulebook on Amendments to the Rulebook on the Type and Method of Submitting Data of Postal Operators, which was published in the Official Gazette of

Montenegro No. 146 /22 of 28 December 2022. Within the framework of the same operational goal, in December 2022, the Agency conducted a survey on the level of satisfaction of users of postal services in Montenegro. The results of the research show that 72.5% of individual users and 74.1% of business users are generally satisfied with the services provided by their chosen postal operators, thus realizing the result indicator and achieving the value defined by the Action Plan for this operational goal.

8.13.3. The Agency's activities on implementation of the Strategy on prevention and suppression of terrorism, money laundering and terrorist financing

Strategy for the prevention and suppression of terrorism, money laundering and terrorist financing for the period 2022-2025, with the Action Plan for the implementation of the Strategy for the prevention and suppression of terrorism, money laundering and terrorist financing for the period 2022-2023, was adopted on December 29, 2021.

The Strategy defines the framework of activities of Montenegro in the fight against terrorism, money laundering and terrorist financing with the aim of improving existing and developing new measures, mechanisms and instruments, all in the function of the stability and security of Montenegro. Action plan for the implementation of the Strategy for the Prevention and Suppression of Terrorism, Money Laundering and Terrorist Financing for the period 2022-2025, represents a two-year action plan based on the strategic goal that Montenegro, by applying international standards, respecting human rights and improving national and international cooperation, builds a coordinated and efficient system for the prevention and suppression of terrorism, money laundering and terrorist financing. The Agency is part of that system, one of the competent institutions in the part of monitoring the implementation of measures to prevent money laundering and terrorist financing.

In 2022, as referred to in Article 94, paragraph 1(2) of the Law on Prevention of Money Laundering and Terrorist Financing („Official Gazette of Montenegro“, 33/14, 44/18, 73/19 and 70/21), the Agency performed the supervision of the implementation of the Law and regulations thereto, and in relation to the obliged party, pursuant to Article 4, paragraph 2 (4) – Pošta Crne Gore that, on the market of postal services, conducts the operations of universal postal operator.

With a goal to fulfill the competences as provided for by the Law, the Agency performed ordinary and extraordinary professional supervisions and submitted requests for semi-annual reports, and when needed additional data for conducting the checks and controls of the implementation of measures to detect and prevent money laundering and terrorist financing by the universal postal operator, Pošta Crne Gore.

As in the previous period, while conducting tasks from the scope of its competences, the Agency cooperated with the Police Directorate, i.e. the Financial Intelligence Unit the activities of which are intended for prevention of money laundering and terrorist financing. In 2021, the Agency regularly submitted to the Police Directorate, i.e. the Financial Intelligence Unit, the updated statistical data which referred to the measures taken by the Agency, as the supervisory body, and by Pošta Crne Gore, as the obligee in the field of SPNFT.

In accordance with the requirements of the Police Directorate, that is, the Financial Intelligence Sector, the Agency regularly informed the Post of Montenegro about new announcements by the Financial Action Task Force-FATF.

During 2022, representatives of the Agency participated in the work of the Interdepartmental Working Group for the preparation for the 5th round of the Manival evaluation, within which the dynamics of the realization of the obligations that Montenegro and the competent institutions have in the framework of the 5th round of evaluation of the SPNFT system in Montenegro were agreed upon. In order to realize its obligations, the Agency regularly forwarded completed Manival forms to the Police Directorate, Financial Intelligence Sector for the delivery of basic information and statistical data within the immediate outcomes defined by the Manival evaluator, from the scope of the Agency's work.

8.13.4. The Agency's activities on implementation of the Action Plan – National Consumer Protection Program

In the introductory part of the National Consumer Protection Program 2022-2024 (NPZP) with the Action Plan for the implementation of the NPZP for 2022 stated that the national interest and strategic goal of the Government of Montenegro is full membership in the European Union. It is also stated that the compliance of the Montenegrin consumer protection system with the *acquis* of the EU is a key instrument for removing obstacles to the implementation of the ideas and principles of fair competition and social responsibility, and thus effective legal protection of consumers is the basis for the proper and smooth functioning of market competition. Therefore, one of the goals of Montenegrin economic policy is to improve consumer protection and provide Montenegrin consumers with the same rights as EU citizens.

In this sense, one of the goals of the Government of Montenegro was defined - Increasing consumer awareness of their rights and improving the conditions for exercising consumer rights, where the key activity is the preparation and adoption of the National Consumer Protection Program 2022-2024, with the Action Plan for the implementation of the NPZP for the year 2022.

Through its representative in the Consumer Protection Council of the Government of Montenegro, the Agency continued the activities defined in the National Consumer Protection Program 2022-2024 (NPZP), and in accordance with the annual Action Plan for the implementation of the NPZP for 2022, submitted the Report on the Implementation of the NPZP Action Plan to the Ministry of Economic Development - Directorate for Consumer Protection of Montenegro with data for the year 2022 regarding the performed activities for the implementation of laws in the field of electronic communications and postal services, and in accordance with the obligations stipulated in the NPZP Action Plan.

A proposal for activities was also submitted, the implementation of which the Agency wants to improve the protection of users of electronic communication and postal services in Montenegro, and which will be part of the Action Plan for the implementation of activities for 2023.

8.14. Cooperation with competent state bodies and institutions

Cooperation with competent state bodies and institutions was performed in compliance with ZEK and at the level necessary for implementation of: the Law on Electronic Communications, Law on Electronic Media, Law on digital radio broadcasting, Law on Postal Services, Law on Inspection Work, Law on Personal Data Protection, Law on Consumer Protection and Law on Protection of Market Competition.

Regarding the administration of radio frequency spectrum, along with the competent Ministry of Economy, intensive cooperation was also achieved with the state bodies and authorities competent for safety of civil aviation traffic as well as for the sea traffic, also with the state bodies competent for internal affairs, issues of national security and defense, and with regulatory authority competent in the field of audiovisual media services.

Successful cooperation was achieved by signing the agreements on business cooperation with other state bodies and institutions, as follows:

- Agency for Protection of Competence, April 28, 2009;
- Real Estate Administration of Montenegro, July 4, 2012;
- Electro technical Faculty, December 7, 2012;
- Civil Aviation Authorities of Montenegro, January 24, 2014;
- Agency for Electronic Media, May 28, 2014;
- Standards Institution of Montenegro, December 8, 2014;
- Bureau of Statistics, September 24, 2015;
- Hydro meteorological and Seismological Institute, June 21, 2016;
- Agency for personal data protection and free access to information, November 14, 2017;
- Maritime Safety Department of Montenegro, July 25, 2018, and
- Environment Protection Agency, January 12, 2022.

8.14.1. Cooperation with the Environment Protection Agency

In order to develop and encourage the cooperation within the competences stipulated by the law, on January 12, 2022, the Agency for Electronic Communications and Postal Services (EKIP) and the Environment Protection Agency (EPA), signed the Cooperation Agreement.

The Agreement was signed by Darko Grgurović, the Executive Director of EKIP and Milan Gazdić, Director of EPA.

By signing the agreement, procedures and cooperation will be improved in terms of: exchange of experience and knowledge from areas that are of interest and under the jurisdiction of the agencies, exchange of data from registers and databases maintained by these agencies in accordance with the laws, which are of mutual interest, information about changes regulations and standards related to the impact of electromagnetic radiation on the environment and human health, issuing approvals for the use of radio frequencies for radio stations whose work may affect the environment and human health, as well as the exchange of other information related to the work and jurisdiction of these agency.

During the meetings, it was established that the issue of the harmful impact on the environment and human health of electromagnetic (EM) radiation generated by base stations and terminals of mobile communication networks has occupied the professional and lay public at the global level since the beginning of the mass implementation and use of these systems, and that reference international bodies, above all ICNIRP (International Commission on Non-ionizing Radiation Protection) and the Council of the European Union, adopted appropriate



recommendations aimed at reducing the impact of EM radiation on the environment and human health. In Montenegro, the limits of permissible exposure to high-frequency EM fields, which includes the radiation of mobile network base stations, for general public exposure are prescribed in accordance with international recommendations, while for areas of increased sensitivity (public, residential and commercial buildings where people stay, schools, preschool institutions, maternity hospitals, hospitals, tourist facilities and children's playgrounds) twice as strict as those recommended at the global level. It was agreed that during 2022, additional education of the general population regarding the impact of EM radiation and the proper use of mobile terminals will be done, which is very important, especially from the aspect of implementing future 5G mobile networks, which will require a much denser spatial distribution of base stations, including the installation of base stations inside buildings where people stay, as well as in some scenarios a completely different way of using the network (a large number of connected devices in the immediate living and working environment), which makes these networks different from previous generations. The fear was also expressed that the Law on Protection against Non-ionizing Radiation itself could be a problem because some administrative procedures are "over-standardized" and could represent a certain business barrier, but the importance of observing sensitive areas and objects with special attention was also highlighted, and therefore these two agencies to cooperate in order to implement all the foreseen legal procedures operationally and in the most adequate way for the environment and citizens.

8.15. International activities

With the scope of international activities during 2022, the Agency continued its cooperation with the most eminent authorities in the field of electronic communications and postal affairs, as follows: International Telecommunication Union (ITU), Body of European Regulators for Electronic Communications (BEREC), Conference of Postal and Telecommunications Administrations (CEPT), European Telecommunications Standards Institute (ETSI), Regional Internet Registry (RIR) for Europe, West Asia, and the former USSR (RIPE NCC), European Committee for Postal Regulation (CERP), European Regulatory Group for Postal Services (ERGP) etc. which reflects, inter alia, in active participation of representatives of the Agency in professional meetings and the work of expert groups and project teams dealing with issues under the competence of regulatory sector of electronic communications and postal affairs.

The Agency made a very successful cooperation with a number of regulatory bodies in the region and in Europe, which was formally confirmed in concluding Memorandum of Understanding and Exchange of information in the field of electronic communications and postal services, with the following bodies:

- Regulatory Authority of Electronic and Postal Communications of the Republic of Kosovo, March 12, 2010;
- Authorities for Technology and Information of the Republic of Turkey, July 6, 2011;
- Agency for Electronic Communications of the Republic of Macedonia, September 20, 2011;
- Croatian Agency for Post and Electronic Communications, November 17, 2011;
- Body for Electronic Communications and Postal Services of the Republic of Albania, March 13, 2012;
- Republic Agency for Electronic Communications of the Republic of Serbia, June 22, 2012;
- Office of Electronic Communications of the Republic of Poland, July 8, 2013;
- Communications Regulation Commission of the Republic of Bulgaria, October 14, 2013;
- Agency for Communication Networks and Services of the Republic of Slovenia, January 16, 2014;
- National Authority for Communications of the Republic of Romania, April 07, 2016;
- Office for Telecommunication of the Czech Republic, September 8, 2016;
- Regulatory Agency for Communications of Bosnia and Herzegovina, September 25, 2017;
- Autorità per le Garanzie nelle Comunicazioni of Italy, March 28, 2018, and
- Public Utility Commission of Latvia, May 11, 2018.

