DATA SHEET

RUCKUS® R610

Indoor 802.11ac Wave 2 3x3:3 Wi-Fi Access Point

COMMSCOPE®
RUCKUS®

Benefits

Stunning Wi-Fi Performance
Mitigate interference and extend coverage with patented BeamFlex®+ adaptive antenna technology utilizing 512 directional antenna patterns.

Serve More Devices
Connect more devices simultaneously with three 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 R610 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 RUCKUS analytics.

Busy indoor locations like classrooms, retail venues, and branch offices can be among the most challenging Wi-Fi environments. Dozens of users share the same crowded spectra and they all expect fast, reliable connectivity to their content and applications.

The RUCKUS® R610 delivers the ideal combination of performance, affordability, and 802.11ac features for medium-density locations. It provides fast data rates (up to 1750Mbps) and Ruckus density-handling intelligence to support dozens of users with guaranteed throughput, at a cost you can afford.

The R610 is a perfect fit for environments like K-12 classrooms, university lecture halls, libraries, retail locations, and branch offices. It can easily support online digital learning deployments with 30+ students per classroom, or university lecture halls serving concurrent HD video streams to dozens of student devices.

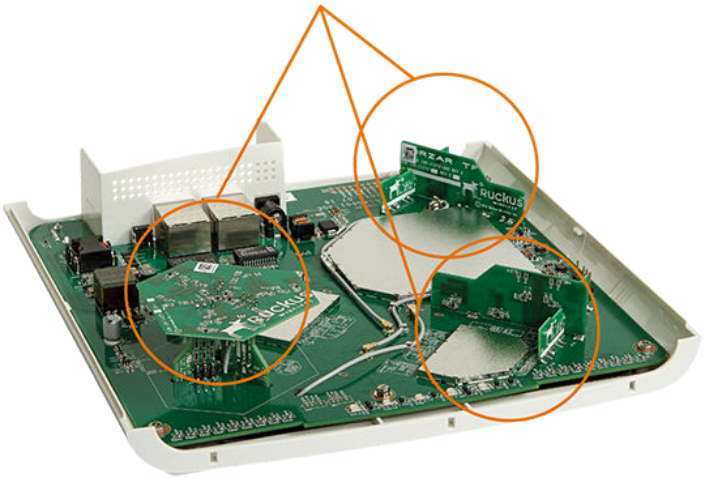
The R610 802.11ac Wi-Fi AP incorporates patented technologies found only in the RUCKUS Wi-Fi portfolio.

- 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 three streams of MultiUser MIMO (MU-MIMO) connectivity, the R610 can simultaneously transmit to multiple client devices, improving RF efficiency and overall throughput, for all users—even those with non-Wave 2 clients. The R610 also features a USB port for hosting IOT devices and dual Gigabit Ethernet ports that support of Link Aggregation for higher throughput to the switch.

Whether you're deploying ten or ten thousand APs, the R610 is also easy to manage through RUCKUS' appliance, virtual and cloud management options.

