R310
Indoor 802.11ac 2x2:2 Wi-Fi Access Point

RUCKUS™
an ARRIS company

DATA SHEET

BENEFITS

AFFORDABLE ENTERPRISE PERFORMANCE

The R310 provides great performance with extended range at an affordable price.

KEEP EXISTING SWITCHES AND CABLES

Designed to operate on existing PoE switches and CAT 5e cabling to minimize costly upgrades.

MULTIPLE MANAGEMENT OPTIONS

Manage the R310 from the cloud, with on-premises physical/virtual appliances, or without a controller.

STUNNING WI-FI PERFORMANCE

Extends coverage with patented BeamFlex™ adaptive antenna technology while mitigating interference by utilizing 64 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.

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.

Smaller locations can face big-time demands on their wireless infrastructure. Whether working out of a small office or connecting to a public hotspot, users are often still accessing the same high-bandwidth applications and content they'd consume anywhere else. And they expect strong, reliable connectivity. How can you provide it without breaking the bank?

The Ruckus R310 delivers consistent, reliable 802.11ac wireless networking at an affordable price. It features the patented Ruckus BeamFlex adaptive antenna technology for performance optimization and interference mitigation found in our premier access points, delivering superior user experiences at extended ranges. But it provides them in an ultra-compact form factor built for small venues—with a price tag to match.

The R310 is an ideal choice for low-density enterprise and hotspot environments including small- and medium-size businesses, retail locations, restaurants, and multi-tenant small offices and branch offices.
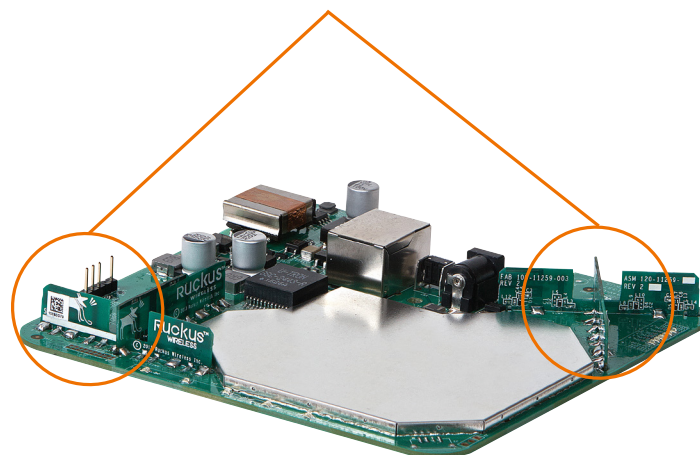
The R310 802.11ac Wi-Fi AP incorporates patented technologies found only in the Ruckus Wi-Fi portfolio.