8.15.1. Participation in the work of Body of European Regulators for Electronic Communications (BEREC)

Body of European Regulators for Electronic Communications
BEREC was established by the European Commission and the European Council No. 1211/2009. BEREC assumed the role of the European Regulators Group (ERG) in the field of exchange of expertise and best practices and in terms of exchanging expertises and the best current practice, as well as in terms of submitting opinions and recommendations in the manner in which telecommunications market should function in the European Union. BEREC prepares the opinions and views on various issues of regulation for the needs of the European Commission and the Council, on their request or at its own initiative.



Pursuant to EU Regulation in the field of electronic communications, adopted at the end of 2018 (European Electronic Communications Code - EECC), during the 39th Plenary Session held on 13 and 14 June 2019 in Gent-Belgium, the Agency signed with BEREC the Working Agreement on participation in the work BEREC. Jeremy Godfrey, President of BEREC and László Ignéczi, Administration Manager of BEREC Office signed the Agreement on behalf of BEREC, while Branko Kovijanić, President of the Council of the Agency signed the Agreement on behalf of the Agency. As stipulated by the Agreement, the Agency participates in the operations of the Board of BEREC, Contact Network and Working Groups of BEREC, as well as in the work Managing Board of BEREC Office. The Agency also participated in selecting the member of Mini Board, representing non-EU countries. Continuance in the Agency's participation in the work of BEREC allows the Agency implementation of best regulatory practices in the sector of electronic communications, faster transfer of expertise and even greater strengthening of personnel capacities.

Along with plenary sessions, the Agency, through its representatives, participates in the meetings of Contact Network. Contact Network is an expert working group of BEREC, consisted of the representatives of national regulatory agencies. It provides coordination of all proposals and standings to be considered on plenary meetings, so that all necessary preparations are done, as well as harmonization of opinions of the

representatives of Member States, assess if the documents proposed by BEREC members are competent and consistent, facilitate coordination with BEREC Office and delegate other actual issues to be considered. The Contact Network meetings are held three or four weeks before the dates planned for ordinary plenary meetings of BEREC and of IRG and may be held before the dates planned for extraordinary plenary sessions, upon request of the presiding officer of the Contact Network.

During 2022, the representatives of the Agency participated in the regular Plenary Assemblies of BEREC and General Assemblies of IRG held through the audio-video system of BEREC, as well as in the sessions that were held: 09.-10 June in Agia Napa (Cyprus), 06.-07 October in Salzburg (Austria) and 08-09 December in Prague (Czech Republic). At the fourth plenary session, which was held in Prague, the President of the Council of the Agency, Branko Kovijanić, was elected as a member of MB BEREC for 2023, as a representative of non-EU countries.

In 2023, the Agency will host the organization of the BEREC Plenary Assembly. The calendar of BEREC activities confirmed the date of the second Plenary Assembly, which will be held in Montenegro in the period from June 7 to 9, 2023.

8.15.2. Participation in the work of the European Regulators Group for Postal Services (ERGP)

The European Regulatory Group for Postal Services (ERGP) is a consultative body of the European Commission, which includes 27 national regulatory authorities (NRAs) for EU postal services, as well as national regulatory authorities of the countries of the European Economic Area and countries with the status of candidates for EU entry. ERGP advises the European Commission in making decisions related to the development of the internal market of postal services, as well as in the consistent application of the regulatory framework for postal services in all EU member states.

The European Regulatory Group for Postal Services (ERGP), in whose work the Agency participates as the regulatory body of a candidate country for membership in the European Union, held two regular plenary sessions in 2022 in which officials of the European Commission and ERGP, representatives regulators for the field of postal services of European Union countries and candidate countries, relevant ministries and postal operators. Their organization was preceded by meetings of working groups where proposals for the document that were discussed at the plenary sessions were finalized.

The first plenary session (22nd Plenary Session of the European Association of Postal Regulators) was held in Madrid on July 1, 2022. The plenary session was jointly organized by the European Commission, i.e. its advisory body the European Association of Postal Regulators (ERGP) and, as the host of the meeting, the Spanish National Commission for Markets and Competition (CNMC).

On the meeting was discussed the draft of the ERGP Work Program for 2023, where special emphasis was placed on three basic pillars from the presented ERGP Mid-Term Strategy (MTS) for the period 2023 to 2025:

- revision of the postal sector and its regulatory framework in light of environmental sustainability and digitalization;
- promoting a competitive single EU postal market, in the context of the growth of e-commerce, as well as

- empowering end users and ensuring a universal service that is user-oriented.

Along with the draft Work Program, drafts of other documents were adopted and put to public discussion, and numerous internal documents, reports and analyzes of ERGP working groups were approved.

The second regular plenary session of the ERGP (23rd Plenary Session of the European Association of Postal Regulators) was held in Barcelona on November 25, 2022, also organized by the Spanish National Commission for Markets and Competition (CNMC).

At this plenary session, the ERGP Work Program for 2023 was adopted, which determined the tasks of the ERGP for the following year in accordance with the aforementioned strategic pillars of the ERGP Mid-Term Strategy (MTS) for the period 2023 to 2025.

It was decided that the ERGP will focus its activities on the activities and future needs of operators of the universal postal service, the effects of the modernization of the universal service, regulatory powers, examples of good practice regarding environmental sustainability, as well as on the implementation of the Regulation on cross-border parcel delivery services, the quality of the services provided, consumer protection and handling of service user complaints.

The participants of the Plenary session supported the proposal of the European Commission to create a study on the future of the postal sector, which will represent input for the decision on the revision of the regulatory postal framework. Therefore, the ERGP Work Program for 2023 was amended and supplemented with the planned activity of creating a Report on the effects of modernization of the universal postal service in those member countries in which modifications to the obligation to provide universal service have been made, in which the same has been implemented or implementation is in progress, especially with regard to employment and user satisfaction, as well as the cost/financial sustainability of universal postal service providers.

8.15.3. Membership in the European Telecommunications Standard Institute (ETSI)



The European Telecommunications Standards Institute - ETSI is an organization that produces globally applicable standards for Information and Communications Technology (ICT), including fixed, mobile, radio, converged, broadcasting and internet technologies. The Institute was established as an independent and non-profit organization based in Sophia Antipolis - France. ETSI is officially recognized by the European Union as the European standards organization.

The representatives of the Agency participated in online meetings of the 79th and 80th General Meetings of ETSI, held in the period 29-30.03.2022 and in the period 29 – 30.11.2022.

8.15.4. Membership in the European Mediterranean Regulatory Group (EMERG)

Upon the invitation of the Council of the Regulatory Agency for Electronic Communications of Portugal (ANACOM) and the President of the European Mediterranean Regulatory Group (EMERG), the Agency's

representatives took part for the first time in the EMERG Plenary Meeting held on EMERG, held on April 7, 2021. The goals that EMERG has set as the focus of its activities in the coming years correspond to the medium-term plans of the Agency, bearing in mind that the exchange of knowledge and experience among the representatives of the regulator within the framework of the work and activities of EMERG will contribute to the further strengthening of the Agency's administrative capacities, and thus further improvement of the regulatory framework and the development of the electronic communications market in Montenegro, the Agency launched a formal initiative to acquire the status of a full member of EMERG, and after consideration of the initiative by the EMERG member, and as of June 15, 2021, the Agency became the 23rd full-member of EMERG.

EMERG was founded on July 1, 2008 on Malta, as an independent platform of national regulatory bodies for electronic communications networks and services. The activities of EMERG are focused on the realisation of the downmentioned activities:

- regular discussions and exchange of information among the member states on the issues in regard to electronic communications;
- approaching the European Regulatory Framework and promotion of the best practises among the member states;
- monitoring of the electronic communications development in the Mediterranean area;
- encouraging the cooperation and exchange of ideas and expertise with international organisations, other regulatory networks and experts in the field of electronic communications;
- preparation of the documents, reports, presentations, analysis and common opinions of the member states.

At the end of 2021, a status of a full-member of EMERG had regulatory agencies for electronic communications of the following countries: Albania, Austria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, France, Germany, Greece, Israel, Italy, Jordan, Lebanon, Libya, Malta, Montenegro, Morocco, Palestine, Portugal, Spain, Slovenia, Switzerland, Tunisia and Turkey.

During 2022, the representatives of the Agency participated in the work of EMERG via on-line platforms.

8.15.5. Organization of International Conference „Current and future regulatory challenges, harmonization with the European regulatory framework“

In 2022, the Agency continued with the organization of the traditional international conference, which represents the most significant set of regulatory agencies for the electronic communications sector in the region of Central and Southeastern Europe. The nineteenth conference was organized under the working title "Current and future regulatory challenges, harmonization with the European regulatory framework". The conference was held in the hotel Splendid Conference & SPA Resort in the period from 25 - 28 September 2022, through 5 program units, i.e. 8 program sessions.

The Conference was opened by Branko Kovijanić, President of the Council of the Agency for Electronic Communications and Postal Activities of Montenegro, and the presidents or members of the council and management boards and executive directors of the regulatory agencies who participated in the work of the Conference also spoke at the opening ceremony:

- Armela Krasniqi, President of the Albanian Audiovisual Media Agency (AMA),

- Kristina Hitrova, Deputy President of the Bulgarian Communications Regulatory Commission (CRC),
- Tonko Obuljen, President of the Council of the Croatian Regulatory Agency for Network Activities (HAKOM),
- Jeton Akiku, Director of the Electronic Communications Agency of North Macedonia (AEC),
- Dragan Pejović, Director of the Regulatory Agency for Electronic Communications and Postal Services of Serbia (RATEL),
- Tanja Muha, Director of the Agency for Communication Networks and Services of the Republic of Slovenia (AKOS),
- Selamettin Ermiş, Vice President of the Council of the Information Administration of Technology and Communications of Turkey (BTK),
- Nazim Rahimi, President of the Council of the Regulatory Agency for Electronic and Postal Communications of Kosovo (ARKEP), and
- Darko Grgurović, Executive Director of the Agency for Electronic Communications and Postal Services of Montenegro (EKIP).