BeamFlex+ Adaptive Antenna Technology



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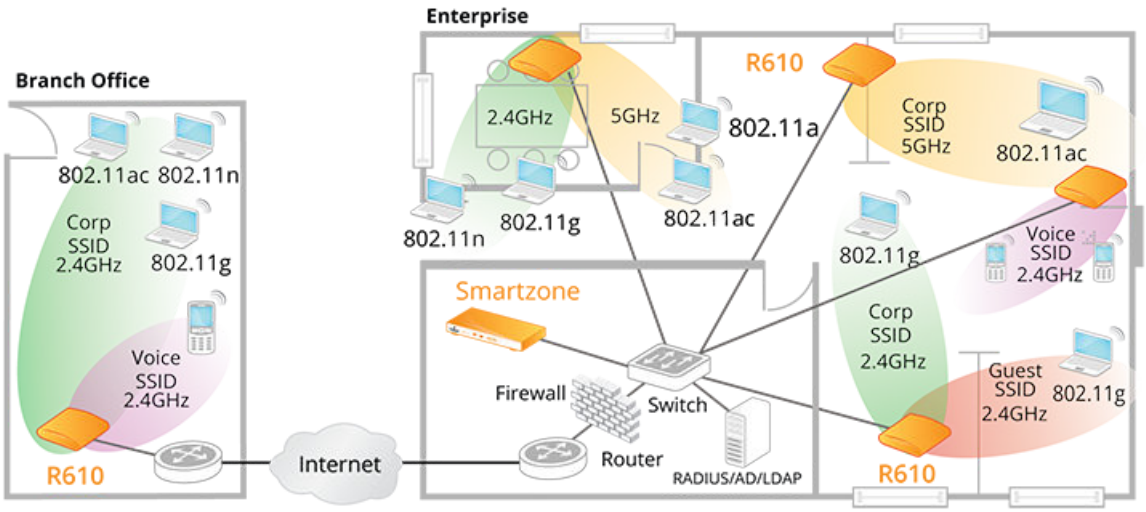
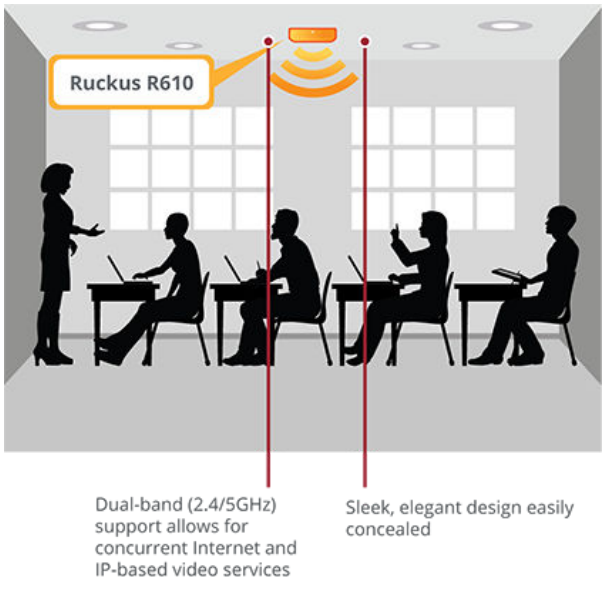
The R610 Integrates With Your Existing Network Infrastructure

Delivering best-in-class 802.11ac performance and reliability—making it the ideal wireless solution for mid-range enterprise and branch office applications.



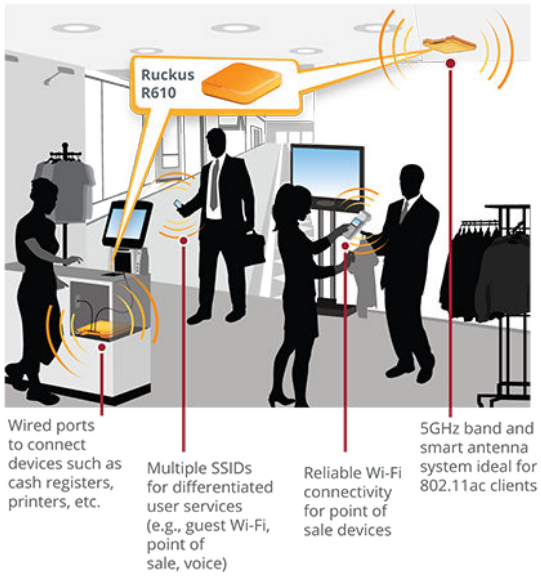
Deployments for Classrooms and Libraries

The R610 is ideal for deployment in education common areas providing high quality wireless access in high density locations



Deployment For Retail / Branch Offices

The R610 is ideal for deployment in retail stores to provide inconspicuous wireless connection to high quality video, wireless IP phones and data accessfor handheld PoS barcode scanners



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Access Point Antenna Pattern

RUCKUS' BeamFlex+ adaptive antennas allow the R610 AP to dynamically choose among a host of antenna patterns (up to 512 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

