RUCKUS C110

Wall-Mounted 802.11ac Wave 2 Wi-FI AP, Switch and Cable Modem

Benefits

NO CAT 5 NEEDED

Deliver great in-room Wi-Fi and concurrent wired IP connectivity using an integral DOCSIS 3.0 cable modem for backhaul over coaxial cable.

GREAT ALL-IN-ONE

Combines the best of Wi-Fi with 802.11ac Wave 2 and a switch with two 100Mbps ports into one wall-mounted unit.

STUNNING WI-FI PERFORMANCE

Extends coverage with patented BeamFlex+™ adaptive antenna technology while mitigating interference by utilizing multi-directional antenna patterns.

AUTOMATE OPTIMAL THROUGHPUT

ChannelFly dynamic channel technology uses machine learning to automatically find the least congested channels. You always get the highest throughput the band can support.

SERVE MORE DEVICES

Connect more devices simultaneously with two MU-MIMO spatial streams and concurrent dual-band 2.4/5GHz radios while enhancing non-Wave 2 device performance.

SUPPORT MORE SERVICES

Multiple SSIDs and switch ports help support services such as VoIP, IPTV, and high-speed Internet access and in-room device connectivity.

MORE THAN WI-FI

Support services beyond Wi-Fi with Ruckus IoT Suite, Cloudpath security and onboarding software, SPoT Wi-Fi locationing engine, and SCI network analytics.

In hotels and housing structures, residents and guests have sky-high expectations for their in-room connectivity options. The technology experience—the quality of available high-speed wired and wireless Internet, voice, and TV services—is becoming a central factor in which hotels people choose for both business and leisure. When weighing options for long-term housing, poor-quality wired and wireless services can cause prospective residents to disqualify a property altogether.

The RUCKUS C110 delivers a modern, in-room wall-mount solution that is fast and easy to install, using existing in-building or off-premises Cable Modem Termination Systems (CMTS). The C110 combines the industry's highest-performing 802.11ac Wave 2 wireless access point with a DOCSIS 3.0 cable modem and Ethernet switch.

The C110 is the perfect choice for hotels, student residence halls, and multi-dwelling unit (MDU) properties that depend on coaxial cable to deliver high-speed Internet. Equipped with two Ethernet ports, it can connect IPTV set-top, VoIP telephones, and other wired devices. At the same time, the C110 delivers great 802.11ac wireless performance with advanced features such as guest access and Hotspot 2.0.

The C110 802.11ac Wave 2 Wi-Fi AP and switch incorporates patented technologies found only in the Ruckus Wi-Fi portfolio.

- Extended coverage with patented BeamFlex+ utilizing multi-directional antenna patterns.

- Improve throughput with ChannelFly, which dynamically finds less congested Wi-Fi channels to use.