The total number of registered participants was 172, and the Conference programs were accompanied by 159 of them. The Conference was attended by:

- representatives of 14 regulatory agencies from the following countries: Albania, Bosnia and Herzegovina, Bulgaria, Montenegro, Croatia, Kosovo, Latvia, Hungary, North Macedonia, Slovenia, Serbia and Turkey,
- representatives and experts of international institutions: ITU, WorldDAB, RCC,
- experts from 10 electronic communications operators from Montenegro and the region: Crnogorski Telekom, One Crna Gora, Mtel, Telemach, Yettel Serbia, Mtel Bosnia and Herzegovina, Radio-diffusion Center, Transmitters and Connections Croatia, Albtelecom Albania, A1 Serbia,
- representatives of 6 companies that had presentations: 4iG Hungary, Coleago Consulting Great Britain, Sandvine Sweden, Specure Austria, Ibis Instruments Serbia, ATDI France,
- representatives of 7 companies that followed the Conference programs: Vafer Slovenia, Aselsan A.Ş. Turkey, Unis telecom Croatia, Unis telecommunications Bosnia and Herzegovina, SEMT North Macedonia, SIPA Montenegro, TCI North Macedonia



During the Conference, 5 program units were held:

1. Experiences related to the implementation of 5G, increasing the availability of networks and services, QoS and QoE of networks and services,
2. Digital transformation, development of broadband access, development of electronic communication infrastructure, identification of obstacles and proposal of measures for their elimination, safety and security of electronic communication networks and services, harmonization with EECC, strengthening the role of NRA in the era of digital transformation, regional connection,
3. Promotion of competitive market, market analysis, regulatory measures, international roaming and termination,
4. Strengthening user protection, identification of best practices when it comes to consumer awareness, information transparency, with eventual focus on new services such as open internet and digital platforms, and
5. Digital radio (DAB). The first program unit - Experiences related to the implementation of 5G, increasing the availability of networks and services, QoS and QoE of networks and services consisted of two program sessions. The moderator of the first session was Boris Jevrić, Assistant to the Executive Director of the Radiocommunications Agency, and 4 presentations were held during this session.

The first program part – experience with regard to 5G implementation, increase in the service and network availability, QoS and QoE networks and services included two program sessions. Moderator of the first session was Boris Jevrić, Assistant Executive Director of the Agency for the field of radiocommunications, and within this sessions were held 4 presentations.

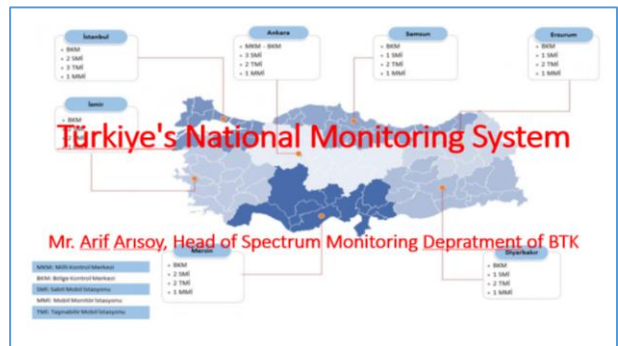


Moderator of the second session within the same program part was Elvis Babačić, General Manager for the fixed and mobile radio communications in the Agency, and in the session 4 presentations were held.

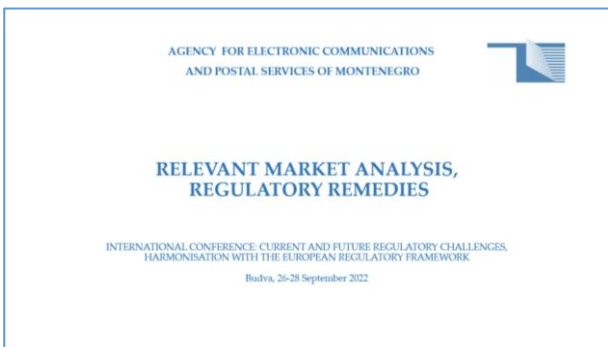


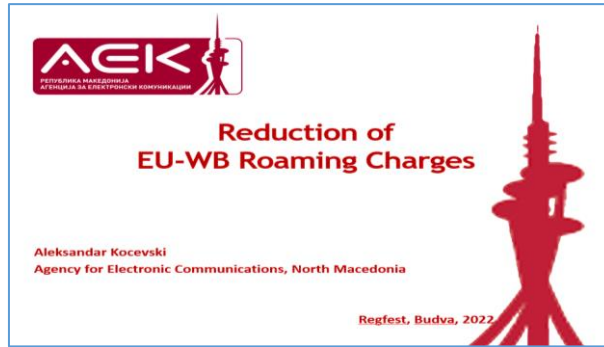
The second program unit - Digital transformation, development of broadband access, development of electronic communication infrastructure, identification of obstacles and proposing measures for their elimination, security and safety of electronic communication networks and services, harmonization with

EECC, strengthening the role of NRA in the era of digital transformation, regional connection, was moderated by Pavle Mijušković, Assistant Executive Director of the Agency for Electronic Communication Networks and Services, and 4 presentations were held within this unit.



The third program unit was - Competitive market promotion, market analysis, regulatory measures, international roaming and termination. Moderator was Milena Ivanović, Assistant Executive Director of the Agency regarding economy issues and regulations of the Electronic Communications Sector. 3 presentations were held within this unit.

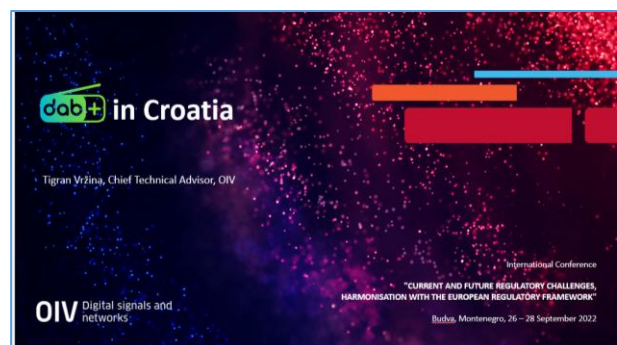




The moderator of the fourth program unit was Danka Milićević, Assistant to the Executive Director of the Agency for legal issues in the regulation of the Electronic Communications Sector. Within this unit, which was entitled Strengthening user protection, identification of best practices when it comes to consumer awareness, transparency of information, with possible focus on new services such as open Internet and digital platforms, 4 presentations were held.



The fifth program unit regarded digital radio (DAB). This program unit was made of 3 sessions. Moderator of the first session was Ana Vukčević, Radio broadcasting Manager in the Agency, and 3 presentations were made within this session.





Moderator of the second session was Amir Molazećirović, Radio broadcasting Manager in the Agency, and 3 presentations were held within this session.



The third session within the program on digital radio was moderated by Nikola Ivanović, Acting Executive Director of the Electronic Media Agency of Montenegro (AEM). Three presentations were held within this session.





All presentations are published on the Agency' website:

<https://ekip.me/page/conferences/international-conference-current-and-future-regulatory-challenges-harmonisation-with-the-european-regulatory-framework-budva-2022/content?iSFromMainSlider=true>.

8.16. Participation in the work of working groups for negotiation chapters for accession to the European Union

The engagement of the Agency and its employees in connection with European integration during 2022 mainly related to the preparation and delivery of the necessary information related to the development of the electronic communications sector and postal activities, the degree of compliance of the regulations with the acquis of the European Union and other essential information and data useful for the preparation of the Report on the progress of Montenegro.

8.16.1. Chapter 10: Information Society and Media

On the basis of the Decision on the establishment of a structure for negotiations on the accession of Montenegro to the European Union ("Official Gazette of Montenegro" 9/12, 15/14, 19/17, 33/18, 48/18, 55/21 and 68/21). At the session held on September 16, 2021, the Government of Montenegro passed a Decision on the formation of a working group for the preparation and conduct of negotiations on Montenegro's accession to the European Union for the area of the acquis of the European Union related to Negotiating Chapter 10 - Information Society and Media. The convocation of the Working Group has 25 members, and during 2022 the Working Group held one meeting. Montenegro opened Chapter 10 - Information Society and Media at the Intergovernmental Conference held on March 31, 2014 in Brussels, when two final benchmarks were defined. In the Report of the European Commission on Montenegro dated October 12, 2022, the following is given for Chapter 10:

Montenegro remains moderately prepared in the field of digital transformations and media.

Limited progress was achieved during the reporting period, mainly through harmonization with the Directive on reducing the costs of broadband access, and through the adoption of strategic documents on the information society. No progress has been made on last year's recommendations, which, as such, remain in force.

In the coming year, Montenegro should especially:

- achieve progress in harmonizing with the EU legal acquis, which refers to electronic communications and information technologies, and complete the harmonization of

legislation on audiovisual media, ensuring the operational independence of media regulators and public broadcasters service;

- make progress in authorizing the Agency for Electronic Media (AEM) in order to introduce a set of measures, including warnings, fines, temporary and permanent revocation of licenses, ensuring proportionality and efficiency;

- establish records showing administrative capacities for the introduction of EU acquis for electronic communications, information society services, and especially audiovisual media services, and with regard to regulatory independence

Chapter 10 - Digital Transformation and Media is within the Competitiveness and Inclusive Growth cluster (10 Information Society and Media, 16 Taxes, 17 Economic and Monetary Policy, 19 Social Policy and Employment, 20 Entrepreneurship and Industrial Policy, 25 Science and Research, 26 Education and Culture, 29 Customs Union).

8.16.2. Chapter 3: The right to establish a company and the freedom to provide services

Chapter 3 was officially opened on December 11, 2017 at the Intergovernmental Conference in Brussels.

With regard to Chapter 3 - The right to establish a company and the freedom to provide services - the sub-area of postal services, the European Commission Report on Montenegro for 2022 states that the legislation is harmonized with the EU Directive on postal services. It was also noted that the postal services market remained completely open to competition. The number of postal operators increased from 4 to 30 operators. When it comes to the regulatory framework for the field of postal services, it was stated that Montenegro still needs to ensure full compliance with the EU legal acquis, which includes the Regulation on cross-border package delivery services. In the aforementioned Report, it was stated that the implementation of the Action Plan 2021-2022 on the strategy for the development of the postal sector progressed as planned.

The recommendation from the Report of the European Commission for 2022 on the need to harmonize regulations with the Regulation on cross-border package delivery services was implemented by the Agency by adopting the Rulebook on Amendments to the Rulebook on the Type and Method of Submitting Data of Postal Operators ("Official Gazette of Montenegro", 146 /22).

The working group for the preparation and conduct of negotiations on the accession of Montenegro to the European Union for the area of the acquis of the European Union related to Negotiating Chapter 3 - The right to establish a company and the freedom to provide services was established by the Decision of the Government of Montenegro at the session of September 16, 2021. During 2022, 2 working group meetings were held.

8.16.3. Chapter 28: Consumer and Health Protection

The Agency has its representative in the Negotiating Working Group for the preparation and management of negotiations on Montenegro's accession to the European Union for the area of the acquis of the European Union that refers to the negotiation chapter 28 - Consumer and health protection, as well as a member of the Council for Consumer Protection appointed by the Government of Montenegro. As part of the

assessment of the fulfillment of the criteria for the temporary closure of Chapter 28: Consumer Protection and Health, the Agency was visited by an expert of the European Commission in September 2022 and on that occasion had a meeting with an employee of the Consumer Protection Department.

9. PROCEDURES CONDUCTED IN ACCORDANCE WITH THE LAW ON ELECTRONIC COMMUNICATIONS AND THE POSTAL SERVICES LAW

9.1. Procedures conducted at the request of entities on the electronic communications market for mediation in dispute resolution (Article 34 of the Law) and resolution of disputes between these entities

In 2022, at the request of operator Telemach on February 3, 2022, the Agency mediated the settlement of the dispute between that operator and Mtel regarding Annex F of the Agreement on Interconnection dated September 8, 2015, and managed to peacefully resolve the dispute in question.

