R500

Indoor 802.11ac 2x2:2 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 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.

MULTIPLE MANAGEMENT OPTIONS

Manage the R500 from the cloud, or with on-premises physical/virtual appliances.

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.

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.

With an explosion of new mobile devices, cloud applications, and Internet of Things (IoT) connections, even small- and mid-size venues now need big-league Wi-Fi. But finding the right balance between performance, features, and cost can be a major challenge.

The Ruckus R500 802.11ac indoor access point delivers the ideal combination of capacity, reliability, and affordability for medium-density locations. It's the only 802.11ac AP in its class that includes patented Ruckus antenna optimizations and interference mitigation technologies—the same ones used in our premier high-density APs—in a low-profile form factor, at a competitive price.

The R500 is a perfect solution for a variety of medium-density enterprise and hotspot environments, including small- and midsize businesses, hotels, retail outlets, and branch offices. In hotel common areas, for example, it can provide high-quality wireless data access. In retail spaces and branch offices, it supports high-quality video, wireless IP phones, and handheld point-of-sale scanners. In busy locations supporting a wide range of users, devices, and applications, it delivers better performance and reliability than any other solution in its class.

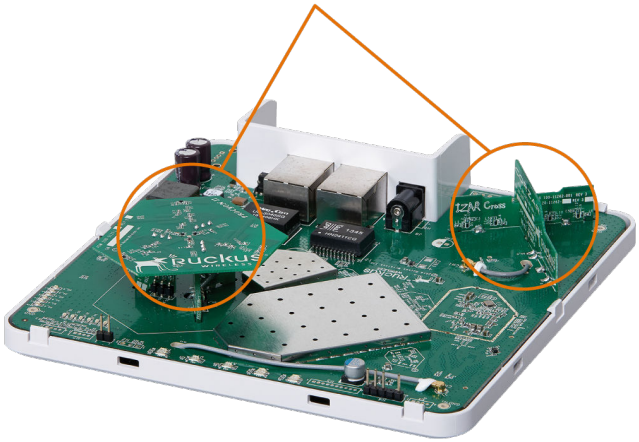
The R500 802.11ac AP incorporates patented technologies found only in the Ruckus Wi-Fi portfolio.

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

Additionally, with the R500's easy-to-deploy mesh networking capabilities, you can connect more devices in more places, without extra cabling.

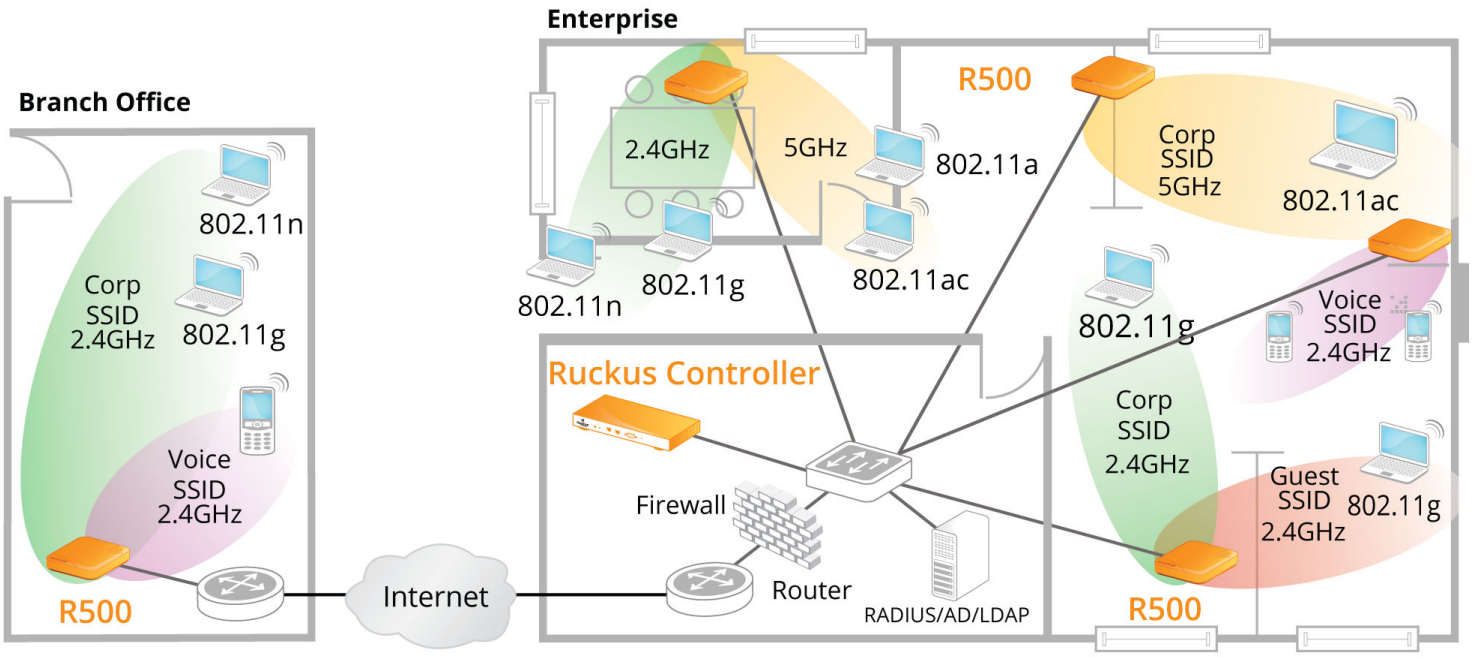
Whether you're deploying ten or ten thousand APs, the R500 is also easy to manage through Ruckus' appliance, virtual and cloud management options.

