DATA SHEET

RUCKUS® H510

Wall-Mounted 802.11ac Wave 2 Wi-Fi Access Point and Switch

COMMSCOPE® RUCKUS®

Benefits

GREAT ALL-IN-ONE

Deliver great in-room Wi-Fi and enable converged IP services with 802.11ac Wave 2 speed and a built-in 4-port Gigabit Ethernet switch.

STUNNING WI-FI PERFORMANCE

Extends coverage with patented BeamFlex®+ adaptive antenna technology while mitigating interference by utilizing multi-directional antenna patterns.

MULTIPLE MANAGEMENT OPTIONS

Manage the H510 from the cloud, with on-premises physical/virtual appliances, or without a controller.

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.

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.

SUPPORT MORE SERVICES

Multiple SSIDs and switch ports help support services such as VoIP, IPTV, and high-speed Internet access and in-room device connectivity.

KEEP EXISTING SWITCHES AND CABLES

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

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.

How many devices can you connect in a single room? It sounds like the start of a riddle. But if you operate a hotel, apartment building, or other multi-dwelling unit (MDU) structure, your answer can have a big impact on your bottom line.

The RUCKUS® H510 wall-mounted access point and switch makes it easy to support the most demanding in-room connectivity requirements. It starts with RUCKUS' patented Wi-Fi optimization intelligence to deliver the industry's highest-performing wireless connectivity. Combine that with four-ports of Gigabit Ethernet to connect multiple in-room wired devices, without extra cabling. Put it all in a sleek, low-profile design that can be discretely installed over a standard electrical outlet.

The H510 is a perfect choice for delivering converged services in hospitality and residential locations such as hotel guest rooms, student residence halls, apartments, and other MDU structures. It can connect wired network devices such as IPTV set-top boxes, IP phones, or networked minibars, while simultaneously providing dual-band 802.11ac Wi-Fi coverage. A PoE port and pass-through features can connect and power devices directly from the wall switch. And, an included cable channel can connect even legacy devices, like digital phones that require native access to PBX systems. All of these in-room services can coexist within the same junction box, dramatically reducing cabling, installation time, and construction costs.

The H510 wall-mounted 802.11ac Wave 2 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 MultiUser-MIMO connectivity, the H510 can simultaneously transmit to multiple Wave 2 clients, improving network RF efficiency and overall performance, even for non-Wave 2 clients. The H510 also features a USB port to support future add-on radio modules, easy-to-deploy mesh networking capabilities, and support for up to 100 clients per room.

Whether you're deploying ten or ten thousand APs, the H510 is also easy to manage through RUCKUS' appliance, virtual, and cloud management options.

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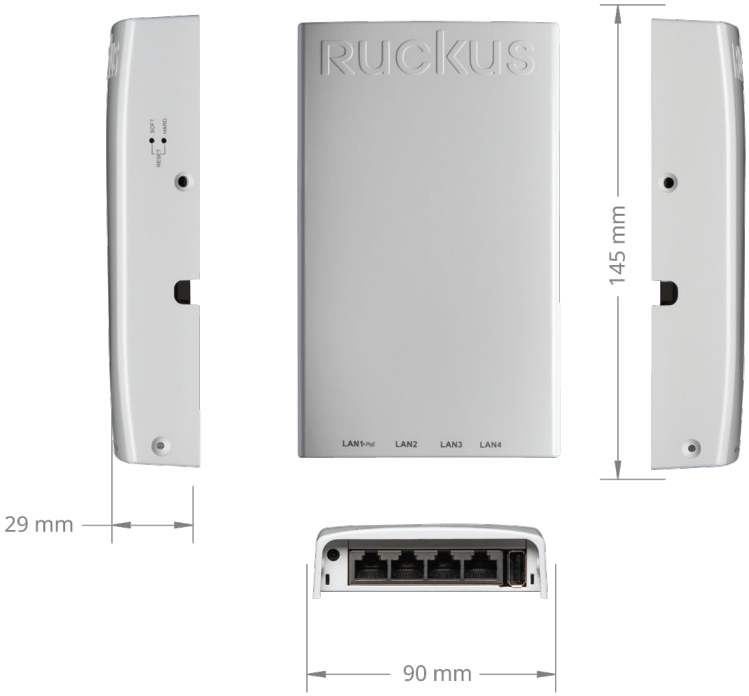
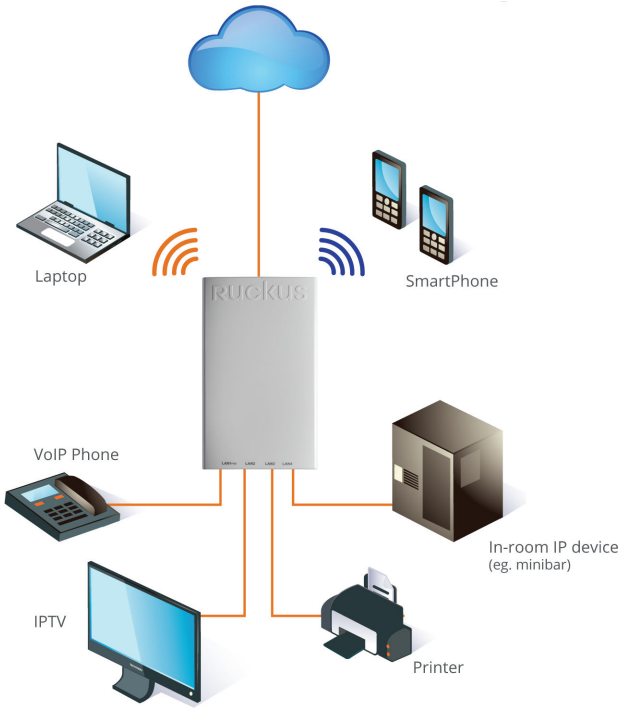