9.2. Administrative procedures conducted in 2022 based on annual regulatory fees

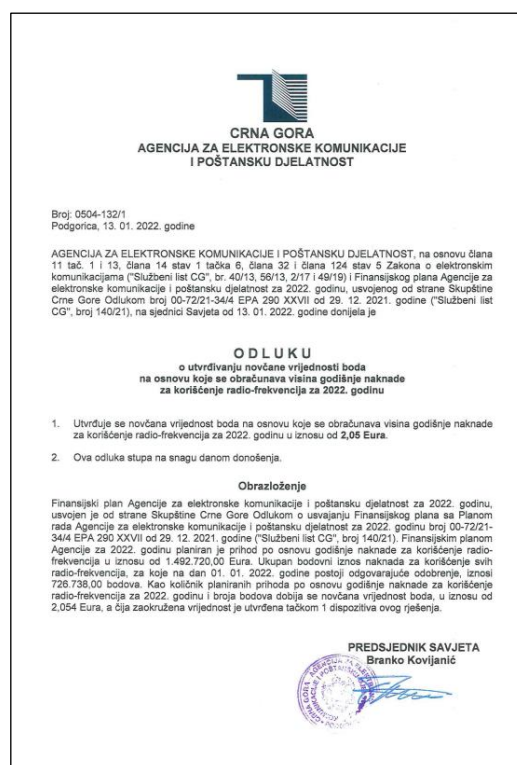
9.2.1. Annual fees for the market regulation and supervision

In 2022, the Agency adopted the Decision No. 0901-3759/1 dated June 2, 2022, on determining the annual fee for the performance of regulation and supervision of the electronic communications market for the year 2022, and 28 decisions on annual fees for market regulation and supervision to all operators who were registered in the Register of Operators and who earned income from the provision of electronic communication services and the provision of electronic communication networks, electronic communication infrastructure and related equipment in 2021.

9.2.2. Annual fees for the use radio frequencies

On January 13, 2022, the Agency issued a Decision No. 0504-132/1 on determining the monetary value of the point on the basis of which the amount of the annual fee for the use of radio frequencies for 2022 is calculated. After that, the Agency issued 671 decisions by which annual fees related to the use of approved radio frequencies for 2022 were calculated to holders of authorizations for the use of radio frequencies, who used radio frequencies on the basis of a valid authorization on January 1, 2022.

During 2022, the Agency also passed an additional 510 decisions, which determined the annual fees for 2022 for authorization holders based on the right to use radio frequencies that were approved for the first time, as well as in cases where, in accordance with the authorization holder's request, the validity was extended approval for the use of radio frequencies, i.e. a change to a valid approval, which implies an increase in the number of points in relation to the



number of points determined by the approval being changed. In these cases, according to Article 125 of the Law on Electronic Communications, fees for the use of radio frequencies are calculated from the date of issuance of the authorization until the end of the calendar year.

9.2.3. Annual fees for the use of number and/or addresses

On January 20, 2022, the Agency issued a Decision on determining the monetary value of points on the basis of which the amount of the annual fee for the use of numbers and/or addresses for 2022 is calculated, number 0402-330/1. During the year 2022, the Agency issued a total of 57 decisions by which the holders of approval for the use of numbers and/or addresses were charged annual fees in connection with the use of approved numbers and/or addresses for the year 2022.

9.3. Administrative procedures conducted in 2022 on the appeals regarding decisions of the supervisor for electronic communications

Due to the request of the Police Directorate that certain operators do not submit the data requested by the Directorate on the basis of current regulations, the Agency, through the supervisor, carried out supervision at the operators Telemach, Crnogorski Telekom, One Crna Gora and Mtel, after which the operators were ordered to provide the necessary technical and organizational conditions which enable retention of data necessary for monitoring and determining the source of communication and data necessary for determining the date, time and duration of communication in such a way that only on the basis of the retained data on the IP address, which was used during communication, the source of communication can be determined for a specific date and time. It was also ordered, where applicable, to provide the necessary technical and organizational conditions that enable the retention of "time advance" and "MAC address" data.

Three operators: Crnogorski Telekom, Telemach and One Crna Gora, filed an appeal with the Agency's Council against the decisions of the Agency's supervisor.

The operators Crnogorski Telekom and Telemach filed a complaint with the Administrative Court against the decisions of the Council made upon the operators' appeals. There is an administrative dispute under the number U 2695/22 lawsuit filed by Telemach. The Agency did not receive the appeal explanation of Crnogorski Telekom, but was informed that based on that complaint, the Administrative Court issued Decision Upm 25/2022 of February 21, 2022, rejecting Crnogorski Telekom's request to postpone the execution of the Agency's decision.

9.4. Administrative procedures conducted in 2022 with regard to assignment of the Universal Service operator and net costs of the obligation to provide universal servisa in electronic communications

Crnogorski Telekom, as the universal service provider did not submit the request for a net cost compensation in 2022, and therefore there was no need to conduct administrative procedure with this regard before the Agency.

9.5 Administrative procedures conducted in 2022 with regard to designation of the significant market operator (Article 69 of ZEK) and the regulatory measures imposed on pursuant to Article 70-80 of ZEK

After conducting analyzes of the relevant markets, the Agency adopted decisions on designating operators with significant market power in 2022, after enabling operators to submit written statements about the same, as parties in the Administrative Procedure, in accordance with Article 111 and 112 of the Law on Administrative Procedure. These are the following decisions:

- Decision of the Agency No. 0303-1646/1 dated February 18, 2022 on the designation of operators: Crnogorski Telekom, One Crna Gora, Mtel and Telemach for operators with significant market power on the relevant wholesale market for call termination in their own telephone network which are provided at a fixed location;
- Decision of the Agency No. 0303-1645/1 dated February 18, 2022 on the designation of operators: Crnogorski Telekom, One Crna Gora and Mtel for operators with significant market power on the relevant wholesale market for call termination in their own mobile telephone network;
- Decision of the Agency No. 0303-1647/1 dated February 18, 2022 on the designation of the operator Crnogorski Telekom as an operator with significant market power on the relevant market of Wholesale high-quality access provided at a fixed location;
- Decision of the Agency No. 0303-4262/1 dated June 23, 2022 on the designation of the operator Crnogorski Telekom as an operator with significant market power on the relevant market of wholesale local access provided at a fixed location;
- Decision of the Agency No. 0303-4263/1 dated June 23, 2022 on the designation of the operator Crnogorski Telekom as an operator with significant market power on the relevant market of wholesale central access, which is provided at a fixed location for the mass market.

The Agency submitted the Reply to the complaint and case files in the dispute U No. 6273/2022 following the appeal of Crnogorski Telekom. Crnogorski Telekom filed a complaint to the Administrativ Court against the Agency's Decision No. 0303-4263/1 dated 23.06.2022, in accordance to which it was designated as the operator with significant market power on the wholesale market of central access provided at a fixed location for the mass market products (Market 3b).

9.6. Court proceedings resulting from decisions made in administrative proceedings in accordance with items 9.1-9.5.

9.6.1. Procedures conducted in 2022 before the Administrative Court

In 2022, the following administrative disputes were brought before the Administrative Court based on the lawsuits of the company One Crna Gora:

- U No. 2529/2016, with regard to annaul regulatory fees for 2014;
- U No. 793/16, with regard to annual regulatory fees for 2015;
- U No. 1372/16, with regard to annual regulatory fees for the use of the numbers and addresses for 2016;
- U No. 6828/17, with regard to annual regulatory fees for the market regulation and supervision in the sector of electronic communications for 2016;

- U No. 7709/2017, regarding the annual regulatory fee for the regulation and supervision of the electronic communications market for 2017;
- U No. 4839/2018, regarding the annual fee for performing tasks of regulation and supervision of the electronic communications market for 2018;
- Annual fees for regulation and supervision of the electronic communications market for 2019. The Agency brought in a new procedure, according to the Verdict of the Administrative Court U No. 3717/19 of November 9, 2021, Decision No. 0205-403/1 of January 20, 2022. in which it suspended the procedure for determining the annual regulatory fees for the performance of regulation and supervision of the electronic communications market for the year 2019 until the finalization of the procedure for harmonizing licenses. One Montenegro filed a lawsuit against the Agency's Decision No. 0205-403/1 of January 20, 2022. There is an administrative dispute in No. 667/22;
- U No. 3004/2020, regarding the annual fee for performing tasks of regulation and supervision of the electronic communications market for the year 2020;
- U No. 3733/21 regarding the annual regulatory fee for 2021;
- U No. 6231/2022 regarding the annual fee for performing tasks of regulation and supervision of the electronic communications market for the year 2022.

The Agency has stopped the process of passing a decision on determining the annual regulatory fees for the use of radio frequencies for the year 2016 in the re-procedure according to Verdict U No. 12216/17 of March 27, 2019, which annulled the Agency's Decision and ordered the Agency to issue a new decision in this case only when the conditions are created, i.e. after the dispute over the harmonization of licenses, which is considered a previous issue, is legally resolved.

The dispute on the previous issue, the legality of the reconciliation of the licenses issued to One Montenegro company, in accordance with the Telecommunications Act and the Electronic Communications Act of 2008, has been legally concluded in 2022, the following events took place in that dispute:

- The Administrative Court issued a Verdict U No. 4051/19 which annulled the Decision of the Ministry of Economy Up II No. 060-201/2017-7 of July 12, 2019 and the Agency's Decision No. 0205-158/48 of February 18, 2016 by which the company One Crna Above harmonized licenses number 01-423 of January 1, 2002, number 01-122 of April 13, 2007 and number 01-143 of October 29, 2007, with the Electronic Communications Act of 2008 and ordered the Agency to issue a new decision within 30 days;
- The Agency submitted to the Administrative Court a Motion to repeat the procedure and to the Supreme Court a Motion for an extraordinary review of the court decision against the Verdict U No. 4051/19;
- The Agency also issued a new decision on 17 November 2021, against which One Montenegro filed an appeal with the Ministry of Economic Development on 02 December 2021. Acting on the appeal, the Ministry rejected it by Decision dated January 4, 2022. On this Decision of the Ministry, One Crna Gora filed a complaint with the Administrative Court. There is a dispute under the U No. 526/22;
- The Supreme Court passed the Verdict Uvp No. 810/21 of December 8, 2022, which confirmed the Verdict of the Administrative Court U No. 4051/19 and rejected as unfounded requests for an extraordinary review of the Court Decision of the Agency and the Ministry of Economic Development;
- The Agency filed a constitutional appeal against this Decision of the Court to the Constitutional Court of Montenegro in February 2023.