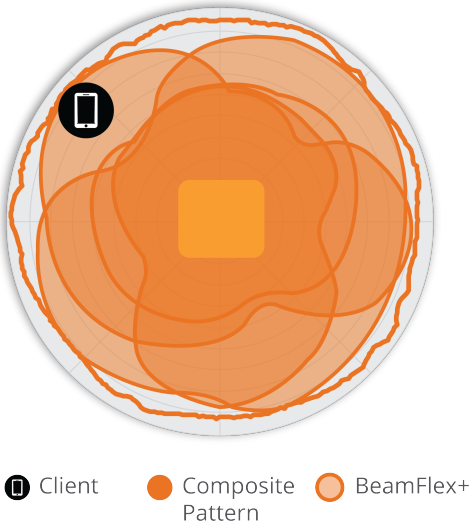

Figure 2. R610 2.4GHz Azimuth Antenna Patterns

Figure 3. R610 5GHz Azimuth Antenna Patterns

Figure 4. R610 2.4GHz Elevation Antenna Patterns

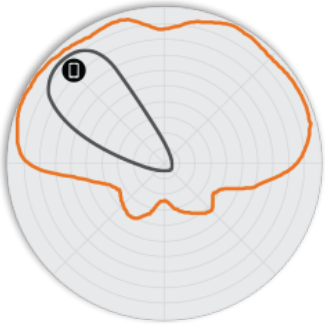

Figure 5. R610 5GHz Elevation Antenna Patterns

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 1,300Mbps (MCS0 to MCS9, NSS = 1 to 3 for VHT20/40/80 or 1 for VHT160 • 802.11n: 6.5 Mbps to 450Mbps (MCS0 to MCS23) • 802.11a/g: 54, 48, 36, 24, 18, 12, 9, 6Mbps • 802.11b: 11, 5.5, 2 and 1 Mbps
Supported Channels[1]	• 2.4GHz: 1-13 • 5GHz: 36-64, 100-144
MIMO	• 3x3 SU-MIMO • 3x3 MU-MIMO
Spatial Streams	• 3 SU-MIMO • 3 MU-MIMO
Radio Chains and Streams	• 3x3:3
Channelization	• 20, 40, 80, 160/80+80 MHz
Security	• WPA-PSK, WPA-TKIP, WPA2 AES, WPA3, 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 up to 512 unique antenna patterns by band
Antenna Gain (max)	• Up to 3dBi
Peak Transmit Power (aggregate across MIMO chains)	• 2.4GHz: 27dBm • 5GHz: 25dBm
Minimum Receive Sensitivity[2]	• -100dBm
Frequency Bands[1]	• 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
-94	-74	-91	-71

5GHZ RECEIVE SENSITIVITY					
VHT20		VHT40		VHT80	
MCS0	MCS7	MCS0	MCS7	MCS0	MCS7
-91	-71	-89	-71	-85	-68

2.4GHZ TX POWER TARGET	
Rate	**Pout (dBm)**
MCS0 HT20	22.5
MCS7 HT20	19.5

5GHZ TX POWER TARGET	
Rate	**Pout (dBm)**
VHT20	20
MCS0 VHT40	22
MCS7 VHT40, VHT80	19

PERFORMANCE AND CAPACITY	
Peak PHY Rates	• 2.4GHz: 450Mbps • 5GHz: 1300Mbps
Client Capacity	• Up to 512 clients per AP
SSID	• Up to 31 per AP

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

[1] UNII-3 channels are not supported when UK is the country code

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

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NETWORKING	
Controller Platform Support	• SmartZone • ZoneDirector • Cloud • Unleashed[3] • Standalone
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
Gateway and Routing	• NAT/DHCP
Policy Management Tools	• Application Recognition and Control • Access Control Lists • Device Fingerprinting • Rate Limiting
IoT Capable	• Yes

PHYSICAL INTERFACES	
Ethernet	• 2 x 1GbE ports, RJ-45 • Link Aggregation (LACP)
USB	• 1 USB 2.0 port, Type A connector

PHYSICAL CHARACTERISTICS	
Physical Size	• 20.1(L), 19.5(W), 5.1 (H)cm • 7.9 (L), 7.68 (W), 2.00 (H)in
Weight	• 578g (1.3lb)
Mounting	• Wall, Drop ceiling, Desk • Secure bracket (sold separately)
Physical Security	• Hidden latching mechanism • Kensington lock • T-bar Torx
Operating Temperature	• 0°C (32°F) - 40°C (104°F)
Operating Humidity	• Up to 95%, non-condensing

POWER[4]		
Power Supply	**Mode Feature**	**Maximum Power Consumption**
DC Input 12V DC, 2.0A	• Full functionality	• 20.88W
802.3af	• Limits 2.4GHz to 2x3 (2-chain transmit at 21dBm aggregate power, 3-chain receive) • Turns off USB port • Turns off 1 Ethernet port	• 12.73W
802.3at	• Full functionality	• 21.87W

CERTIFICATIONS AND COMPLIANCE	
Wi-Fi Alliance[5]	• Wi-Fi CERTIFIED™ a, b, g, n, ac • Passpoint®, Vantage
Standards Compliance[6]	• 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-R610-XX00	• Concurrent dual band 802.11ac AP, no 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	
902-1169-XX00	• Power Supply (12V, 2.0A, 24W)
902-0162-XXYY	• PoE injector (24W) (Sold in quantities of 1, 10 or 100)
902-0195-0000	• Spare, T-bar ceiling mount kit for mounting to flush frame ceiling
902-0120-0000	• Spare, Accessory Mounting Bracket

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] Refer to Unleashed datasheets for SKU ordering information.
[4] Max power varies by country setting, band, and MCS rate.
[5] For complete list of WFA certifications, please see Wi-Fi Alliance website.
[6] For current certification status, please see price list.

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