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

The R310 provides an ideal combination of features and performance for smaller environments. Additionally, it supports up to 100 clients per AP.
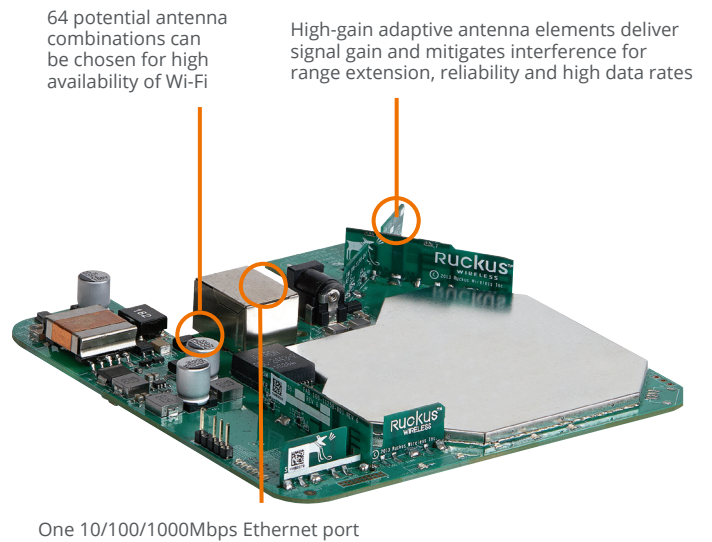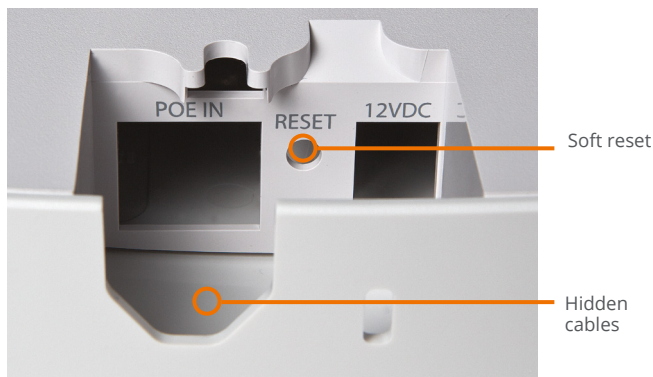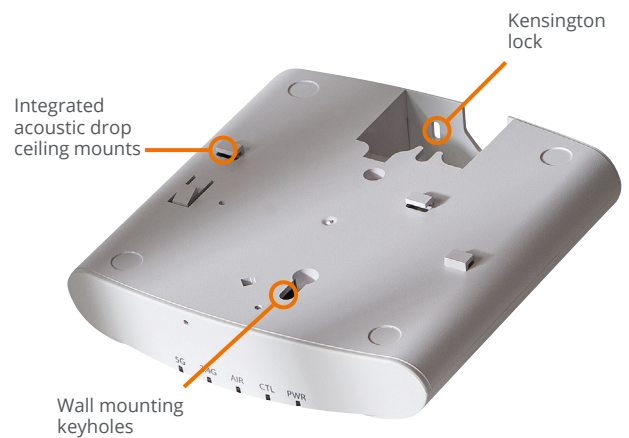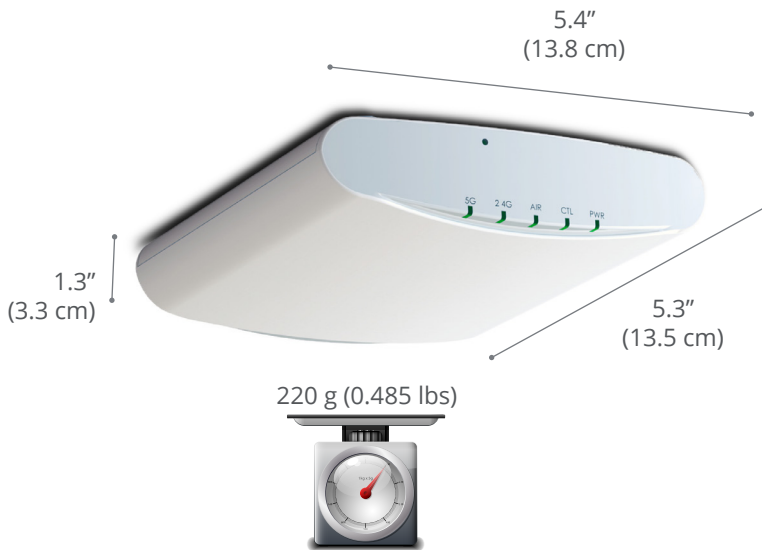
Whether you're deploying ten or ten thousand APs, the R310 is also easy to manage through Ruckus' appliance, virtual, controller-less and cloud management options.

BeamFlex Adaptive Antenna Technology

SMALL LIGHTWEIGHT FORM FACTOR WITH BUILT IN MOUNTING OPTIONS FOR EASY DEPLOYMENT

The R310 installs and mounts seamlessly, making it ideal for quick and effective set up for carrier and enterprise deployments.

5.4" (13.8 cm)

1.3" (3.3 cm)

5.3" (13.5 cm)

220 g (0.485 lbs)

Kensington lock

Integrated acoustic drop ceiling mounts

Wall mounting keyholes

POE IN   RESET   12VDC

Soft reset

Hidden cables

64 potential antenna combinations can be chosen for high availability of Wi-Fi

High-gain adaptive antenna elements deliver signal gain and mitigates interference for range extension, reliability and high data rates

One 10/100/1000Mbps Ethernet port

ACCESS POINT ANTENNA PATTERN

Ruckus' BeamFlex adaptive antennas allow the R310 AP to dynamically choose among a host of antenna patterns (up to 64 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.

