R710

Indoor 802.11ac Wave 2 4x4:4 Wi-Fi Access Point

DATA SHEET

BENEFITS

STUNNING WI-FI PERFORMANCE

Provide a great user experience no matter how challenging the environment with BeamFlex+™ adaptive antenna technology and a library of 4K+ directional antenna patterns.

SERVE MORE DEVICES

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

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.

MULTIPLE MANAGEMENT OPTIONS

Manage the R710 from the cloud, with on-premises physical/virtual appliances, or without a controller.

BETTER MESH NETWORKING

Reduce expensive cabling, and complex mesh configurations by checking a box with SmartMesh™ wireless meshing technology to dynamically create self-forming, self-healing mesh networks.

EXPANDED BACKHAUL

Pair two onboard 1GbE ports with link aggregation (LACP) to maximize throughput between the AP and wired switch.

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.

Bandwidth-hungry voice and video applications. Internet of Things (IoT) connections. An explosion of new devices and content. With these kinds of demands, organizations in every industry need more from their Wi-Fi. But with hundreds of devices and nonstop wireless noise and interference, busy indoor spaces can make challenging wireless environments.

The Ruckus R710 is a premier indoor access point, delivering industry-leading performance and reliability in the most demanding high-density locations. With data rates up to 800Mbps (2.4GHz) and 1.733Gbps (5GHz), the R710 delivers the highest available throughput for Wi-Fi clients.

The R710 delivers reliable, high-performance connectivity in schools, universities, public venues, hotels, conference centers, and other busy indoor spaces. The perfect choice for data-intensive streaming multimedia applications, it delivers picture-perfect HD-quality IP video, while supporting voice and data applications with stringent quality-of-service requirements.

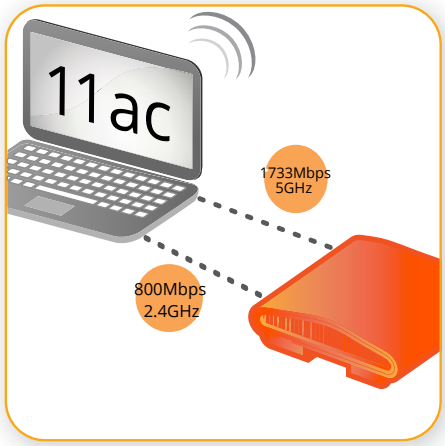
The R710 802.11ac Wave 2 Wi-Fi AP incorporates patented technologies found only in the Ruckus Wi-Fi portfolio.

- Extended coverage with patented BeamFlex+ utilizing multi-directional antenna patterns.
- Improve throughput with ChannelFly, which dynamically finds less congested Wi-Fi channels to use.

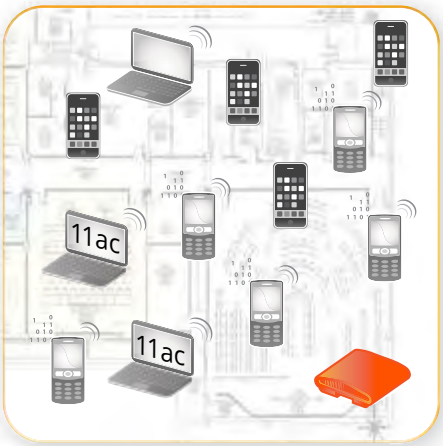
With MultiUser MIMO (MU-MIMO) connectivity, the R710 can simultaneously transmit to multiple client devices, drastically improving RF efficiency, overall throughput, and availability—even for non-Wave 2 clients. The R710 also features a USB port for hosting IoT devices such as Bluetooth Low Energy (BLE) beacons, and dual Gigabit Ethernet ports that support Link Aggregation for higher-capacity backhaul to the switch. The R710 supports up to 512 clients per AP and features capacity-based admission control to prevent APs from getting congested with too many attached devices.

Whether you're deploying ten or ten thousand APs, the R710 is also easy to manage through Ruckus' appliance, virtual and cloud management options.