Proceedings were also conducted before the Administrative Court against the Agency as a defendant regarding compensation for damages due to the rejection of One Montenegro's request to extend the use of radio frequencies approved by Special License No. 01-423 dated January 1, 2002, without a tender and without a payment of a new one-time fee, after the license in question expires in 2016. In 2021, the Administrative Court issued a Verdict No. 921/20 of September 10, 2021, which annulled the Agency's Decision. In a retrial, the Agency passed a new decision on November 18, 2021, against which One Montenegro filed a complaint with the Administrative Court. In January 2022, the Agency submitted the case files and statement of claim to the Administrative Court. This administrative dispute is ongoing.

According to the lawsuit of Montenegro Airlines in bankruptcy filed against the Decision of the Agency on confiscation of approved radio frequencies due to non-payment, an administrative dispute under the designation U No. 281/22 is being conducted.

9.6.2. Procedures conducted in 2022 before the Commercial Court

In 2022, the following disputes were brought before the Commercial Court in Podgorica:

- According to the claim of the Pošta Crne Gore for the compensation of the net cost of providing the Universal Postal Service for the year 2010, which was legally concluded in favor of the Agency by the judgment of the Court of Appeal. Pošta Crne Gore filed an appeal with the Supreme Court against the judgment of the Court of Appeal. In 2022, no decision was made regarding this revision;
- According to the lawsuit of the Agency against CEDIS due to the annual regulatory fee for the use of radio frequencies for the year 2020, which was legally terminated in favor of the Agency by the judgment of the Court of Appeal. CEDIS filed a review with the Supreme Court against the judgment of the Court of Appeal. The Supreme Court of Montenegro issued Judgment Rev IP No. 82/21 of April 6, 2022, rejecting the request of CEDIS as unfounded;
- The dispute regarding the claim of the operator One Montenegro against the Agency as the first defendant and the Ministry of Economy as the second defendant for damages was terminated until the final conclusion of the dispute regarding the harmonization of licenses and the dispute regarding the right to extend the use of radio frequencies approved by Special License No. 01-423 of 01.01. in 2002;
- Dispute on the claim of the operator Crnogorski Telekom for damages due to the imposition of a measure to reduce roaming prices in accordance with the Agreement on the reduction of roaming service prices in public mobile communication networks, which Montenegro concluded with other countries of the Western Balkans.

9.7. Procedures conducted pursuant to the Law on the use of physical infrastructure for the deployment of a high-speed electronic communications networks

The Law on the Use of Physical Infrastructure for the Deployment of High-Speed Electronic Communications Networks ("Official Gazette of Montenegro" 1/22) was adopted in December 2021 and entered into force in January 2022.

In this regard, the Agency informed all municipalities, the Union of Municipalities of Montenegro, the Traffic Administration and Monteput d.o.o. about the same in letters dated February 14, 2022, pointing out the meaning of its efficient application, especially in response to the implementation of 5G technologies in

Montenegro. In doing so, it was pointed out that the infrastructure owners, in the capacity of "network operator", are obliged to provide access and joint use of the physical infrastructure to electronic communications operators who install elements of high-speed electronic communications networks under non-discriminatory, transparent and proportional conditions and prices, and to publish and provide data on physical infrastructure and enable coordinated construction that is fully or partially financed from the budget or funds of public authority holders, and that the resolution of potential disputes within the meaning of this law is within the competence of the Agency in accordance with the Decision of the Council of the Agency No. 0901-2392/1 of 31 March 2022.

9.7.1. Dispute with regard to the access in the municipality of Nikšić

Crnogorski Telekom approached the utility company in Nikšić in May 2022 with a request for the use of public lighting poles in that municipality. As the request was not answered positively from the above addresses, Crnogorski Telekom on June 24, 2022 addressed the Agency with a request to resolve the dispute against DOO Komunalno Nikšić.

In letters dated July 7, 2022, the Agency requested a statement on the same from the company Komunalno Nikšić. In a letter dated July 20, 2022, Komunalno Nikšić informed the Agency that it is unable to comply with the request of Crnogorski Telekom, even though there is already an Agreement on business and technical cooperation concluded between the operator Mtel and the municipality of Nikšić dated July 27, 2015 for a period of 10 years, and that the price of the fee for the use of public lighting was determined by the same contract. In a letter dated July 27, 2022, the Agency instructed Komunalno Nikšić to reconsider Crnogorski Telekom's request and to allow it to use the physical infrastructure under the same conditions given to the operator Mtel in the above-mentioned Agreement, or to explain to them the reason for the refusal in accordance with Article 10 paragraph 4 of the aforementioned Act, and to report the same to this Agency. In the event that he does not do the same within the prescribed period, the Agency will, in accordance with the legal powers regarding the subject matters, and based on the valid Agreement with the operator Mtel, be forced to inform the Agency for the Prevention of Corruption and the Agency for the Protection of Competition.

In a letter dated August 18, 2022, the Secretariat for Communal Affairs and Traffic of the municipality of Nikšić informed the Agency that the municipality of Nikšić, as the owner of the municipal infrastructure, concluded a contract with DOO Komunalno Nikšić on July 1, 2022, which entrusted that company and public lighting management. Accordingly, from that date, the contact address to which interested operators can address requests for access to public lighting poles in Nikšić is DOO Komunalno Nikšić, about which the Agency immediately informed Crnogorski Telekom.

In a letter dated September 8, 2022, Crnogorski Telekom expressed its gratitude for the Agency's influence and urgency towards the local administration of the municipality of Nikšić, which resulted in the definition of the competent authority that will sign contracts for the use of communal infrastructure, as well as that they expect the same in the municipality of Bar as soon as possible and conclude that the initial problems in the application of the Law due to the activities of the Agency are very successfully overcome.

9.7.2. Dispute with regard to the access in the municipality of Bar

Crnogorski Telekom applied to DOO Komunalne djelatnosti Bar on April 12, 2022, with a request for the use of public lighting poles in that municipality. Since that company did not respond to the request, Crnogorski Telekom addressed that company with a new request dated 24.05.2022, and D.O.O. Komunalne usluge Bar replied to Crnogorski Telekom in a letter dated 29.06.2022 that the company was not responsible for fiber rental, but that they should contact the Secretariat for Investments and Property of the municipality of Bar.

On June 24, 2022, Crnogorski Telekom submitted a request to the Agency to resolve the dispute regarding access and joint use of physical infrastructure with the company Komunalne djelatnosti Bar utility company Bar. On July 7, 2022, the Agency sent a letter to the company Komunalne djelatnosti Bar, asking for a statement regarding the Request of Crnogorski Telekom. On July 21, 2022, Komunalne djelatnosti Bar replied to the Agency that the address for resolving the Request of Crnogorski Telekom is the municipality of Bar, which is the owner of the complete infrastructure, and that it agrees to the request in question, and that they informed Crnogorski Telekom about the same in a letter dated June 29, 2022.

On July 11, 2022, Crnogorski Telekom sent the same request to the Secretariat for Investments and Property of the municipality of Bar, emphasizing that they are looking for the lease of public lighting poles for the purpose of setting up their own infrastructure, and that they are not looking for the lease of optical fibers.

On July 29, 2022, the Agency sent a letter to the municipality of Bar, asking it to declare as soon as possible in accordance with that letter and the request of Crnogorski Telekom, so that the Agency, as the competent body for resolving disputes, could take all legal actions in order to determine the actual factual situation and make a decision. Also, in the same letter, the Agency requested that information on the ownership/disposal of public lighting poles in the municipality of Bar be submitted in the statement, in order to end the "walk" between authorities/companies in the municipality of Bar, establish communication with the right party and, in case of need, undertake the legally defined measures against it. Given that the municipality of Bar did not comment on this letter, the Agency, by letter dated September 2, 2022, sent an urgent request to comment on the same no later than September 9, 2022, so that the Agency, as the competent authority for resolving disputes, could take all legal actions in order to determine the actual factual situation and make a decision.

The Secretariat for Property, Representation and Investments of the municipality of Bar sent a letter to the Agency by e-mail dated September 2, 2022 (as a response to the urgency of submitting a contact for requests in accordance with the law in question) that the municipality of Bar is an entity that has property rights, i.e. the right to dispose of physical infrastructure, and that immovable property be disposed of by the Municipal Assembly of Bar. In order to provide information on valid contracts for the use of public lighting poles in municipalities, the Agency sent a letter to the operators (Crnogorski Telekom, One Crna Gora, Mtel and Telemach) on September 8, 2022, requesting them to submit information about the legal entity, with which they concluded contracts on the use of municipal infrastructure (public lighting poles and TK sewage) by municipality. The use of this infrastructure is represented in eight municipalities (Podgorica, Bar, Budva, Kotor, Herceg Novi, Nikšić, Ulcinj and Danilovgrad). Given that the contract between Mtel and the municipality of Bar was concluded in 2015, the Agency had a reason to ask the municipality of Bar to act in the same way towards Crnogorski Telekom.

Given the fact that the municipality of Bar responded to the Agency through the Secretariat for Investments and Property of the municipality of Bar, the Agency sent a letter to the municipality of Bar in September

2022, informing about the response of the Secretariat for Property, Representation and Investments of the Municipality of Bar, which refers that the municipality of Bar has water supply and sewerage infrastructure of local importance, municipal roads and accompanying facilities, streets in settlements and public lighting, and that it has property rights, and that it can be considered a network operator in the sense of the law in question. In the same letter, the Agency, starting from the fact that in 2015 the municipality of Bar concluded a contract on business and technical cooperation with Mtel for a period of 10 years, and that the same contract also determined the price of the fee for the use of public lighting, indicated that there are prerequisites for providing the same services and to all other operators who submit a request under equal conditions, depending on technical possibilities. In this regard, it is necessary that the stated conditions and prices be published on the official website. Also, it is requested that, in accordance with its powers, the Municipality of Bar responds to the request of Crnogorski Telekom to DOO Komunalne djelatnosti Bar, number 05-6126 dated April 12, 2022, i.e. to the request to the Secretariat for Property, Representation and Investments of the Municipality of Bar, No. 05-12180 of July 18, 2022, as well as to future possible requests from the subject area, and to implement the same, or to authorize another entity for the same, and to inform the Agency about the same, so that the address and contacts at which the operators will address were published on the Agency's website and available to all interested operators.

Given that the response of local administrations to operator requests is still not satisfactory, the Agency planned to undertake specific activities in 2023 in the direction of increasing the efficiency of dealing with them. In this regard, it is planned to organize six workshops on the subject of Acquainting local administrations and utility companies with the Law on the use of physical infrastructure for setting up high-speed electronic communication networks, obligations under the Law on Electronic Communications, the Agency's Geoportal and obligations related to electronic communication infrastructure under the Law on space planning and construction of buildings.

9.8. Court proceedings initiated by the postal services operator

Apart from the proceedings before the Administrative Court, which was initiated based on the claim of the Pošta Crne Gore for the annulment of the Agency's decision made in the verification procedure of the calculation of the net cost of the universal postal service for the year 2021, no other court proceedings were initiated in 2022 by the postal service operator.

