

C110

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



DATA SHEET



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.

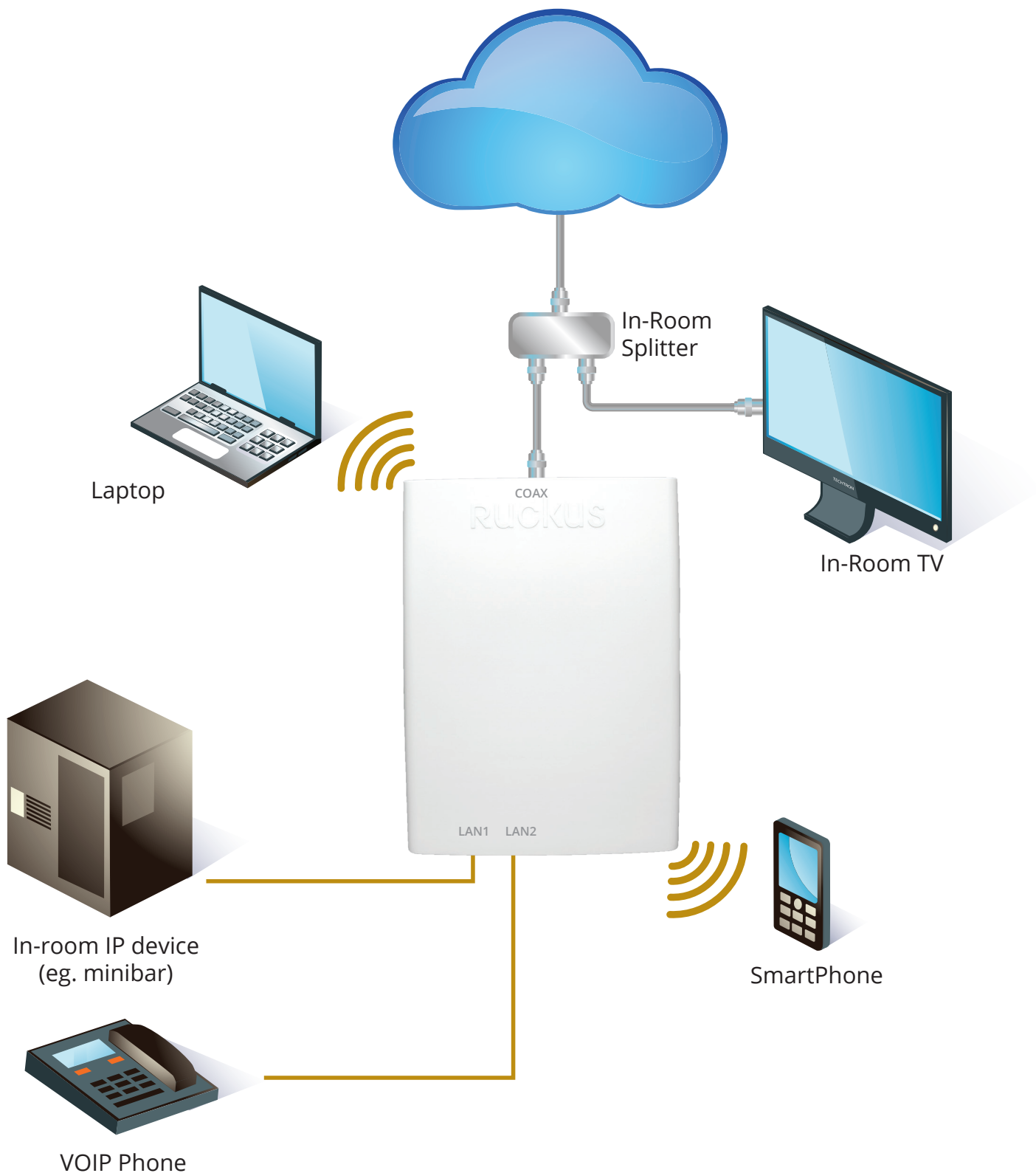
Whether you're deploying ten or ten thousand APs, the C110 is easy to manage through Ruckus' appliance, virtual and cloud management options.

