

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.

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.

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.

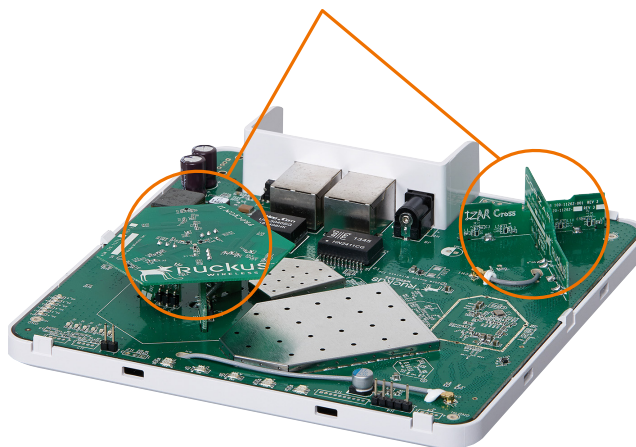
The R500 802.11ac AP incorporates patented technologies found only in the Ruckus Wi-Fi portfolio.

- 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.

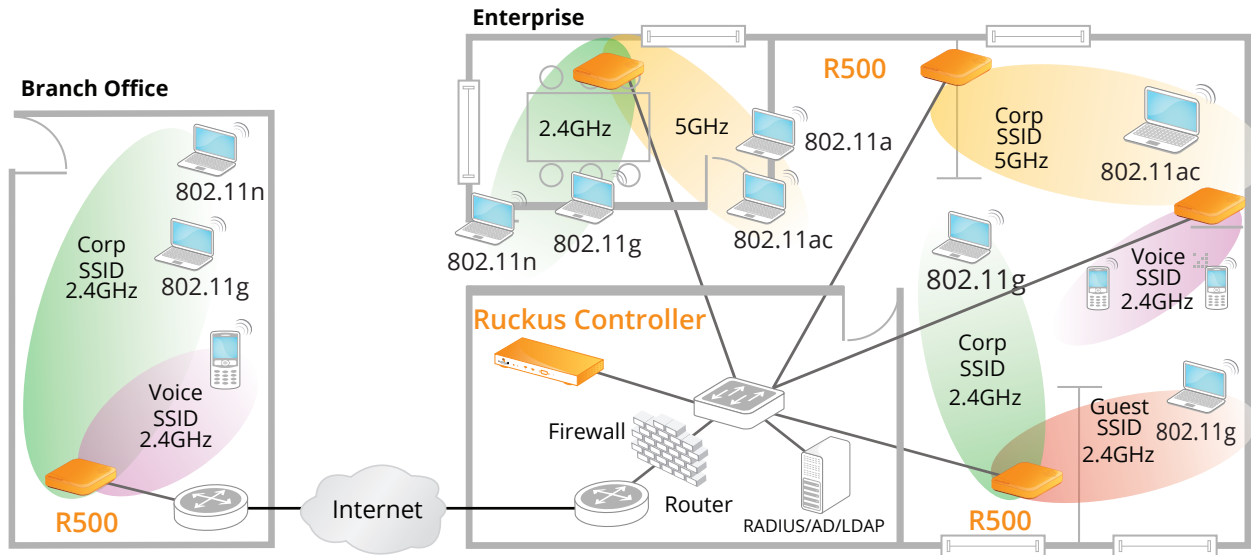
Whether you're deploying ten or ten thousand APs, the R500 is also easy to manage through Ruckus' appliance, virtual and cloud management options.

BeamFlex+ Adaptive Antenna Technology



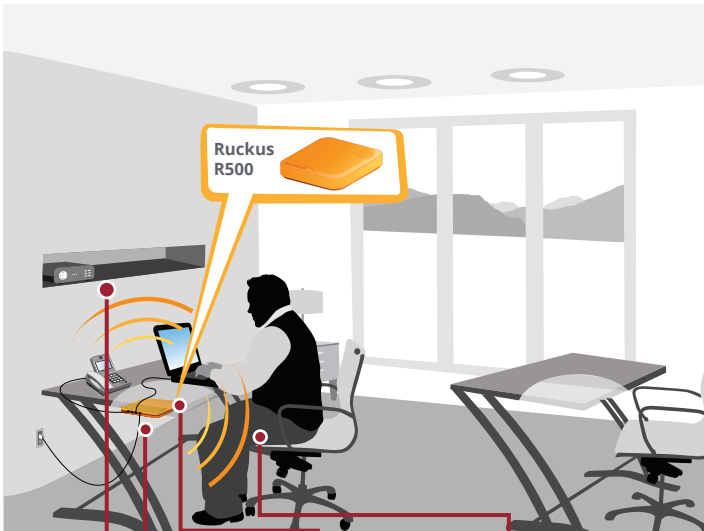
THE R500 INTEGRATES WITH YOUR EXISTING NETWORK INFRASTRUCTURE

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.



Dual-band (2.4/5GHz) support allows for concurrent Internet and IP-based video services

Sleek, elegant design easily concealed

Wired ports for connecting IP devices such as laptops and VoIP phones

Multiple SSIDs for high-speed Internet access and other services

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.



Wired ports to connect devices such as cash registers, printers, etc.