CONVERGED WIRED AND WIRELESS SERVICES



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Access Point Antenna Pattern

RUCKUS' BeamFlex+ adaptive antennas allow the H510 AP to dynamically choose among a host of antenna patterns 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

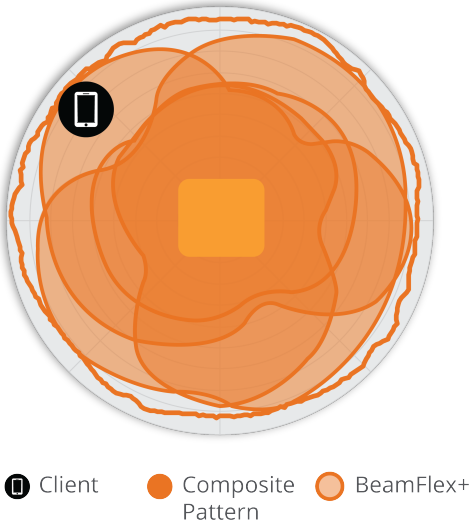

Figure 2. H510 2.4GHz Azimuth Antenna Patterns

Figure 3. H510 5GHz Azimuth Antenna Patterns

Figure 4. H510 2.4GHz Elevation Antenna Patterns

Figure 5. H510 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 867 (MCS0 to MCS9, NSS = 1 to 2 for VHT20/40/80) • 802.11n: 6.5Mbps to 300Mbps (MCS0 to MCS15) • 802.11a/g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps • 802.11b: 11, 5.5, 2 and 1 Mbps
MIMO	• 2x2 SU-MIMO • 2x2 MU-MIMO
Spatial Streams	• 2 Streams SU/MU-MIMO
Radio Chains and Streams	• 2x2:2
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 • Creative Portal • Hotspot • Hotspot 2.0 • WISPr

RF	
Antenna Type	• BeamFlex+ adaptive antennas with polarization diversity • Adaptive antenna that provides multiple unique antenna patterns
Antenna Gain (max)	• Up to 1dBi
Peak Transmit Power (aggregate across MIMO chains)	• 2.4GHz: 19dBm • 5GHz: 22dBm
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
-98	-79	-95	-77

5GHZ RECEIVE SENSITIVITY					
VHT20		VHT40		VHT80	
MCS0	MCS7	MCS0	MCS7	MCS0	MCS7
-92	-74	-89	-66	-75	-62

2.4GHZ TX POWER TARGET	
Rate	Pout (dBm)
MCS0 HT20	19
MCS7 HT20	18

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

[2] Refer to Unleashed datasheets for SKU ordering information.

5GHZ TX POWER TARGET	
Rate	Pout (dBm)
VHT20	22
MCS0 VHT40	22
MCS7 VHT40, VHT80	19
MCS9 VHT40, VHT80	16

PERFORMANCE AND CAPACITY	
Peak PHY Rates	• 2.4GHz: 300Mbps • 5GHz: 867Mbps
Client Capacity	• Up to 100 clients per AP
SSID	• Up to16 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	• Airtime Fairness • Airtime-based WLAN • Prioritization
Queuing and Scheduling	• SmartCast
Mobility	• SmartRoam
Diagnostic Tools	• Spectrum Analysis • SpeedFlex

NETWORKING	
Controller Platform Support	• SmartZone • ZoneDirector • Unleashed[2] • Cloud Wi-Fi • 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 and Supplicant
Tunnel	• L2TP, GRE, Soft-GRE
Policy Management Tools	• Application Recognition and Control • Access Control Lists • Device Fingerprinting • Rate Limiting
IoT Capable	• Yes

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PHYSICAL INTERFACES	
Ethernet	• 1 x 1GbE port, RJ-45 • 4 x 1GbE ports, one PoE-out
USB	• 1 USB 2.0 port, Type A

PHYSICAL CHARACTERISTICS	
Physical Size	• 90 mm (W) x 171 mm (L), 29 mm (H) • 3.54in (W) x 6.73in (L) x 1.14in (H)
Weight	• 210g (0.46lbs) without bracket • 282g (0.62lbs) with bracket
Mounting	• Electrical wallbox; Standard US and EU single gang wall jack • Optional bracket for offset & wall mount
Operating Temperature	• 0°C (32°F) - 40°C (104°F)
Operating Humidity	• Up to 95%, non-condensing

POWER[3]	
Power Supply	**Maximum Power Consumption**
802.3af/802.3at	• 12.9W

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 • 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-H510-XX00	• Dual band Wave 2 802.11ac Wi-Fi Wall Switch

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	
902-0162-XXYY	• PoE injector (24W) (Sold in quantities of 1, 10 or 100)
902-0170-XXYY	• Power Supply (48V, 0.63A, 30.24W) (Sold in quantities of 1 or 10)
902-0126-0000	• Optional Surface-mount 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] 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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CommScope pushes the boundaries of communications technology with game-changing ideas and ground-breaking discoveries that spark profound human achievement. We collaborate with our customers and partners to design, create and build the world's most advanced networks. It is our passion and commitment to identify the next opportunity and realize a better tomorrow. Discover more at commscope.com

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Visit our website or contact your local CommScope representative for more information.

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