9.9. Administrative proceeding conducted regarding verification procedure for the calculation of the net cost of the universal postal service

All proceedings before the Administrative Court that were initiated following the lawsuits of the Pošta Crne Gore against the Agency's decision on the rejection of the request for the verification of the net cost calculation for 2011-2017 were legally terminated by the judgments of the Supreme Court of Montenegro in favor of the Agency. Against the ruling of the Administrative Court dated November 30, 2021, which rejected the lawsuit of the Pošta Crne Gore against the Agency's decision to reject the request for the verification of the net cost calculation for the year 2018, the Post did not initiate proceedings before the Supreme Court of Montenegro, so this the procedure was legally concluded in favor of the Agency.

Pošta Crne Gore did not initiate administrative proceedings against the two decisions of the Agency that were made in the procedures for the verification of the calculation of the net cost of the universal postal service

for 2019 and 2020. The aforementioned decisions accepted the requests of the Pošta Crne Gore for the verification of both calculations of the net cost of the universal postal service for the years 2019 and 2020, but the net cost amounts determined by the aforementioned decisions of the Agency were lower than the amounts that were the subject of the request for verification for the years 2019 and 2020, that is, lower than the amount of this cost calculated by the Pošta Crne Gore for the mentioned years.

In 2022, proceedings were initiated before the Administrative Court of Montenegro to annul the Agency's decision made in the verification procedure of the calculation of the net cost of the universal postal service for the year 2021, which decision established that the Pošta Crne Gore did not maintain separate accounting in 2021 in accordance with the Law on Postal Services and the Rulebook on the method of accounting and calculation of the net cost of the universal postal operator and the request for verification of the calculation of the net cost of the universal postal service for the year 2021 of the Pošta Crne Gore was rejected as unfounded.

By letter U No. 12666/2022 dated December 22, 2022, the Administrative Court of Montenegro submitted to the Agency the complaint of the Pošta Crne Gore for the annulment of the Agency's decision number 0102-3246/14 dated November 30, 2022. The Agency submitted the response to the complaint of the Pošta Crne Gore, together with the case files, to the Administrative Court of Montenegro with submission No. Up-0102-708/2 dated January 20, 2023.

10. PERFORMED TASKS THAT HAVE NOT BEEN SUBJECT TO THE 2022 WORK PLAN

10.1. Participation in the preparation of the Development Strategy for the development of 5G mobile communications network in Montenegro 2023-2027

In accordance with the Decision of the Ministry of Economic Development on the appointment of the Working Group for the drafting of the Strategy for the introduction of 5G mobile communication networks in Montenegro 2023-2027, number 013-350/22-6665/1 dated March 22, 2022, representatives of the Agency participated in the work and made a significant contribution to the preparation of this strategic document that will be adopted by the Government of Montenegro in 2023.

The Agency previously prepared a comprehensive document - Study on the strategy of introducing 5G mobile communication networks in Montenegro¹⁶, in which the key challenges and advantages of the implementation of 5G networks were identified, as well as the experiences of other countries in this process. This study systematically and thoroughly identified recommendations for the timely introduction and development of 5G mobile networks in Montenegro. Taking into account the recommendations from this study, the findings, suggestions and comments of interested parties and experts in the subject area during the work of the Working Group, the Draft Strategy for the Development of 5G Mobile Communication Networks in Montenegro 2023-2027¹⁷ identified key challenges for the development of 5G networks in Montenegro and defined goals and activities to achieve maximum benefits for citizens and the economy of Montenegro.

The draft Strategy for the Development of 5G Mobile Communication Networks in Montenegro 2023-2027 sets strategic priorities, as well as the associated operational goals for achieving strategic goals in the field of 5G mobile communication networks. Action plan 2023-2025 is an integral part of the Draft Strategy and represents a set of all activities that influence and contribute to the realization of defined operational or strategic goals.

Activities on the preparation and creation of the strategy were realized through the following phases:

- Analysis of the situation and identification of problems,
- Identification and description of strategic and operational goals,
- Definition and description of performance indicators,
- Definition of activities and indicators of results with an Action Plan,
- Drafting of a strategic documents,
- Public discussion.

¹⁶ March 2021

¹⁷ The document was supposed to refer to the introduction of 5G mobile communication networks, however, as 5G became commercially available for users in Montenegro at the beginning of March 2022, it was decided to change the name of the document to emphasize the development of 5G mobile communication networks in Montenegro.

After the end of the public discussion, it is expected that the Strategy in question will be adopted in the first half of 2023¹⁸.

10.2. Acting according to the recommendations of the State Audit Institution from the Report on the financial audit and audit of the regularity of operations of the Agency for Electronic Communications and Postal Services for the year 2020

The State Audit Institution performed a financial audit and an audit of the regularity of the Agency's operations for the year 2020 and prepared the Final Audit Report No. 04-035/21-455/34 dated July 30, 2021, in which the Agency was given 26 recommendations for eliminating the identified irregularities and one recommendation to another state body.

On the basis of the Final Audit Report, the Agency timely submitted to the State Audit Institution the Report on Implementation of Recommendations, number 0102-723/1 dated January 31, 2022, with accompanying documentation on the implementation of recommendations.

The Competent Board of the State Audit Institution concluded, on the basis of the submitted Report on the implementation of recommendations and the assessment of the audit team: that 10 recommendations have been implemented, that 3 recommendations have been partially implemented, that 4 recommendations are in the implementation phase, that 4 recommendations have not been implemented and that for 5 it could not convince of the implementation status of the recommendations and concluded that it is necessary for the Agency to submit a new Report on the implementation of the recommendations no later than September 5, 2022.

The Agency timely submitted a new Report to the State Audit Institution on the implementation of recommendations, number 0102-723/9 dated July 28, 2022, with accompanying documentation. The audit team performed additional control of the implementation status of 16 recommendations (recommendations number: 2, 3, 6, 7, 10, 11, 12, 15, 16, 19, 20, 21, 22, 23, 24 and 25) from the Report on Financial audit and audit of the regularity of the Agency's operations for 2020 and concluded: that 7 recommendations have been implemented, that 4 recommendations have been partially implemented, that 1 recommendation is in the implementation phase, that 1 recommendation has not been implemented, that for 2 recommendations the status cannot be ascertained implementation and that 1 recommendation is not applicable. The audit team concluded that out of 16 recommendations, the Agency implemented 7 recommendations, and further monitoring is required for 8 recommendations, while 1 recommendation is not applicable. In this regard, the State Audit Institution concluded that the Agency is obliged to submit a new Report on the implementation of the recommendations for 8 recommendations (recommendations number: 3, 7, 10, 11, 12, 15, 20 and 21) no later than March 31, 2023. Within the given deadline, the Agency submitted the third Report on the implementation of recommendations, number 0102-2345/2 dated March 30, 2023, with accompanying documentation on the implementation of recommendations, in which it stated that it considers that all recommendations were given by the State audit institutions realized.

In order to fulfill the recommendations of the State Audit Institution, the Agency undertook numerous activities in 2022, especially in the area of improving management and internal controls.

¹⁸ Public consultations carried out in the period 7-28.02.2023

10.3. Participation in the project of infrastructure development for the broadband Internet access

The implementation of next generation networks in Montenegro will strengthen the country's economic and social development. More precisely, it is predicted that access to ICT will increase business opportunities in all economic sectors and enable social inclusion for all participants and all communities. Moreover, it will encourage the digital connection of Montenegro with other countries in the region and the EU, reduce the digital gap and contribute to the development of the region. One of the most important preconditions for the digital transformation of the entire society is ensuring the connection of all citizens and businesses with high-capacity broadband networks. In this context, WBIF technical assistance was implemented through the project "Feasibility Study and Cost-Benefit Analysis for Regional Broadband Infrastructure Development in Montenegro", which was approved by Management Board of the Western Balkans Investment Framework (WBIF) in June 2019. The selected consultant started work in July 2020, and the project was completed in the second half of 2021.

Beneficiary of this technical assistance was the Ministry of Economic Development.

The main conclusions of this Feasibility Study, which refer to the fixed electronic broadband networks, are as follows:

- There are four main operators of electronic communications;
- In most rural areas, there is at least one operator that provides mobile network coverage;
- Most operators invest in the development of optical networks, especially in cities and tourist areas;
- There is a trend of migration of broadband connections towards higher access speeds (over 100 Mb/s);
- More than 900 settlements out of the total number of settlements, which is 1,256 settlements, have access speeds of less than 30 Mb/s;
- In most suburban and rural settlements, the technologies provided through the copper access network represent the main solution for Internet access service;
- For a certain number of rural areas, the service is provided through the so-called "broadband wireless access", mainly via LTE networks through the obligation to provide universal service;
- In a large number of cities and towns, there are access networks that are realized with aerial optical cables;
- The high development of networks based on aerial optical cables is a consequence of the fact that the installation of aerial cables on CEDIS poles did not require a permit.

Based on the available data on electronic communications networks and a three-year plan of the operators for further network development, as well as on other available data (demographic, cadastral, technical etc.), the settlements were classified as white, grey and black zones¹⁹ in accordance with a broadband network which allows the access to the speeds higher than 30Mbps and 100Mbps (so called NGA networks). Most of the settlements in rural areas are classified as white zones with regard to coverage with a high-speed networks of very high capacity (VHCN). Black or grey zones with regard to the coverage with broadband speeds of very high capacities are mostly the settlements of urban type and the coastal settlements.

¹⁹ white zone: no operators; Grey zone: with one operator existing; and Black zone: with at least two operators existing.

Based on the aforementioned data, a techno-economic model was developed to calculate the costs of setting up and operating NGN networks in Montenegro. An analysis was prepared for 4 potential scenarios:

- Scenario 1: GPON with a mixed underground and aerial FTTH network for the entire territory, where all white zones and selected gray zones with the main socioeconomic drivers would be covered;
- Scenario 2: GPON with a mixed underground and aerial FTTH network for the entire territory, covering selected white zones and selected gray zones with the main socioeconomic drivers;
- Scenario 3: GPON with a mixed underground and aerial FTTH network for the entire territory, covering all white zones;
- Scenario 4: GPON with a mixed underground and aerial FTTH network for the entire territory, where selected white zones with the main socio-economic drivers.

An analysis of the costs and benefits of the network construction provided for in scenario 2 "White and gray zones with socioeconomic drivers" has been prepared. In this project, four different cases were considered in connection with the proposed financing scheme for project implementation. The CBA (Cost-Benefit Analysis) study is based on the model for CBA Broadband analysis developed by JASPERS and which is parameterized based on the relevant characteristics of Montenegro (demand, supply, cost estimation) necessary for this study obtained from previous reports.

Various business and investment models were also proposed. The basic proposed model for this project is a private-public partnership, whereby the joint scheme should last for 20 years. The public sector should be the owner of the network, and the private sector should be the operator that will provide the services.

As a continuation of this project, the Management Board of the Western Balkans Investment Framework (WBIF) in July 2022 approved a new grant for technical assistance in the amount of €525,000. This technical assistance should include the Update of technical documentation, Strategy related to procurement and contracting, Procurement Plan, Market Model, Tender documentation and Action Plan related to the environment and society for the Development of Broadband Infrastructure in Montenegro. Technical assistance will be implemented in accordance with the Project Terms of Reference prepared in the second half of 2022. The beneficiary of this technical assistance will be the Ministry of Economic Development and Tourism, and the expected duration of the project is 18 months.