Multiple SSIDs for differentiated user services (e.g., guest Wi-Fi, point of sale, voice)

Reliable Wi-Fi connectivity for point of sale devices

5GHz band and smart antenna system ideal for 11ac clients

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

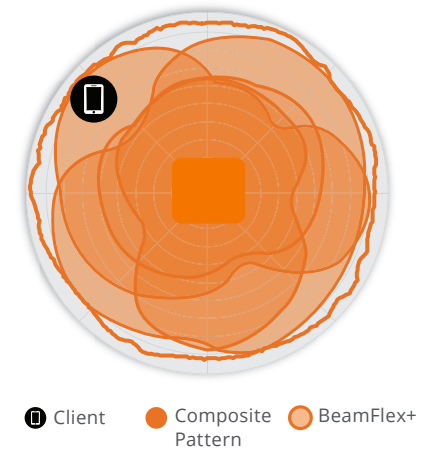


Figure 2. R500 2.4GHz Azimuth Antenna Patterns



Figure 3. R500 5GHz Azimuth Antenna Patterns



Figure 4. R500 2.4GHz Elevation Antenna Patterns

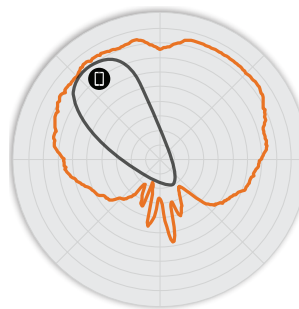
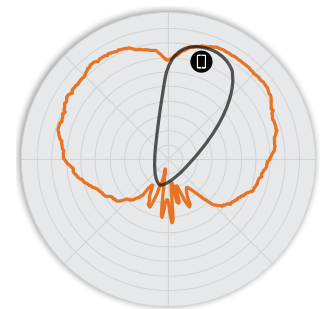


Figure 5. R500 5GHz Elevation Antenna Patterns



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	<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: 6.5 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	<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
Spatial Streams	<ul style="list-style-type: none"> 2 SU-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 up to 64 unique antenna patterns per band 										
Antenna Gain (max)	<ul style="list-style-type: none"> 2.4GHz: 4dBi 5GHz: 4dBi 										
Peak Transmit Power (aggregate across MIMO chains)	<ul style="list-style-type: none"> 2.4GHz: 22dBm 5GHz: 22dBm 										
Minimum Receive Sensitivity ¹	<ul style="list-style-type: none"> -100dBm 										
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
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	<ul style="list-style-type: none"> 2.4GHz: 300Mbps 5GHz: 867Mbps
Client Capacity	<ul style="list-style-type: none"> Up to 512 clients per AP
SSID	<ul style="list-style-type: none"> Up to 44 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 Cloud Wi-Fi Unleashed² Standalone
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
Gateway	<ul style="list-style-type: none"> NAT/DHCP
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.

PHYSICAL INTERFACES	
Ethernet	<ul style="list-style-type: none"> 2 x 1GbE port, RJ-45

PHYSICAL CHARACTERISTICS	
Physical Size	<ul style="list-style-type: none"> 15.8(L) x 15.8(W) x 4(H) cm 6.2(L) x 6.2(W) x 1.57(H) in
Weight	<ul style="list-style-type: none"> 350g (0.77oz)
Mounting	<ul style="list-style-type: none"> Wall, Drop ceiling, Desk 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 50°C (122°F)
Operating Humidity	<ul style="list-style-type: none"> Up to 95%, non-condensing

POWER ³	
Power Supply	Maximum Power Consumption
802.3af	<ul style="list-style-type: none"> 10.5W
12VDC- Powered	<ul style="list-style-type: none"> 11.1W

CERTIFICATIONS AND COMPLIANCE	
Wi-Fi Alliance ⁴	<ul style="list-style-type: none"> Wi-Fi CERTIFIED™ a, b, g, n, ac Passpoint®, Vantage
Standards Compliance ⁵	<ul style="list-style-type: none"> 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

² Refer to Unleashed datasheets for SKU ordering information.

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.

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-R500-XX00	<ul style="list-style-type: none"> Concurrent dual band 802.11ac Access Point, 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	<ul style="list-style-type: none"> Spare, Accessory Mounting Bracket with padlock support
902-0120-0000	<ul style="list-style-type: none"> Secure Mounting Bracket
902-0173-XXYY	<ul style="list-style-type: none"> Power Adapter, AC/DC wall plug, 100-240Vac 50/60Hz
902-0162-XXYY	<ul style="list-style-type: none"> PoE injector (sold in quantities of 10 or 100)

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.

Copyright © 2018 Ruckus Networks, an ARRIS company. All rights reserved. No part of this content may be reproduced in any form or by any means or used to make any derivative work (such as translation, transformation, or adaptation) without written permission from Ruckus Networks ("Ruckus"). Ruckus reserves the right to revise or change this content from time to time without obligation on the part of Ruckus to provide notification of such revision or change.

The Ruckus, Ruckus Wireless, Ruckus logo, Big Dog design, BeamFlex, ChannelFly, Edgelron, FastIron, HyperEdge, ICX, IronPoint, OPENG, and Xclaim and trademarks are registered in the U.S. and other countries. Ruckus Networks, Dynamic PSK, MediaFlex, Simply Better Wireless, SmartCast, SmartCell, SmartMesh, SpeedFlex, Unleashed, and ZoneDirector are Ruckus trademarks worldwide. Other names and brands mentioned in these materials may be claimed as the property of others.

Ruckus provides this content without warranty of any kind, implied or expressed, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Ruckus may make improvements or changes in the products or services described in this content at any time. The capabilities, system requirements and/or compatibility with third-party products described herein are subject to change without notice.



350 West Java Dr., Sunnyvale, CA 94089 USA

www.ruckusnetworks.com