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



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

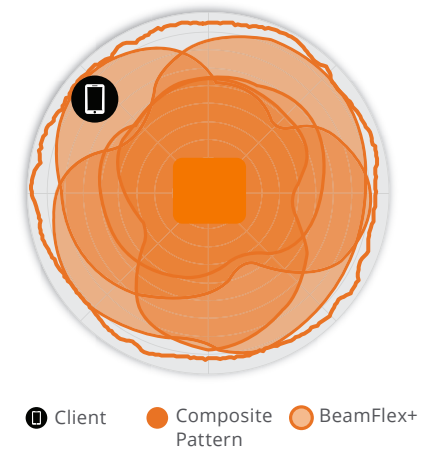


Figure 2. C110 2.4GHz Azimuth Antenna Patterns



Figure 3. C110 5GHz Azimuth Antenna Patterns

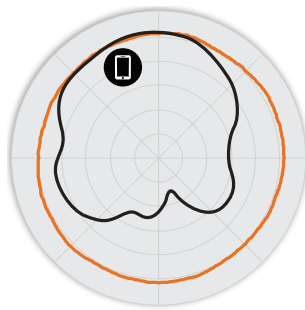
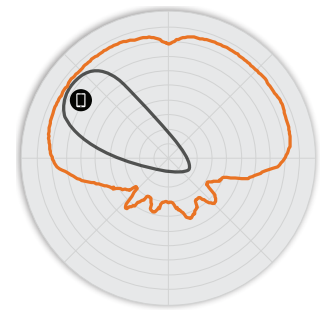


Figure 4. C110 2.4GHz Elevation Antenna Patterns



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	<ul style="list-style-type: none"> IEEE 802.11a/b/g/n/ac Wave 2
Supported Rates	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 2.4GHz: 1-13 5GHz: 36-64, 100-144, 149-165
MIMO	<ul style="list-style-type: none"> 2x2 SU-MIMO 2x2 MU-MIMO
Spatial Streams	<ul style="list-style-type: none"> 2 Streams SU/MU-MIMO
Channelization	<ul style="list-style-type: none"> 20, 40, 80MHz
Security	<ul style="list-style-type: none"> WPA-PSK, WPA-TKIP, WPA2 AES, 802.11i, Dynamic PSK WIPS/WIDS
Other Wi-Fi Features	<ul style="list-style-type: none"> WMM, Power Save, Tx Beamforming, LDPC, STBC, 802.11r/k/v Hotspot Hotspot 2.0 Captive Portal WISPr

RF											
Antenna Type	<ul style="list-style-type: none"> BeamFlex+ adaptive antennas with polarization diversity Adaptive antenna that provides multiple unique antenna patterns per band 										
Antenna Gain (max)	<ul style="list-style-type: none"> 2.4GHz: 3dBi 5GHz: 3dBi 										
Peak Transmit Power (aggregate across MIMO chains)	<ul style="list-style-type: none"> 19 dBm for 2.4GHz 22 dBm for 5GHz 										
Minimum Receive Sensitivity ¹	<ul style="list-style-type: none"> -96/-95dBm 										
Frequency Bands	<table border="0"> <tr> <td>ISM</td> <td>2.4-2.484GHz</td> </tr> <tr> <td>U-NII-1</td> <td>5.15-5.25GHz</td> </tr> <tr> <td>U-NII-2A</td> <td>5.25-5.35GHz</td> </tr> <tr> <td>U-NII-2C</td> <td>5.47-5.725GHz</td> </tr> <tr> <td>U-NII-3</td> <td>5.725-5.85GHz</td> </tr> </table>	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
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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

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	<ul style="list-style-type: none"> 2.4GHz: 300Mbps 5GHz: 867Mbps
Client Capacity	<ul style="list-style-type: none"> Up to 100 clients per AP
SSID	<ul style="list-style-type: none"> Up to 32 per AP

RUCKUS RADIO MANAGEMENT	
Antenna Optimization	<ul style="list-style-type: none"> BeamFlex+ Polarization Diversity with Maximal Ratio Combining (PD-MRC)
Wi-Fi Channel Management	<ul style="list-style-type: none"> ChannelFly Background Scan Based
Client Density Management	<ul style="list-style-type: none"> Adaptive Band Balancing Client Load Balancing Airtime Fairness Airtime-based WLAN Prioritization
SmartCast Quality of Service	<ul style="list-style-type: none"> QoS-based scheduling Directed Multicast L2/L3/L4 ACLs
Mobility	<ul style="list-style-type: none"> SmartRoam
Diagnostic Tools	<ul style="list-style-type: none"> Spectrum Analysis SpeedFlex