The Agency for Electronic Communications and Postal Services has actively participated in this project through its representatives. The main role of the Agency was to provide georeferenced data on electronic communication networks and electronic communication infrastructure of operators in Montenegro, data on the state of the electronic communications market, as well as information related to the application of the regulatory framework defined by the Law on Electronic Communications and by-laws. In addition, the representatives of the Agency made proposals with the aim of specifying, and thereby increasing the quality, of individual parts of the project itself.

11. CONCLUSION

The stable and predictable regulatory framework created by the Government of Montenegro, the departmental Ministry of Economic Development and the Agency for Electronic Communications and Postal Services had a significant impact on the development of the electronic communications and postal services sector during 2022. The legal and by-law regulations were adopted in a timely manner with maximum harmonization with the regulatory framework of the European Union, and further improvement and development of the electronic communications sector can be expected after the national legislation is harmonized with Directive (EU) 2018/1972 on the European Code of Electronic Communications, which is planned to be completed by the end of 2023 by the Program of the Government of Montenegro and the relevant Ministry of Economic Development and Tourism. Also, the adoption of the Strategy for the Development of 5G Mobile Communication Networks in Montenegro 2023-2027, which was completed by the appointed Working Group at the end of 2022, will also affect the accelerated development of the electronic communications sector and the social community in general, and the adoption of which is expected in the first half of 2023. The Digital Transformation Strategy of Montenegro 2022-2026 and the Cyber Security Strategy of Montenegro 2022-2026, adopted by the Government of Montenegro at the end of 2021, are also important for the development of the digital economy and digital society in Montenegro. The Strategy for the Development of the Postal Industry in Montenegro is also in force, which establishes strategic principles and activities in the postal industry sector for the period 2019-2023.

Electronic communication networks and electronic communication infrastructure in Montenegro make it possible to apply the most modern technologies for the provision of electronic communication services. Through the existing networks and infrastructure, users in Montenegro are offered today almost all existing electronic communication services that are provided in the world and that currently meet the needs of the users of these services.

In the course of 2022, operators have invested around 69 million euros in the development of electronic communication networks. The segment of public mobile electronic communication networks in 2022 is marked by a further increase.

The segment of fixed mobile electronic communication networks in 2022 is marked by a further increase in the number of connections with optical fibers, as the most modern and fastest, and a constant increase in the speeds at which users access the Internet.

The segment of public mobile electronic communication networks in 2022 is characterized by a further increase in the capacity of the access part of LTE/LTE-Advanced mobile networks in order to compensate for the increase in traffic volume and maintain the quality of data transmission services at a high level, as well as the commercial launch of 5G NR mobile networks. In March 2022, the mobile operator Crnogorski Telekom, and in July of the same year also the mobile operator One Crna Gora, put into commercial operation the 5G NR network using the existing frequency resources from the 2 GHz and 2.6 GHz bands and with the application of the dynamic spectrum sharing technique (DSS), which is extremely important from the aspect of promoting Montenegro as a tourist destination, as well as a destination suitable for the work of digital nomads. The Agency successfully completed the spectrum auction for the pioneering 5G bands (700 MHz and 3.6 GHz), and the operators paid the amount of €8,836,146.00. Compared to the initial prices, the

realized income is higher by €1,086,146.00 or slightly more than 14%. It should also be recalled that at the beginning of 2022, €7,086,011.00 was paid into the budget of Montenegro based on the results of the spectrum auction that was conducted at the end of 2021.

The postal sector in Montenegro has a significant infrastructure that provides access to networks and services that are also important for the efficient functioning of the economy and society as a whole. The provision of universal postal services is of public interest for Montenegro. It is evident that the market of postal services in Montenegro is exposed to a process of constant changes due to the need to adapt to the information and communication environment and the services that such an environment enables. In 2022, postal operators provided a total of 36,135,642 postal services, which is 2.3% more than in the previous year.

By intensifying cooperation with competent state institutions, regulatory agencies from the Region and the European Union, and by exchanging experiences and knowledge with experts from international organizations and institutions, the Agency continuously takes care of the constant progress of administrative capacities, which is one of the final benchmarks in Negotiating Chapter 10 - Information Society and Media, but it is also a guarantee that in the coming period it will successfully regulate the sectors of electronic communications and postal activities, as well as until now, and that with the application of the basic principles of regulation: objectivity, transparency, non-discrimination and proportionality, it will provide the conditions for balanced development of the market of electronic communications and postal services.

In 2022, the Agency completed all the activities provided for by the Work Plan and Financial Plan for 2022, passed by the Parliament of Montenegro, Decision No. 00-72/21-34/4 EPA 290 XXVII dated 29.12.2021 ("Official Gazette of Montenegro", 140/21), i.e. by the Operations Plan for the implementation of the Work Plan for 2022 and the Work Program of the Agency Council for 2022.

12. APPENDICES

12.1. Contents of the Work Plan of the Agency for 2022

The contents of the Agency's Work Plan for 2022 is given below, showing where in this report there is information on the execution of planned program activities for 2022.

Contents of the Work Plan of the Agency for 2022	Report on the Agency's work for 2022
I INTRODUCTION	
II PLAN OF THE ACTIVITIES	
II-1. NORMATIVE PART	Item 8.1.
II-1.1. Normative part – Electronic communications	Item 8.1.
A. Regulations and acts adopted by the Agency	Item 8.1.
B. Professional grounds for developing regulations and acts adopted by the ministries	Item 8.1.
C. Professional grounds for the development of regulations to be adopted by the Government of Montenegro	Item 8.1.
II-1.2. Normative part – Postal services	Item 5.1.
A. Regulations and acts adopted by the Agency	Item 5.2.
B. Professional grounds for the development of regulations and acts to be adopted by the Ministry	Item 5.2.
C. Professional grounds for the development of regulations and acts to be adopted by the Government of Montenegro	Item 5.2.
II-2. CURRENT ACTIVITIES	
A. Maintaining and keeping the registers and data base of the Agency	Items: 1.3, 4.2, 4.6, 12.2, 12.3.
1. Register of operators	Items: 1.3. and 12.2.
2. Register of the approved radio frequencies	Item 4.2.
3. Register of numbers and addresses	Item 4.6.
4. Data base of electronic communications infrastructure	Item 1.12.
5. System for the collection and processing of data on the market of electronic communications services and postal services market	Item 8.9.
B. Protection of competition in the field of electronic communications	Items: 2.1, 2.2.
1. Analysis of relevant markets	Item 2.1.
2. Monitoring of implementation of regulatory obligations imposed to operators with significant market power	Item 2.1.
3. Regulation of retail prices of fixed telephony services	Item 2.1.
4. Monitoring of implementation of the model of accounting separation and cost accounting of operators in public fixed and mobile electronic communications network	Item 2.2.
5. Preparation of the "Margin squeeze" Methodology with bundle services in the fixed electronic communications network	Item 2.3.
6. Activities on implementation of the Agreement on reducing the prices of roaming services in public mobile communications networks in the Western Balkans region, concluded on April 4, 2019	Item 2.4.

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7. Preparation and implementation of Bottom-up LRIC cost models for the fixed and mobile electronic communications networks	Item 2.2.
8. Initiative on reducing the prices of international termination	Item 2.5.
C. Keeping separate accounting of universal postal operator	Item 5.4.
1. Monitoring of implementation of the Rulebook on Pravilnika on the manner of keeping accounting and calculation of net costs for the provision of universal postal services	Item 5.4.
2. Regulation of the prices of universal postal services	Item 5.4.
D. Universal Service	Chapters: 3. and 6.
1. Universal Service in electronic communications	Chapter 3.
2. Universal Service in postal services	Chapter 6.
E. Radio frequency Spectrum Management	Chapters: 4. and 8.
1. Planning of radio frequency use	Items: 4.1, 4.2, 4.3, 4.4, 4.5, 8.4. and 8.5.
2. Issuing approvals for radio frequency	Items 4.1, 4.2. and 4.3
3. Control and monitoring of radio frequency spectrum	Items: 8.2. and 8.3.
4. International coordination of radio frequencies	Item 4.4.
F. Numbers and addresses management	Chapters: 1, 4. and 8.
1. Issuing approvals for the use of numbers and addresses	Item 4.6.
2. Number portability	Item 1.11.
3. Informing the citizens on the availability and use of the Unique European number "112", for emergency calls	Item 4.7.
4. Provision of numbering resources for communications between mashines M2M	
G. Rights and protection of interests of users	Chapter 7.
1. Conducting the protection of rights and interests of users of electronic communications services and postal services	Item 7.1.
2. Monitoring the offers of operators and changes of agreed provision of services	Item 7.1.
3. General conditions of service provision	Item 7.1.
4. Subscriber agreements	Item 7.1.
5. Service quality	Items: 1.13. and 4.3.
6. System for measurement of Internet access speed	Item 1.13.
7. Monitoring compliance with network neutrality principles (Net neutrality) in Montenegro	Item 1.14.
8. Assistance tools for users when selecting electronic communications services (Tarif Calculator)	Item 7.1.
9. User education	Item 7.1.
10. Public opinion polling	Item 8.8.
11. Monitoring of the work of a national exchange point of Internet traffic in Montenegro (MIXP)	
H. Planning of electronic communications networks and electronic communications infrastructure	Item 8.7.
I. Protection of electronic communications	Item 1.15.
1. Implementation of measures for the provision of safety and integrity of electronic communications networks and services	Item 1.15.
2. Implementation of measures on the prevention and suppression of malware and fraud in the provision of electronic post services	Item 1.15.

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J. Carrying out monitoring in the field of electronic communications and postal services	Items: 5. and 8.
1. Expert supervision in the field of electronic communications	Item 8.6.
2. Expert supervision in the field of postal services	Item 5.5.
K. Implementation of measures set out by the Action Plan for implementation of the Information Society Development Strategy until 2020	Item 1.2.
L. Implementation of measures set out by the Action Plan on implementation of the Postal Services Development Strategy	Item 8.13.
M. Implementation of measures set out by other action plans in the implementation of which the Agency has been involved	Item 8.13.
II-3. PREPARATION OF PLANS, REPORTS AND INFORMATION RELATED TO THE ELECTRONIC COMMUNICATIONS MARKET AND POSTAL SERVICES MARKET	Items: 1, 4, 5, 8, 9. and 10.
A. Plans, reports and information prepared on an annual level	
B. Plans, reports and information prepared semi-annually	
C. Plans, reports and information prepared quarterly	
D. Plans, reports and information prepared monthly	
E. Plans, reports and information prepared when needed	
II-4. COOPERATION WITH COMPETENT STATE BODIES AND OTHER INSTITUTIONS, REGULATORY BODIES FROM OTHER COUNTRIES AND INTERNATIONAL ORGANISATIONS IN THE FIELD OF ELECTRONIC COMMUNICATIONS AND POSTAL TRAFFIC	Items: 8. and 10.
A. Cooperation with competent state bodies and institutions	Item 8.14.
B. Cooperation with international institutions	Item 8.15.
C. Organisation of international gatherings	Item 8.15.
II-5. MATERIAL-TECHNICAL AND PERSONNEL TRAINING	Items: 8.3, 8.11 and 8.12.