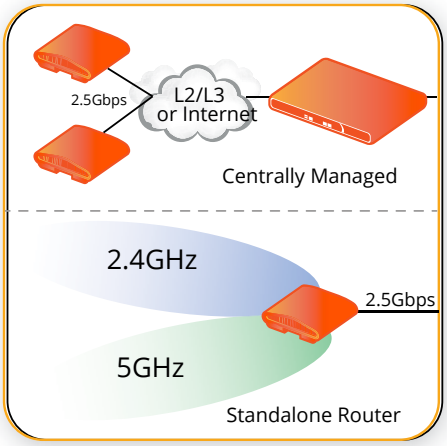
BeamFlex+ Adaptive Antenna Technology



Blinding fast Wave 2 4x4:4
802.11ac with MU-MIMO



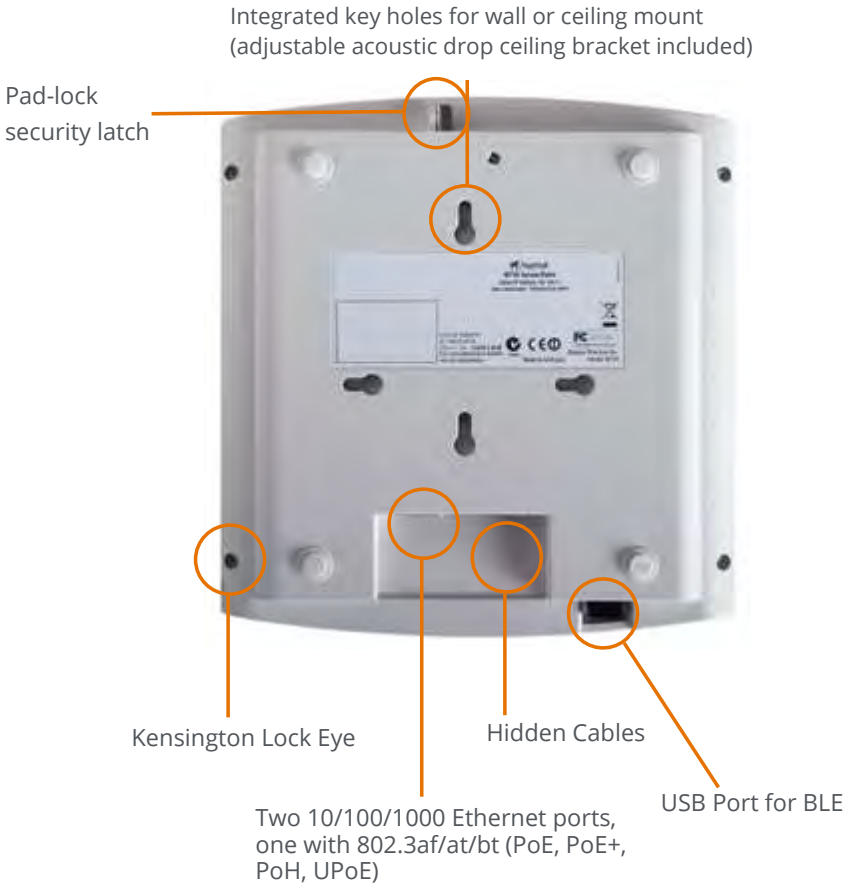
Deployment Scenarios

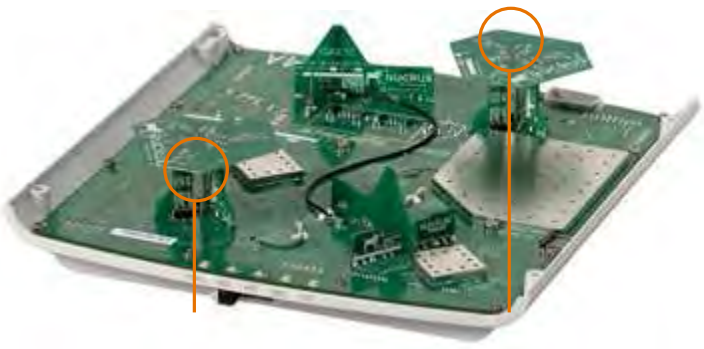


Architectural Flexibility

weight is 1.1 kg. (2.3 lbs.)