The C110 also provides next-generation 802.11ac features like MultiUser MIMO (MU-MIMO) connectivity. It can simultaneously transmit to multiple client devices, drastically improving spectral efficiency, overall throughput for all users—even those with non-Wave 2 clients. Additionally, it features a USB port for hosting Internet of Things (IoT) devices such as Bluetooth Low Energy (BLE), and support for smart mesh networking to minimize the need for extra cabling.
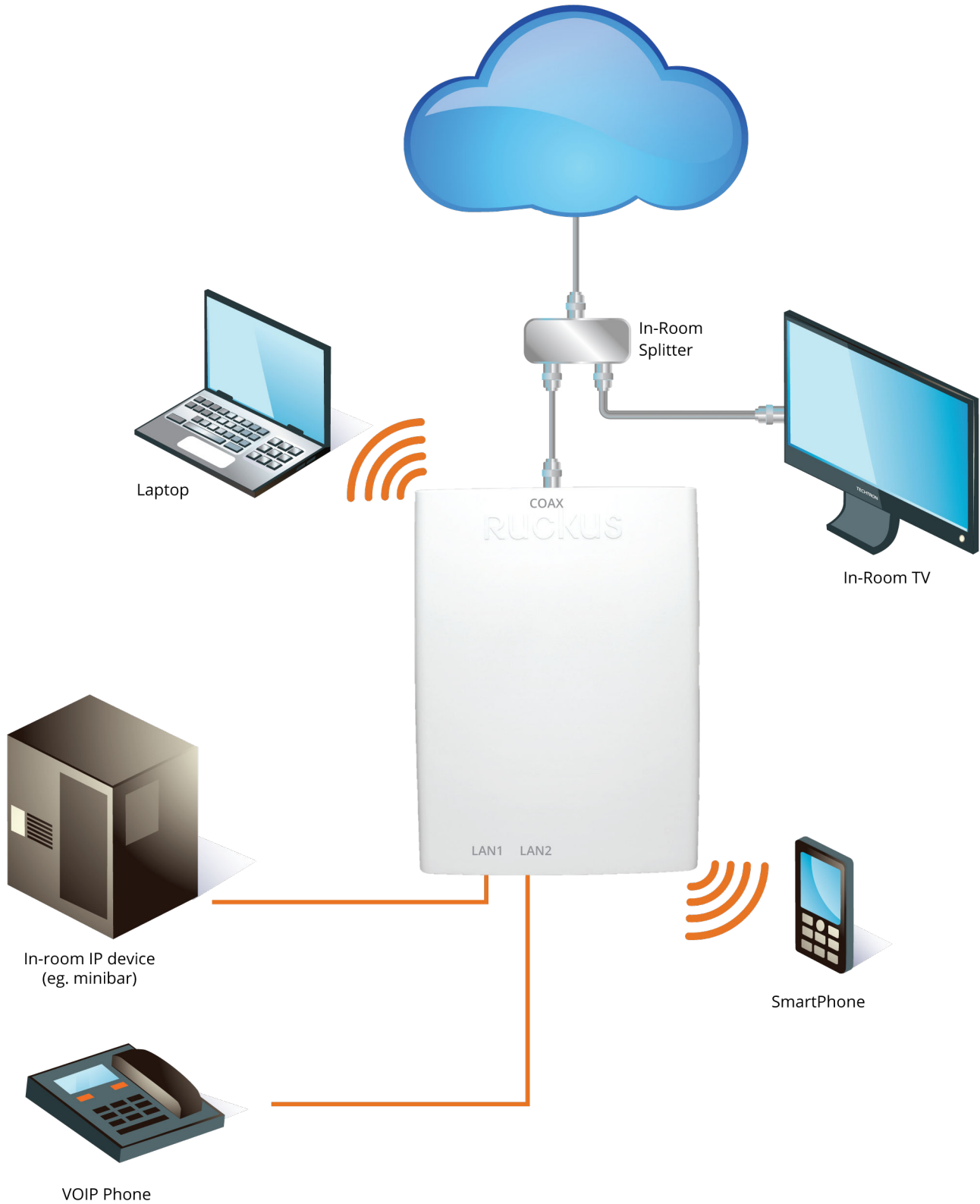
Whether you're deploying ten or ten thousand APs, the C110 is easy to manage through RUCKUS's network controller and appliance options.

NOTE: The C110 is available only through approved DOCSIS Ruckus Partners, as its installation requires specialized knowledge of cable modems and CMTS equipment. For more details, please contact your local Ruckus sales team.

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CONVERGED WIRED AND WIRELESS SERVICES

Laptop

In-Room Splitter

COAX

In-Room TV

RUCKUS

LAN1   LAN2

In-room IP device
(eg. minibar)

SmartPhone

VOIP Phone

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Access Point Antenna Pattern

Ruckus' BeamFlex+ adaptive antennas allow the C110 AP to dynamically choose among a host of antenna patterns in real-time to establish the best possible connection with every device. This leads to:

• Better Wi-Fi coverage

• Reduced RF interference

Traditional omni-directional antennas, found in generic access points, oversaturate the environment by needlessly radiating RF signals in all directions. In contrast, the Ruckus BeamFlex+ adaptive antenna directs the radio signals per-device on a packet by-packet basis to optimize Wi-Fi coverage and capacity in real-time to support high device density environments. BeamFlex+ operates without the need for device feedback and hence can benefit even devices using legacy standards.