12.2. List of the operators entered in the Register of Electronic Communications Operators on 31.12.2022

Ser. No.	Name of the operator	The activity for which it is registered	The year of entry	Name of the operator used in this Report
1.	Crnogorski Telekom A.D. Podgorica	Operator of public fixed electronic communications network and operator of public fixed electronic communications services: transmission of voice, sound and picture (AVM), transmission of data, facsimile, intelligent network services, services of public telephone boxes, services of line leasing, service of voice transmission based on Internet protocol, feedback service, value added services and any other fixed telecommunications services, operator of public mobile electronic communications network, operator of public mobile electronic communications services.	2009	Crnogorski Telekom
2.	One Crna Gora d.o.o. Podgorica	Operator of public mobile electronic communications network and operator of public mobile electronic communications services, public fixed electronic communications network and public fixed electronic communications services and service of leasing of electronic communications infrastructure.	2009	One Crna Gora
3.	Mtel d.o.o. Podgorica	Operator of publicly available telephone services in fixed electronic communications network, publicly available services in mobile electronic communications network, services of transmission and distribution of audio-visual media contents and public electronic communications services of multiplexing and transmission of multiplexing signals to transmission multiplex network for broadcasting radio and other signals, internet access services, service of data transmission and service of leased lines.	2009	Mtel
4.	Telemach d.o.o. Podgorica	Operator of public fixed electronic communications network and operator of public fixed electronic communications services: internet access, fixed telephony and distribution of audiovisual media contents and service of voice transmission via networks based on Internet (VoIP).	2009	Telemach
5.	Wimax Montenegro d.o.o. Podgorica	Operator of public electronic communications network based on broadband wireless access (BWA), and operator of public electronic communications services	2009	Wimax Montenegro
6.	Radio-difuzni centar d.o.o. Podgorica	Operator of public electronic communications network for transmission and broadcasting radio and other signals, public electronic communications service of transmission and broadcasting of radio signals, public electronic communications service of leased lines and public electronic communications service of multiplexing, transmission of multiplexed signals to transmission multiplex network for the transmission of broadcasting signals and other signals and services of leasing of electronic communications infrastructure.	2009	Radio-difuzni centar

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7.	Pošta Crne Gore A.D. Podgorica	Operator of public fixed electronic communications network and operator of public fixed electronic communications services for the following services: provision of public services of public telephone boxes, and Provision of public services of voice transmission via networks based on Internet Protocol.	2009	Pošta Crne Gore
8.	Radio Euro Taxi d.o.o. Bar	Operator of public electronic communications services through its own functional network/system.	2009	Radio Euro taxi
9.	Orion Telekom d.o.o. Podgorica	Operator of publicly available telephone service in fixed electronic communications network, services of transmission and distribution of audiovisual media contents (excluding terrestrial radio broadcasting), services of voice transmission via internet, internet access services, voice transmission services, services with additional value and SMS services.	2010	Orion Telekom
10.	Ipmont d.o.o. Podgorica	Operator of public electronic communications services of voice transmission via networks based on internet Protocol (selection and pre-selection of an operator, prepaid calling cards, Call Shop and SIP users), internet access services, leased line services and services of access and use of the elements of electronic communications network (leasing of optical fibers - dark fiber).	2010	Ipmont
11.	Crnogorski Elektoprenosni Sistem A.D. Podgorica	Operator of public fixed electronic communications network and operator of public fixed electronic communications services for provision of leasing services of optical fibers (dark fiber).	2010	CGES
12.	Sattelite Broadband Service Network Montenegro d.o.o. Podgorica	Operator of public fixed electronic communications network and operator of public fixed electronic communications services for the provision of public service of Internet access, and public service of leased lines.	2011	SBS Net Montenegro
13.	Wireless Montenegro d.o.o. Podgorica	Operator of public electronic communications network based on TETRA (Terrestrial Trunked Radio) standard and electronic communications services of voice transmission and short text messages via TETRA system and Internet access services.	2012	Wireless Montenegro
14.	Siol d.o.o. Podgorica	Operator of public fixed electronic communications network and operator of public fixed electronic communications services, for internet access services, services of leased lines and services of the access to and use of the elements of electronic communications network (leasing of optical fibers).	2012	Siol
15.	Komunalne usluge d.o.o. Podgorica	Operator for the provision of services of leased optical fibers (dark fiber) and services of leasing of electronic communications infrastructure	2012	Komunalne usluge Podgorica
16.	Cogent Communications Montenegro d.o.o. Podgorica	Operator of public electronic communications services for Internet access, Ethernet links (point point) and IP transit	2013	Cogent Communications Montenegro
17.	Lona Trade d.o.o. Ulcinj	Operator of public electronic communications services for Internet access	2013	Lona Trade
18.	CPA d.o.o. Podgorica	Operator of public electronic communications services of Internet access, leased lines and leasing of optical fibers (dark fiber)	2014	CPA

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19.	Fibercom d.o.o. Podgorica	Operator of public fixed electronic communications network for the services of publicly available telephone services in the fixed electronic communications network, Internet access service and service of transmission and distribution of audiovisual media contents (except for terrestrial broadcasting)	2015	FiberCom
20.	Teleeye-Montenegro d.o.o. Bar	Operator of public fixed electronic communications networks (fixed wireless access on 5 GHz) for Internet access services	2015	Teleeye Montenegro
21.	Željeznicka infrastruktura Crne Gore A.D. Podgorica	Operator of public electronic communications services of access and use of electronic communications network elements and service of leasing of electronic communications infrastructure	2016	ŽICG
22.	Univerzitet Crne Gore-CIS Podgorica	Operator of public electronic communications services of connecting to national point of exchange of Internet traffic (IXP)	2016	Univerzitet Crne Gore – CIS
23.	Aquaterra solutions d.o.o. Budva	Operator of public electronic communications services of internet access	2016	Aquaterra Solutions
24.	Crnogorski elektodistributivni sistem d.o.o. Podgorica	Operator of public electronic communications services of leasing of optical fibers and leasing services of electronic communications infrastructure	2017	CEDIS
25.	MDS Network d.o.o. Tuzi	Operator of public electronic communications services of Internet access	2017	MDS Network
26.	ASP CO d.o.o. Herceg Novi	Operator of public electronic communications services of Internet access	2017	ASP CO
27.	INFO SISTEMI d.o.o. Podgorica	Operator of public electronic communications services for Internet access, data transmission, and lease of optical fibers	2018	Info sistemi
28.	NETMONT d.o.o. Bar	Operator of public electronic communications services of Internet access	2018	NetMont
29.	SIMES NET d.o.o. Podgorica	Operator of public electronic communications services in fixed electronic communications networks, transfer and distribution of audiovisual media contents, Internet access, leased lines, optical fiber leasing (<i>dark fiber</i>) and leasing of electronic communications infrastructure	2019	Simes Net
30.	RTV Mir&Teuta d.o.o. Ulcinj	Operator of public electronic communications services of multiplex access service for digital terrestrial broadcasting and transmission and/or distribution of audiovisual media contents and other data intended for direct receipt in the terrestrial broadcasting	2020	RTV Mir&Teuta
31.	RED d.o.o. Podgorica	Operator of public electronic communication services through its own functional network/system	2021	RED
32.	REGIONALNI VODOVOD CRNOGORSKO PRIMORJE d.o.o. Budva	Operator of public electronic communication services for the provision of optical fiber leasing services (<i>dark fiber</i>)	2021	Regionalni vodovod Crnogorsko primorje

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33.	PORTONOVİ RESORT MANAGEMENT COMPANY d.o.o. Kumbor	Operator of public electronic communications services for the provision of optical fiber leasing services (dark fiber) and electronic communications infrastructure leasing services	2021	Portonovi Resort Management Company
34.	PRO SOLUTIONS d.o.o. Tivat	Operator of public electronic communications services of Internet access	2022	Pro Solutions

12.3. List of the operators entered in the Register of Postal Operators on 31.12.2022

Ser. No.	Name of the operator	The activity for which it is registered	The year of entry	Name of the operator used in this Report
1.	Pošta Crne Gore a.d. Podgorica	Universal and commercial postal services	2007	Pošta Crne Gore
2.	Kingscliffe Distribution Montenegro d.o.o. Podgorica	Commercial Postal Services	2017	DHL
3.	Express One Montenegro d.o.o. Podgorica	Commercial Postal Services	2017	Express One Montenegro
4.	Montenomaks Control&Logistics d.o.o. Danilovgrad	Commercial Postal Services	2019	Montenomaks
5.	Tim Kop d.o.o. Podgorica	Commercial Postal Services	2019	Tim Kop
6.	Express Courier d.o.o.Bar	Commercial Postal Services	2020	Express Courier (UPS)
7.	Alo Kurir Express d.o.o. Plav	Commercial Postal Services	2018	Alo Kurir Express
8.	NTC Logistics d.o.o. Nikšić	Commercial Postal Services	2014	NTC Logistics
9.	Fast Express d.o.o. Danilovgrad	Commercial Postal Services	2020	Fast Express
10.	Purić Trade d.o.o. Podgorica	Commercial Postal Services	2020	Purić Trade
11.	Post Express d.o.o. Bar	Commercial Postal Services	2021	Post Express
12.	Adre Com Pljevlja	Commercial postal services	2021	Adre Com
13.	Exclusive Mobile d.o.o. Podgorica	Commercial Postal Services	2021	Exclusive Mobile
14.	Go Express - Braća Kasratović d.o.o. Podgorica	Commercial Postal Services	2021	Go Express
15.	Italicom d.o.o. Podgorica	Commercial Postal Services	2021	Daily-Express
16.	Lancer d.o.o. Podgorica	Commercial Postal Services	2021	Lancer
17.	Mg Express d.o.o. Podgorica	Commercial Postal Services	2021	MG Express
18.	Post Express Padrino d.o.o. Tivat	Commercial postal services	2021	Post Express Padrino

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19.	Pro Express d.o.o. Podgorica	Commercial Postal Services	2021	Pro Express
20.	Rabbit Courier d.o.o. Podgorica	Commercial Postal Services	2021	Rabbit Courier Express
21.	Royal Express d.o.o. Podgorica	Commercial Postal Services	2021	Royal Express
22.	Halo Dostava d.o.o. Podgorica	Commercial Postal Services	2021	Halo dostava
23.	Žvaka d.o.o. Podgorica	Commercial Postal Services	2021	Žvaka
24.	TT Phoenix d.o.o. Budva	Commercial postal services	2021	TT Phoenix
25.	Naš Express d.o.o. Podgorica	Commercial postal services	2021	Naš Express