BeamFlex+ Adaptive Antenna Technology



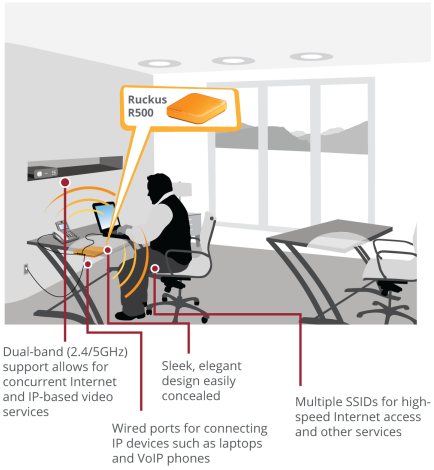
THE R500 INTEGRATES WITH YOUR EXISTING NETWORK INFRASTRUCTURE

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



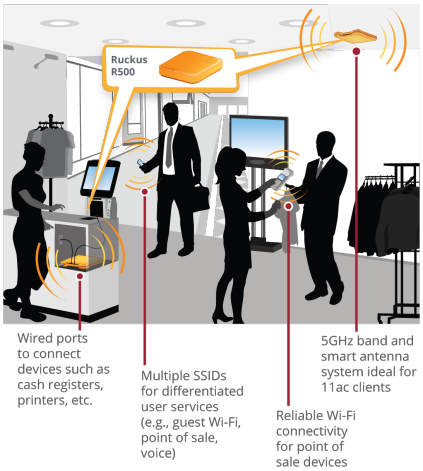
HOTEL COMMON AREAS SUCH AS SHARED OFFICES

The R500 is ideal for deployment in hotel common areas to provide wireless connection to high quality data access, as well as wired connections to IP phone and guest devices.



DEPLOYMENT FOR RETAIL / BRANCH OFFICES

The R500 is ideal for deployment in retail stores to provide inconspicuous wireless connection to high quality video, wireless IP phones and data access for handheld PoS bar code scanners.