NETWORKING	
Controller Platform Support	<ul style="list-style-type: none"> SmartZone ZoneDirector
Mesh	<ul style="list-style-type: none"> SmartMesh™ wireless meshing technology. Self-healing Mesh
IP	<ul style="list-style-type: none"> IPv4, IPv6
VLAN	<ul style="list-style-type: none"> 802.1Q (1 per BSSID or dynamic per use based on RADIUS) VLAN Pooling Port-based
802.1x	<ul style="list-style-type: none"> Authenticator & Supplicant
Tunnel	<ul style="list-style-type: none"> L2TP, GRE, Soft-GRE
Policy Management Tools	<ul style="list-style-type: none"> Application Recognition and Control Access Control Lists Device Fingerprinting Rate Limiting

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

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

CABLE MODEM	
DOCSIS Version	<ul style="list-style-type: none"> 1.0/1.1/2.0/3.0 compliant and certified
Channel Bonding	<ul style="list-style-type: none"> Supports 8 downstream channels and 4 upstream channels
Support and Management	<ul style="list-style-type: none"> Embedded diagnostics web interface Status LED's SNMP management

PHYSICAL INTERFACES	
Ethernet	<ul style="list-style-type: none"> 2 x 10/100 Mbps local ports, RJ-45
USB	<ul style="list-style-type: none"> 1 USB 2.0 port, Type A
Cable Modem	<ul style="list-style-type: none"> Type F, DOCSIS/Euro DOCSIS 3.0 8x4 modem port

PHYSICAL CHARACTERISTICS	
Physical Size	<ul style="list-style-type: none"> 180 (L) x 150(W) x 35(H) cm 70.9 (L) x 59(W) x 13.8(H) in
Weight	<ul style="list-style-type: none"> 386 g (13.62 oz)
Mounting	<ul style="list-style-type: none"> Electrical Wallbox Secure bracket (sold separately)
Physical Security	<ul style="list-style-type: none"> Hidden latching mechanism Kensington lock T-bar Torx Bracket (902-0108-0000) Torx screw & padlock (sold separately)
Operating Temperature	<ul style="list-style-type: none"> 0°C (32°F) to 40°C (104°F)
Operating Humidity	<ul style="list-style-type: none"> Up to 95%, non-condensing

POWER ²	
Power Supply	Maximum Power Consumption
DC input: 12VDC 2.0A	<ul style="list-style-type: none"> 17.2W

CERTIFICATIONS AND COMPLIANCE	
Wi-Fi Alliance³	<ul style="list-style-type: none"> Wi-Fi CERTIFIED™ a, b, g, n, ac Passpoint®, Vantage
Standards Compliance⁴	<ul style="list-style-type: none"> 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

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.

SOFTWARE AND SERVICES	
Location Based Services	<ul style="list-style-type: none"> SPoT
Network Analytics	<ul style="list-style-type: none"> SmartCell Insight (SCI)
Security and Policy	<ul style="list-style-type: none"> Cloudpath

ORDERING INFORMATION	
901-C110-US00	<ul style="list-style-type: none"> C110, 802.11ac, 2x2:2, Dual Band Concurrent (2.4/5GHz) wall plate AP/CM, DOCSIS, North America power supply
901-C110-EU01	<ul style="list-style-type: none"> C110, 802.11ac, 2x2:2, Dual Band Concurrent (2.4/5GHz) wall plate AP/CM, EuroDOCSIS, EU power supply
901-C110-UN00	<ul style="list-style-type: none"> C110, 802.11ac, 2x2:2, Dual Band Concurrent (2.4/5GHz) wall plate AP/CM, DOCSIS, North America power supply
901-C110-UK01	<ul style="list-style-type: none"> C110, 802.11ac, 2x2:2, Dual Band Concurrent (2.4/5GHz) Wall Plate AP/CM, EuroDOCSIS, UK power supply

Warranty: Sold with a limited lifetime warranty.

For details see: <http://support.ruckuswireless.com/warranty>.

OPTIONAL ACCESSORIES	
902-0124-0000	<ul style="list-style-type: none"> Accessory Offset Mounting Bracket. Includes 90-degree Male-Female F-connector.
901-C110-AR00	<ul style="list-style-type: none"> C110, 802.11ac 2x2:2 Dual Band Concurrent (2.4/5GHz) wall plate AP/CM, DOCSIS, *No power supply*
901-C110-AU00	<ul style="list-style-type: none"> C110, 802.11ac 2x2:2 Dual Band Concurrent (2.4/5GHz) wall plate AP/CM, DOCSIS, Australia/ New Zealand power supply

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350 West Java Dr., Sunnyvale, CA 94089 USA

www.ruckusnetworks.com