Front View





BeamFlex+ Adaptive Antenna Technology

ACCESS POINT ANTENNA PATTERN

Ruckus' BeamFlex+ adaptive antennas allow the R710 AP to dynamically choose among a host of antenna patterns (over 4,000 possible combinations) 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

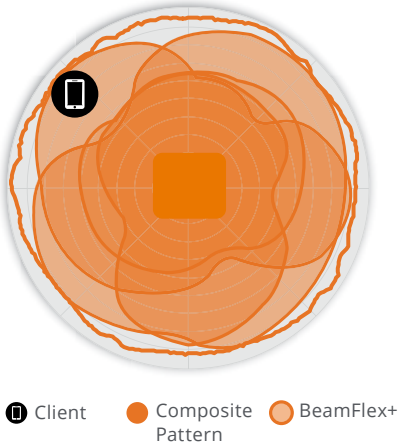


Figure 2. R710 2.4GHz Azimuth Antenna Patterns

Figure 3. R710 5GHz Azimuth Antenna Patterns

Figure 4. R710 2.4GHz Elevation Antenna Patterns

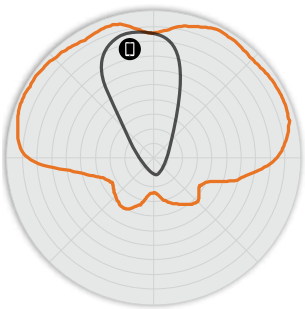
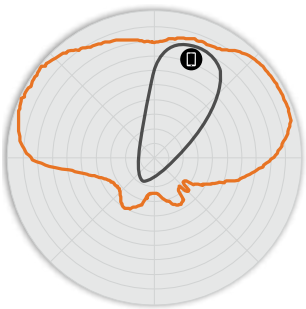


Figure 5. R710 5GHz Elevation Antenna Patterns



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.

WI-FI	
Wi-Fi Standards	• IEEE 802.11a/b/g/n/ac Wave 2
Supported Rates	• 802.11ac: 6.5 to 1,733Mbps (MCS0 to MCS9, NSS = 1 to 4 for VHT20/40/80) • 802.11n: 6.5 Mbps to 600Mbps (MCS0 to MCS31) • 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	• 4x4 SU-MIMO • 4x4 MU-MIMO
Spatial Streams	• 4 streams for SU-MIMO • 3 streams for 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

RF	
Antenna Type	• BeamFlex+ adaptive antennas with polarization diversity • Adaptive antenna that provides 4000+ unique antenna patterns
Antenna Gain (max)	• up to 3dbi
Peak Transmit Power (aggregate across MIMO chains)	• 2.4GHz: 28dBm • 5Ghz: 28dBm
Minimum Receive Sensitivity[1]	• -104dBm
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

2.4GHZ RECEIVE SENSITIVITY

HT20		HT40	
MCS0	MCS7	MCS0	MCS7
-97	-79	-94	-77

5GHZ RECEIVE SENSITIVITY

VHT20		VHT40		VHT80	
MCS0	MCS7	MCS0	MCS7	MCS0	MCS7
-98	-80	-94	-77	-91	-74

2.4GHZ TX POWER TARGET

Rate	Pout (dBm)
MCS0 HT20	22
MCS7 HT20	19

5GHZ TX POWER TARGET

Rate	Pout (dBm)
VHT20	22
MCS0, VHT40	22
MCS7, VHT40, VHT80	19
MCS9, VHT40, VHT80	16

PERFORMANCE AND CAPACITY	
Peak PHY Rates	• 2.4GHz: 600Mbps • 5GHz: 1733Mbps
Client Capacity	• Up to 512 clients per AP
SSID	• Up to 32 per AP

RUCKUS RADIO MANAGEMENT	
Antenna Optimization	• BeamFlex+ • Polarization Diversity with Maximal Ratio Combining (PD-MRC)
Wi-Fi Channel Management	• ChannelFly
Client Density Management	• 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

NETWORKING	
Controller Platform Support	• SmartZone • ZoneDirector • Unleashed[2] • Standalone
Mesh	• SmartMesh™ wireless meshing technology. Self-healing Mesh
IP	• IPv4, IPv6, dual-stack
VLAN	• 802.1Q (1 per BSSID or dynamic per user based on RADIUS) • Port-based
802.1x	• Authenticator & Supplicant
Tunnel	• L2TP
Policy Management Tools	• Application Recognition and Control • Access Control Lists • Device Fingerprinting

[1] Rx sensitivity varies by band, channel width and MCS rate.
[2] Refer to Unleashed datasheets for SKU ordering information.

