

R510

Indoor 802.11ac Wave 2 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 of 64 directional antenna patterns.

SERVE MORE DEVICES

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

GET 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 R510 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.

MORE THAN WI-FI

Enhance your network with Cloudpath™ security and management software, SPoT™ real-time Wi-Fi location engine and analytics software, and SCI network analytics.

By definition, small and medium-size venues host a smaller number of users and devices. But high-performance Wi-Fi is just as important to each and every one of them. People are still accessing the same bandwidth-hungry applications and cloud services they would use anywhere else. Organizations are still connecting an ever-growing assortment of mobile and Internet of Things (IoT) devices. And users and guests still expect consistent, reliable connectivity wherever they roam.

The R510 802.11ac Wave 2 access point delivers the ideal combination of performance, reliability, and coverage for medium-density indoor locations. Using the same patented technologies found in our premier high-density APs, it supports data rates up to 1.2Gbps, along with industry-leading Wi-Fi intelligence to extend range and mitigate interference.

The R510 is the perfect choice for medium-density venues such as small and mid-size enterprise locations, common areas in hotels and office buildings, retail sites, and branch offices. In hotel common areas, for example, the R510 provides high-performance wireless access. In retail stores, it can provide reliable, inconspicuous connectivity for high-quality video applications, wireless IP phones, and handheld point-of-sale scanners.

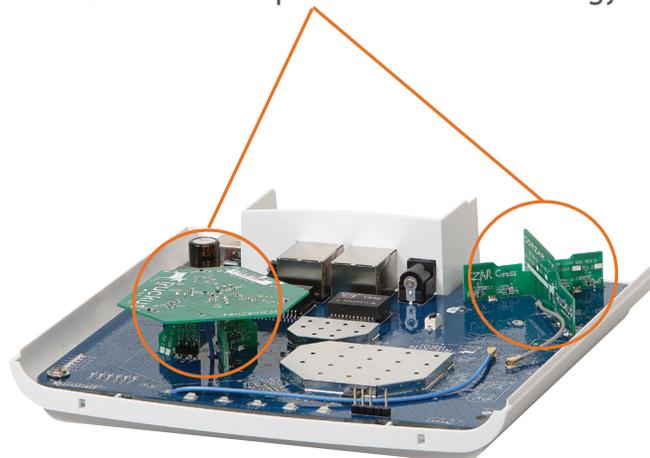
The R510 802.11ac Wave 2 Wi-Fi AP and switch incorporates patented technologies found only in the Ruckus Wi-Fi portfolio.

- 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, the R510 provides next-generation 802.11ac features like MultiUser MIMO (MU-MIMO) connectivity. It can simultaneously transmit to multiple client devices, drastically improving airtime efficiency, overall throughput for all users—even those with non-Wave 2 clients. The R510 also features a USB port for hosting IoT devices such as Bluetooth Low Energy (BLE).

Whether you're deploying ten or ten thousand APs, the R510 is also easy to manage through Ruckus' appliance, virtual and cloud management options.

BeamFlex Adaptive Antenna Technology



MU-MIMO

MU-MIMO helps Wave 2 and non-Wave 2 clients. The R510 can communicate simultaneously to multiple Wave 2 clients increasing network performance. This frees up airtime for non-Wave 2 clients resulting in enhanced aggregate network throughput.

ADVANCED WLAN APPLICATIONS

When used with the Ruckus WLAN controllers, each R510 supports a wide range of value-added applications such as BYOD/guest onboarding, Dynamic PSK, hotspot authentication, wireless intrusion detection and many more. WLANs can be created and mapped to the same or different APs or VLANs. In a centrally managed configuration, the R510 works with a wide range of authentication servers including Microsoft's Active Directory, LDAP, and RADIUS.

FLEXIBLE DEPLOYMENT OPTIONS

R510 APs can be deployed as a standalone AP or as part of a centrally managed wireless LAN using ZoneDirector or SmartZone Smart WLAN controllers. R510 can be deployed across any L2/L3 network and can bridge traffic onto the local network, tunnel to a central location using L2TP**, or route between the WAN and NAT'ed private subnets. With the Ruckus controllers, each R510 is automatically configured through the network making deployment quick and easy.

COMPLETE LOCAL AND REMOTE MANAGEMENT

Each R510 can be managed by the ZoneDirector™ controller or the SmartZone™ controllers like SZ100, SZ 300 or the vSZ. The controllers enable local management and control of APs, adding value-added services such as centralized AP provisioning, management and control at high scale.