ACCESS POINT ANTENNA PATTERN

Ruckus' BeamFlex+ adaptive antennas allow the R500 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

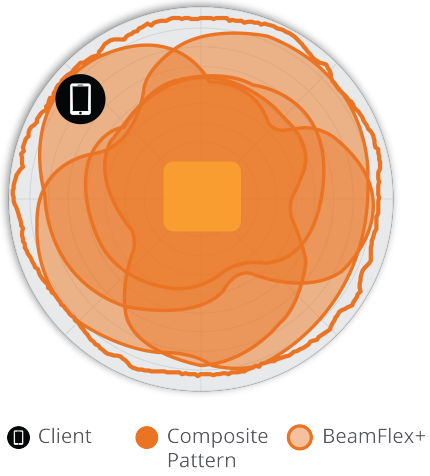


Figure 2. R500 2.4GHz Azimuth Antenna Patterns

Figure 3. R500 5GHz Azimuth Antenna Patterns

Figure 4. R500 2.4GHz Elevation Antenna Patterns

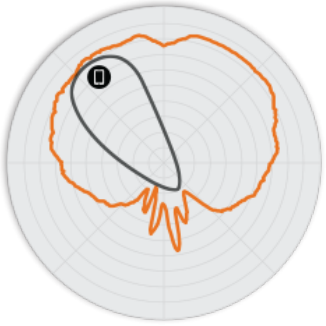
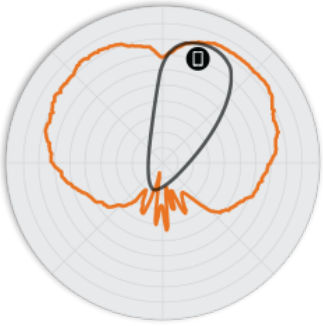


Figure 5. R500 5GHz Elevation Antenna Patterns



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 • Hotspot 2.0 • Captive Portal • WISPr

RF	
Antenna Type	• BeamFlex+ adaptive antennas with polarization diversity • Adaptive antenna that provides up to 64 unique antenna patterns per band
Antenna Gain (max)	• Up to 4dBi
Peak Transmit Power (aggregate across MIMO chains)	• 2.4GHz: 22dBm • 5GHz: 22dBm
Minimum Receive Sensitivity[1]	• -100dBm
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
-92	-76	-89	-73

5GHZ RECEIVE SENSITIVITY

VHT20		VHT40		VHT80	
MCS0	MCS7	MCS0	MCS7	MCS0	MCS7
-94	-76	-92	-74	-90	-69

2.4GHZ TX POWER TARGET

Rate	Pout (dBm)
MCS0 HT20	22
MCS7 HT20	15

5GHZ TX POWER TARGET

Rate	Pout (dBm)
MCS0 VHT20	22
MCS7 VHT20	18
MCS0 VHT40, VHT80	22
MCS7 VHT40, VHT80	18

PERFORMANCE AND CAPACITY	
Peak PHY Rates	• 2.4GHz: 300Mbps • 5 GHz: 867Mbps
Client Capacity	• Up to 512 clients per AP
SSID	• Up to 43 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

NETWORKING	
Controller Platform Support	• SmartZone • ZoneDirector • Cloud Wi-Fi • Unleashed[2] • 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
Policy Management Tools	• Application Recognition and Control • Access Control Lists • Device Fingerprinting • Rate Limiting

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

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PHYSICAL INTERFACES	
Ethernet	• 2 x 1GbE ports, RJ-45

PHYSICAL CHARACTERISTICS	
Physical Size	• 15.8(L) x 15.8(W) x 4(H) cm • 6.2(L) x 6.2(W) x 1.57(H) in
Weight	• 350g (0.77oz)
Mounting	• Wall, Drop ceiling, Desk • 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) to 50°C (122°F)
Operating Humidity	• Up to 95%, non-condensing

POWER[3]	
Power Supply	**Maximum Power Consumption**
802.3af	• 10.5W
12VDC-Powered	• 11.1W

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-R500-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	
902-0108-0000	• Spare, accessory mounting bracket with padlock support
902-0120-0000	• Spare, Accessory Mounting Bracket
902-0173-XXYY	• Power Adapter (12V, 1.0A, 12W) (Sold in quantities of 1 or 10)
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
902-1169-XX00	• Power Supply (12V, 2.0A, 24W)

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 the Wi-Fi Alliance website.
[5] For current certification status, please see the price list.

RUCKUS™ an ARRIS company

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