R710
Indoor 802.11ac Wave 2 4x4:4 Wi-Fi Access Point

DATA SHEET

PHYSICAL INTERFACES	
Ethernet	• Two 1Gbps Ethernet ports • Power over Ethernet (802.3af/at/bt) with Category 5/5e/6 cable • Link Aggregation (LACP)
USB	• 1 USB 2.0 port, Type A

PHYSICAL CHARACTERISTICS	
Physical Size	• 22 cm (L), 22 cm (W), 6 cm (H) • 8.7in (L) x 8.7in (W) x 2.4in (H)
Weight	• 1.12 kg (2.5 lb)
Mounting	• Wall, Drop ceiling, Desk • Secure bracket (sold separately)
Physical Security	• Hidden latching mechanism • Kensington Lock Hole • T-bar Torx
Operating Temperature	• -4°C (-14°F) to 60°C (140°F)
Operating Humidity	• Up to 95% non-condensing

POWER[3]

Power Supply	Operating Characteristics	Max Power Consumption
802.3af	• 2.4GHz: 2x4, 19dBm per chain • 5GHz: 4x4, 20dBm per chain • Functional Limitation: 2nd Ethernet disabled USB disabled	• Peak: 25W, including USB loading and 100m cable
802.3at, PoE+/injector, VDC	• 2.4GHz: 4x4, 22dBm per chain • 5GHz: 4x4, 20dBm per chain • Functional Limitation: None	

CERTIFICATIONS AND COMPLIANCE	
Wi-Fi Alliance[4]	• Wi-Fi CERTIFIED™ a, b, g, n, ac • Passpoint®, Vantage
Standards Compliance[5]	• EN 60950-1 Safety • EN 60601-1-2 Medical • EN 61000-4-2/3/5 Immunity • EN 50121-1 Railway EMC • EN 50121-4 Railway Immunity • IEC 61373 Railway Shock & Vibration • UL 2043 Plenum • 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

ORDERING INFORMATION	
901-R710-XX00	R710 dual-band (5 GHz and 2.4 GHz concurrent) Wave 2 802.11ac wireless access point, 4x4:4 streams, adaptive antennas, dual ports, PoE support. Includes adjustable acoustic drop ceiling bracket. Does not include power adapter

See Ruckus price list for country-specific ordering information.
Warranty: Sold with a limited lifetime warranty.
For details see: http://support.ruckuswireless.com/warranty.

OPTIONAL ACCESSORIES	
902-0162-XX00	• PoE injector (90 – 264 VAC 47 - 63 Hz)
902-1169-XX00	• AC Power supply (264 VAC 47 - 63 Hz)
902-0120-0000	• Spare, Accessory Mounting Bracket
902-0123-0000	• Flush-frame acoustic ceiling bracket for R710. Flush-frame only – not applicable for standard (recessed-frame) acoustic ceiling

PLEASE NOTE: When ordering Indoor APs, you must specify the destination region by indicating -US, -WW, or -Z2 instead of XX. When ordering PoE injectors or power supplies, you must specify the destination region by indicating -US, -EU, -AU, -BR, -CN, -IN, -JP, -KR, -SA, -UK, or -UN instead of -XX.

For access points, -Z2 applies to the following countries: Algeria, Egypt, Israel, Morocco, Tunisia, and Vietnam.

[3] Max power varies by country setting, band, and MCS rate.
[4] For complete list of WFA certifications, please see Wi-Fi Alliance website.
[5] For current certification status, please see price list.

RUCKUS™ an ARRIS company

350 West Java Dr., Sunnyvale, CA 94089 USA

www.ruckusnetworks.com