Figure 1. Example of Beamflex+ pattern
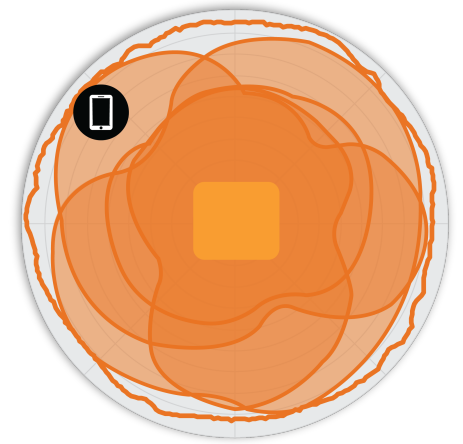
Client   Composite Pattern   BeamFlex+

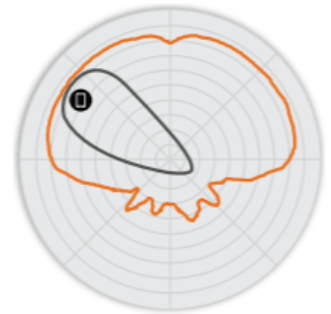Figure 2. C110 2.4GHz Azimuth Antenna Patterns

Figure 3. C110 5GHz Azimuth Antenna Patterns

Figure 4. C110 2.4GHz Elevation Antenna Patterns

Figure 5. C110 5GHz Elevation Antenna Patterns

Note: The outer trace represents the composite RF footprint of all possible BeamFlex+ antenna patterns, while the inner trace represents one BeamFlex + antenna pattern within the composite outer trace.

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WI-FI	
Wi-Fi Standards	• IEEE 802.11a/b/g/n/ac Wave 2
Supported Rates	• 802.11ac: 6.5 to 867Mbps (MCS0 to MCS9, NSS = 1 to 2 for VHT20/40/80) • 802.11n: 6.5Mbps to 300Mbps (MCS0 to MCS15) • 802.11a/g: 54, 48, 36, 24, 18, 12, 9, 6Mbps • 802.11b: 11, 5.5, 2 and 1 Mbps
Supported Channels	• 2.4GHz: 1-13 • 5GHz: 36-64, 100-144, 149-165
MIMO	• 2x2 SU-MIMO • 2x2 MU-MIMO
Spatial Streams	• 2 Streams SU/MU-MIMO
Channelization	• 20, 40, 80MHz
Security	• WPA-PSK, WPA-TKIP, WPA2 AES, 802.11i, Dynamic PSK • WIPS/WIDS
Other Wi-Fi Features	• WMM, Power Save, Tx Beamforming, LDPC, STBC, 802.11r/k/v • Hotspot • Hotspot 2.0 • Captive Portal • WISPr

2.4GHZ TX POWER TARGET	
Rate	Pout (dBm)
MCS0 HT20	16
MCS7 HT20	15

5GHZ TX POWER TARGET	
Rate	Pout (dBm)
MCS0 VHT20	19
MCS7 VHT20	14
MCS0 VHT40, VHT80	19
MCS7 VHT40, VHT80	14
MCS9 VHT40, VHT80	12

PERFORMANCE AND CAPACITY	
Peak PHY Rates	• 2.4GHz: 300Mbps 5GHz: 867Mbps
Client Capacity	• Up to 100 clients per AP
SSID	• Up to 32 per AP

RF	
Antenna Type	• BeamFlex+ adaptive antennas with polarization diversity • Adaptive antenna that provides multiple unique antenna patterns per band
Antenna Gain (max)	• 2.4GHz: 3dBi • 5GHz: 3dBi
Peak Transmit Power (aggregate across MIMO chains)	• 19 dBm for 2.4GHz • 22 dBm for 5GHz
Minimum Receive Sensitivity[1]	• -96/-95dBm
Frequency Bands	• ISM (2.4-2.484GHz) • U-NII-1 (5.15-5.25GHz) • U-NII-2A (5.25-5.35GHz) • U-NII-2C (5.47-5.725GHz) • U-NII-3 (5.725-5.85GHz)

RUCKUS RADIO MANAGEMENT	
Antenna Optimization	• BeamFlex+ • Polarization Diversity with Maximal Ratio Combining (PD-MRC)
Wi-Fi Channel Management	• ChannelFly • Background Scan Based
Client Density Management	• Adaptive Band Balancing • Client Load Balancing • Airtime Fairness • Airtime-based WLAN Prioritization
SmartCast Quality of Service	• QoS-based scheduling • Directed Multicast • L2/L3/L4 ACLs
Mobility	• SmartRoam
Diagnostic Tools	• Spectrum Analysis • SpeedFlex

2.4GHZ RECEIVE SENSITIVITY			
HT20		HT40	
MCS0	MCS7	MCS0	MCS7
-90	-72	-87	-69

5GHZ RECEIVE SENSITIVITY					
VHT20		VHT40		VHT80	
MCS0	MCS7	MCS0	MCS7	MCS0	MCS7
-92	-72	-89	-69	-86	-64

[1] Rx sensitivity varies by band, channel width and MCS rate.