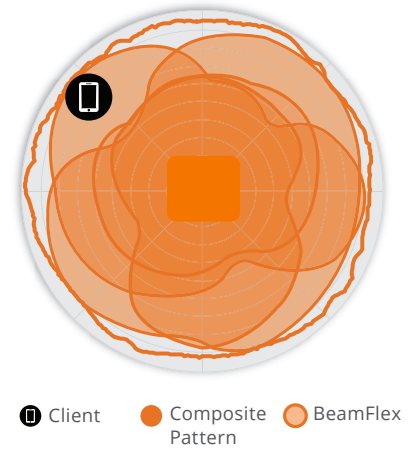**Figure 1. Example of BeamFlex pattern**

Client   Composite Pattern   BeamFlex

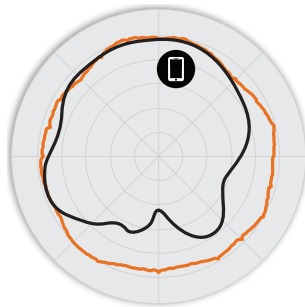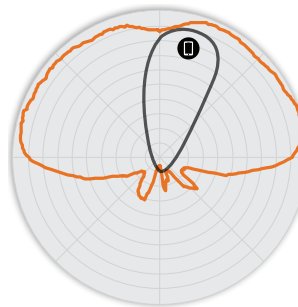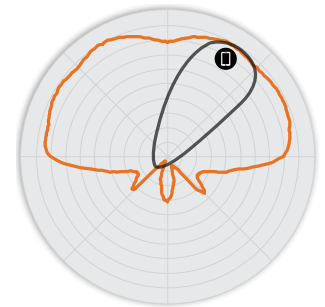| Figure 2. R310 2.4GHz Azimuth Antenna Patterns	Figure 3. R310 5GHz Azimuth Antenna Patterns	Figure 4. R310 2.4GHz Elevation Antenna Patterns	Figure 5. R310 5GHz Elevation Antenna Patterns

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
Supported Rates	• 802.11ac: 6.5 to 867Mbps (MCS0 to MCS9, NSS = 1 to 2 for VHT20/40/80) • 802.11n: 6.5 Mbps 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
Spatial Streams	• 2 SU-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 • Captive Portal • Hotspot 2.0 • WISPr

RF	
Antenna Type	• BeamFlex adaptive antennas • Adaptive antenna that provides up to 64 unique antenna patterns per band
Antenna Gain (max)	• up to 3dbi
Peak Transmit Power (aggregate across MIMO chains)	• 2.4GHz: 25dBm • 5GHz: 24dBm
Minimum Receive Sensitivity[1]	• -99dBm
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
-89	-68	-85	-65

5GHZ RECEIVE SENSITIVITY

VHT20		VHT40		VHT80	
MCS0	MCS7	MCS0	MCS7	MCS0	MCS7
-98	-69	-86	-66	-83	-62

2.4GHZ TX POWER TARGET

Rate	Pout (dBm)
MCS0 HT20	23
MCS7 HT20	18
MCS7 HT40	22
MCS7 HT40	19

5GHZ TX POWER TARGET

Rate	Pout (dBm)
MCS0 VHT20	21
MCS0 VHT20	18
MCS0 VHT40	21
MCS0 VHT40	18
MCS0 VHT80	20
MCS0 VHT80	17

PERFORMANCE AND CAPACITY	
Peak PHY Rates	• 2.4GHz: 300Mbps • 5GHz: 867Mbps
Client Capacity	• Up to 100 clients per AP
SSID	• Up to 16 per AP

RUCKUS RADIO MANAGEMENT	
Antenna Optimization	• BeamFlex
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	• SpeedFlex

NETWORKING	
Controller Platform Support	• SmartZone • ZoneDirector • Cloud Wi-Fi • Unleashed[2] • Standalone
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

PHYSICAL INTERFACES	
Ethernet	• 1 x 1GbE port, RJ-45

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

PHYSICAL CHARACTERISTICS

Physical Size	• 13.8(L) x 13.5(W) x 3.3(H) cm • 5.43(L) x 5.31(W) x 1.3(H) in
Weight	• 220g (7.8oz)
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) to 40 °C (149 °F)
Operating Humidity	• Up to 95%, non-condensing

POWER[3]

Power Supply	Maximum Power Consumption
802.3af	• 11W
DC input 12 VDC 10A	• 9W

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-R310-XX02	• 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

902-0120-0000	• Universal secure mounting bracket fits multiple AP's including R310. Mounts to Hard Wall, Ceiling, Pole & Truss. Fits without pad-lock support.
902-0195-0000	• T-bar ceiling mount kit for multiple APs including R310 for mounting to flush frame ceiling
902-0173-XX10	• Power Adapter, AC/DC wall plug,100-250Vac 50/60Hz
902-0162-XXYY	• PoE Adapter

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.

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