FEATURES

WIRELESS

- 802.11ac Wave 2 Multi-User MIMO (MU-MIMO)
- Dual-band concurrent (5Ghz/2.4GHz)
- BeamFlex+ (PD-MRC) smart antenna, with support for 64 unique antenna patterns enables up to 4 dB of additional gain and up to 10 dB of additional interference mitigation
- Up to an additional 4dB BeamFlex gain / 10dB interference mitigation / 3 dBi physical antenna gain
- Automatic interference mitigation, optimized for high-density environments
- 802.11ac standard Tx Beamforming
- Advanced QoS packet classification and automatic priority for latency-sensitive traffic
- Dynamic, pre-user rate-limiting for hotspot WLANs
- WPA-PSK (AES), 802.1X support for RADIUS and Active Directory*
- Ethernet 802.1x port-based authentication (authenticator and supplicant)*

INTERFACES

- Two 10/100/1000 Ethernet ports, one with 802.3af Power over Ethernet (PoE)
- USB Port for IoT technologies

POWER

- Standard 802.3af Power over Ethernet (PoE)

ACCESSORIES

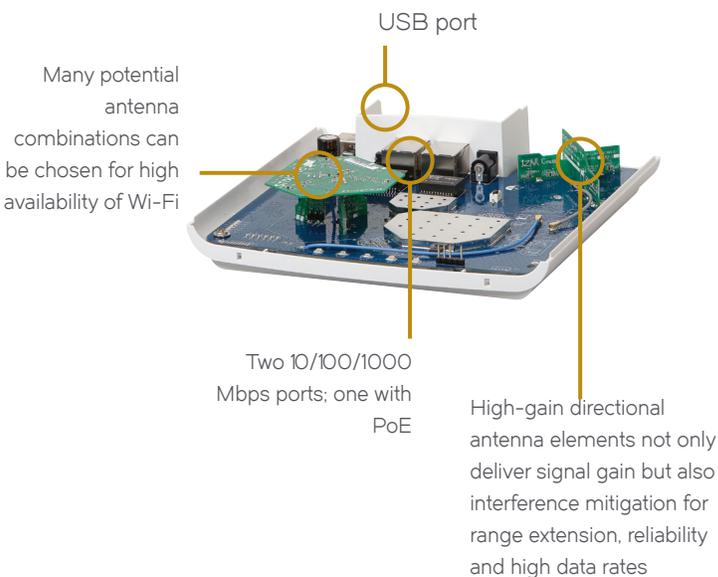
- Wall box or wall mount options

SOFTWARE

- Router mode with NAT and DHCP services **
- IP multicast video streaming support
- Dynamic PSK*
- Admission control/load balancing*
- Band steering and airtime fairness support
- Captive portal and guest accounts*
- Application recognition and control*
- SmartWay Bonjour gateway*
- SecureHotspot*
- SPoT™ Real-time location engine and analytics software
- Cloudpath™ (Security and management software)
- SmartCell Insight (Networks analytics engine)
- Band balancing*
- SmartMesh™ wireless meshing technology*

* when used with a controller platform

** only in standalone mode

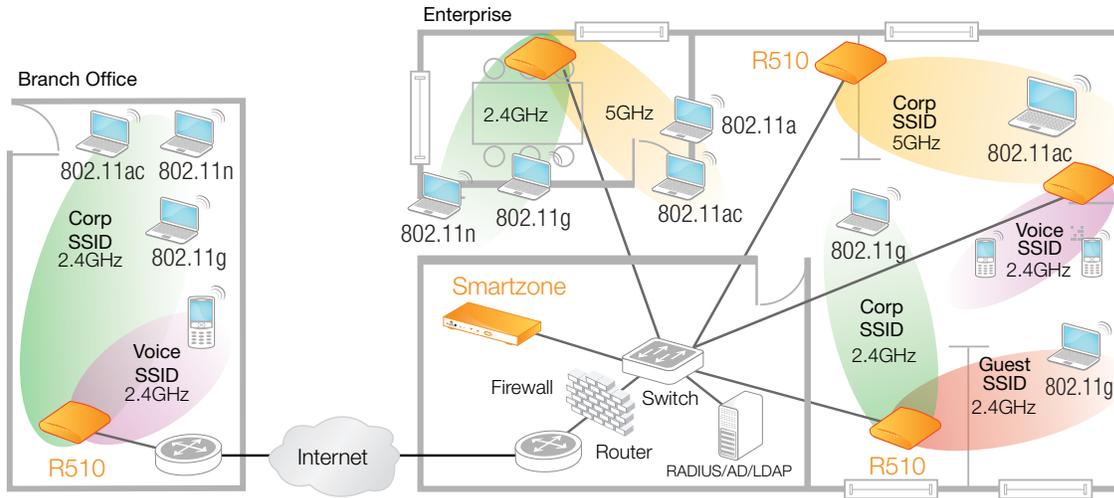


FLEXIBLE DEPLOYMENT OPTIONS



THE R510 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.