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NETWORKING	
Controller Platform Support	• SmartZone • ZoneDirector
Mesh	• SmartMesh™ wireless meshing technology. Self-healing Mesh.
IP	• IPv4, IPv6
VLAN	• 802.1Q (1 per BSSID or dynamic per use based on RADIUS) • VLAN Pooling • Port-based
802.1x	• Authenticator & Supplicant
Tunnel	• L2TP, GRE, Soft-GRE
Policy Management Tools	• Application Recognition and Control • Access Control Lists • Device Fingerprinting • Rate Limiting

CABLE MODEM	
DOCSIS Version	• 1.0/1.1/2.0/3.0 compliant and certified
Channel Bonding	• Supports 8 downstream channels and 4 upstream channels
Support and Management	• Embedded diagnostics web interface • Status LED's • SNMP management

PHYSICAL INTERFACES	
Ethernet	• 2 x 10/100 Mbps local ports, RJ-45
USB	• 1 USB 2.0 port, Type A
Cable Modem	• Type F, DOCSIS/Euro DOCSIS 3.0 8x4 modem port

PHYSICAL CHARACTERISTICS	
Physical Size	• 180 (L) x 150(W) x 35(H) mm • 7.09 (L) x 5.9 (W) x 1.38 (H) in
Weight	• 386 g (13.62 oz)
Mounting	• Electrical wallbox • Secure bracket (sold separately)
Physical Security	• Hidden latching mechanism • Kensington lock • T-bar Torx • Bracket (902-0108-0000) Torx screw & padlock (sold separately)
Operating Temperature	• 0°C (32°F) - 40°C (104°F)
Operating Humidity	• Up to 95%, non-condensing

POWER[2]	
Power Supply	**Maximum Power Consumption**
DC input: 12VDC 2.0A	• 17.2W

CERTIFICATIONS AND COMPLIANCE	
Wi-Fi Alliance[3]	• Wi-Fi CERTIFIED™ a, b, g, n, ac • Passpoint®, Vantage
Standards Compliance[4]	• EN 60950-1 Safety • EN 61000-4-2/3/5 Immunity • IEC 61373 Railway Shock & Vibration • EN 62311 Human Safety/RF Exposure • WEEE & RoHS • ISTA 2A Transportation

SOFTWARE AND SERVICES	
Location Based Services	• SPoT
Network Analytics	• SmartCell Insight (SCI)
Security and Policy	• Cloudpath

[2] Max power varies by country setting, band, and MCS rate.

[3] For complete list of WFA certifications, please see Wi-Fi Alliance website.

[4] For current certification status, please see price list.

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ORDERING INFORMATION	
901-C110-US00	• C110, 802.11ac, 2x2:2, Dual Band Concurrent (2.4/5GHz) wall plate AP/CM, DOCSIS, North America power supply
901-C110-EU01	• C110, 802.11ac, 2x2:2, Dual Band Concurrent (2.4/5GHz) wall plate AP/CM, EuroDOCSIS, EU power supply
901-C110-UN00	• C110, 802.11ac, 2x2:2, Dual Band Concurrent (2.4/5GHz) wall plate AP/CM, DOCSIS, North America power supply
901-C110-UK01	• C110, 802.11ac, 2x2:2, Dual Band Concurrent (2.4/5GHz) Wall Plate AP/CM, EuroDOCSIS, UK power supply
901-C110-AR00	• C110, 802.11ac 2x2:2 Dual Band Concurrent (2.4/5GHz) wall plate AP/CM, DOCSIS, *No power supply*
901-C110-AU00	• C110, 802.11ac 2x2:2 Dual Band Concurrent (2.4/5GHz) wall plate AP/CM, DOCSIS, Australia/ New Zealand power supply

Warranty: Sold with a limited lifetime warranty.
For details see: http://support.ruckuswireless.com/warranty.

OPTIONAL ACCESSORIES	
902-0124-0000	• Accessory Offset Mounting Bracket. Includes 90-degree Male-Female F-connector.

CommScope pushes the boundaries of communications technology with game-changing ideas and ground-breaking discoveries that spark profound human achievement. We collaborate with our customers and partners to design, create and build the world's most advanced networks. It is our passion and commitment to identify the next opportunity and realize a better tomorrow. Discover more at commscope.com

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