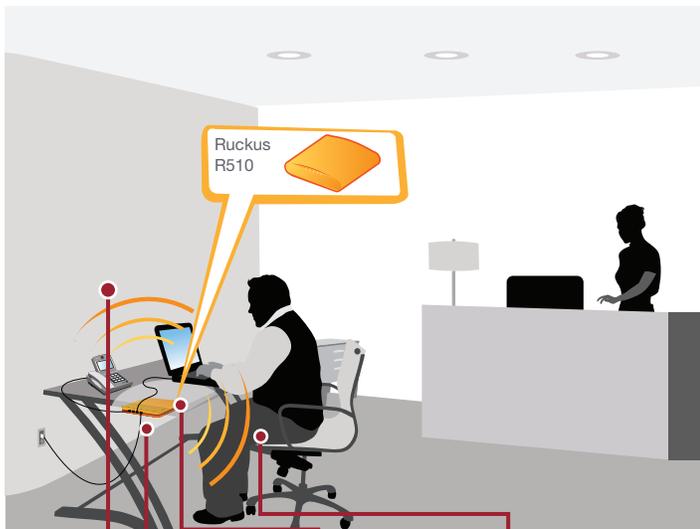


HOTEL COMMON AREAS SUCH AS SHARED OFFICES

The R510 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 R510 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.

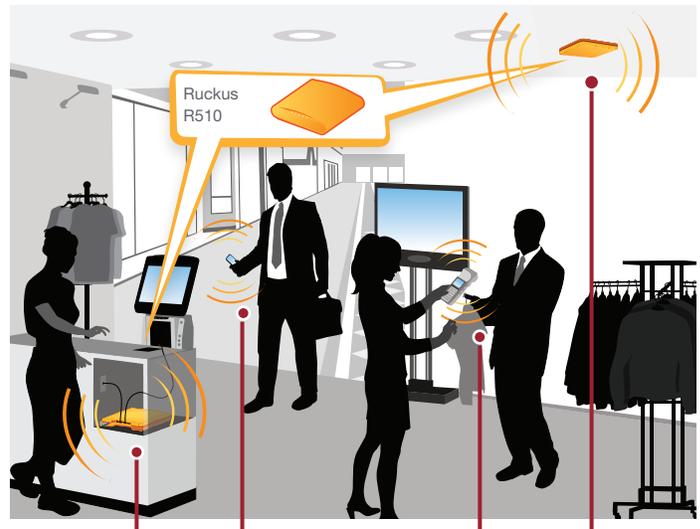


Dual-band (2.4/5GHz) support allows for concurrent Internet and IP-based video services

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



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)

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

Reliable Wi-Fi connectivity & IoT capabilities using technologies such as BLE

Specifications

PHYSICAL CHARACTERISTICS	
Power	<ul style="list-style-type: none"> DC Input: 12 VDC 1.0A Power over Ethernet 802.3 af
Physical Size	<ul style="list-style-type: none"> 16.8 cm (L), 16.5 cm (W), 4.1 cm (H) 6.6 in (L), 6.5 in (W), 1.6 in (H)
Weight	<ul style="list-style-type: none"> 350gms (0.772 lbs)
Ethernet Ports	<ul style="list-style-type: none"> 2 auto MDX, auto-sensing 10/100/1000 Mbps, RJ-45, POE port (on one port)
Mounting Options	<ul style="list-style-type: none"> Electrical wallbox; Standard US and EU single gang wall jack Optional bracket for offset & wall mount
Lock Options	<ul style="list-style-type: none"> Hidden latching mechanism Kensington Lock Hole T-bar Torx Bracket (902-0108-0000) Torx screw & padlock (sold separately)
Environmental Conditions	<ul style="list-style-type: none"> Operating Temperature: 0°C - 50°C Operating Humidity: 10% - 95% non-condensing
Power Draw	12 VDC Input <ul style="list-style-type: none"> Idle: 4.4W Typical: 7.1W Peak: 11.9W Power over Ethernet Input <ul style="list-style-type: none"> Idle: 4.7W Typical: 7.5W Peak: 12.6W
USB PORT	<ul style="list-style-type: none"> USB 2.0 Type A connector Ideal for BLE dongles and sensors

PERFORMANCE AND CAPACITY	
Concurrent Stations	<ul style="list-style-type: none"> Up to 512 clients per AP
Simultaneous Voip Clients	<ul style="list-style-type: none"> Up to 30

RF	
ANTENNA	<ul style="list-style-type: none"> Adaptive antenna that provides up to 64 unique antenna patterns per radio Full omnidirectional polarization diversity
PHYSICAL ANTENNA GAIN	<ul style="list-style-type: none"> Up to 3 dBi
BEAMFLEX* SINR TX GAIN	<ul style="list-style-type: none"> Up to 4 dB
BEAMFLEX* SINR RX GAIN	<ul style="list-style-type: none"> 3-5 dB (PD-MRC)
INTERFERENCE MITIGATION	<ul style="list-style-type: none"> Up to 10 dB
MINIMUM RX SENSITIVITY	<ul style="list-style-type: none"> Up to -103 dBm

* BeamFlex gains are statistical system level effects translated to enhanced SINR based on observations over time in real-world conditions with multiple APs and many clients

MANAGEMENT	
Deployment Options	<ul style="list-style-type: none"> Standalone (individually managed) Managed by ZoneDirector 9.13** Managed by SmartZone 3.4** Managed by FlexMaster 9.13** Managed by SmartCell Gateway
Configuration	<ul style="list-style-type: none"> Web User Interface (HTTP/S) CLI (Telnet/SSH), SNMP v1, 2, 3 TR-069 vis FlexMaster
Auto Ap Software Updates	<ul style="list-style-type: none"> FTP or TFTP, remote auto available

WI-FI	
Standards	<ul style="list-style-type: none"> IEEE 802.11a/b/g/n/ac 2.4GHz and 5GHz
Supported Data Rates	<ul style="list-style-type: none"> 802.11n/ac: 6.5Mbps - 173.4Mbps (20MHz) 13.5Mbps - 400Mbps (40MHz) 29.3Mbps - 867Mbps (80MHz) 802.11a: 54, 48, 36, 24, 18, 12, 9 and 6Mbps 802.11b: 11, 5.5, 2 and 1 Mbps 802.11g: 54, 48, 36, 24, 18, 12, 9 and 6 Mbps
Radio Chains	<ul style="list-style-type: none"> 2 x 2
Spatial Streams	<ul style="list-style-type: none"> SU-MIMO : Up to 2 streams MU-MIMO : Up to 2 streams
Channelization	<ul style="list-style-type: none"> 20MHz, 40MHz, 80MHz
RF POWER OUTPUT (Aggregate)	<ul style="list-style-type: none"> 26 dBm for 2.4GHz* 25 dBm for 5GHz*
Operating Channels	<ul style="list-style-type: none"> 2.4GHz channels* : 1-13 5 GHz channels* : 36-64, 100-140, 149-165
Frequency Band	<ul style="list-style-type: none"> IEEE 802.11 b/g/n: 2.4 - 2.484 GHz IEEE 802.11a/n/ac: 5.15 - 5.25 GHz; 5.25 - 5.35 GHz; 5.47 - 5.725 GHz; 5.725 - 5.85 GHz
Power Save	<ul style="list-style-type: none"> Supported
Wireless Security	<ul style="list-style-type: none"> WPA-PSK, WPA-TKIP, WPA2 AES, 802.11i Authentication via 802.1X with the ZoneDirector, SmartZone, local authentication database, support for RADIUS, LDAP, and ActiveDirectory
Certifications**	<ul style="list-style-type: none"> U.S., Europe, Australia, Brazil, Canada, Chile, China, Colombia, Costa Rica, Hong Kong, India, Indonesia, Israel, Japan, Korea, Malaysia, Mexico, New Zealand, Peru, Philippines, Saudi Arabia, Singapore, South Africa, Taiwan, Thailand, UAE, Vietnam WEEE/RoHS compliance EN-60601-1-2 (Medical) Wi-Fi Alliance EN50121-1 Railway EMC EN50121-4 Railway Immunity IEC 61373 Railway Shock & Vibration UL 2043 plenum rated 5GHz UNII-1 (2014)

* Maximum power varies by country

** For current certification status please see price list

* Subject to country regulations

PRODUCT ORDERING INFORMATION

MODEL	DESCRIPTION
R510 Smart Wi-Fi Wave 2 802.11ac Access Point	
901-R510-XX00	Concurrent dual band 802.11ac AP, no power adapter
Optional Accessories	
902-0108-0000	Spare, Accessory Mounting Bracket with padlock support
902-0120-0000	Spare, Accessory Mounting Bracket
902-0173-XXYY	Power Adapter, AC/DC wall plug, 100-240Vac 50/60Hz
902-0162-XXYY	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

Warranty: Sold with a limited lifetime warranty.

For details see: <http://support.ruckuswireless.com/warranty>