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.
H510
Wall-Mounted 802.11ac Wave 2 Wi-Fi Access Point and Switch

CONVERGED WIRED AND WIRELESS SERVICES
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

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 Wave 2

#### Supported Rates
- 802.11ac: 6.5 to 867 (MCS0 to MCS9, NSS = 1 to 2 for VHT20/40/80)
- 802.11n: 6.5 Mbps to 300 Mbps (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
- -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

<table>
<thead>
<tr>
<th>Rate</th>
<th>HT20</th>
<th>HT40</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCS0</td>
<td>-98</td>
<td>-98</td>
</tr>
<tr>
<td>MCS7</td>
<td>-79</td>
<td>-79</td>
</tr>
<tr>
<td>MCS0</td>
<td>-95</td>
<td>-95</td>
</tr>
<tr>
<td>MCS7</td>
<td>-77</td>
<td>-77</td>
</tr>
</tbody>
</table>

### 5GHz RECEIVE SENSITIVITY

<table>
<thead>
<tr>
<th>Rate</th>
<th>VHT20</th>
<th>VHT40</th>
<th>VHT80</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCS0</td>
<td>-92</td>
<td>-92</td>
<td>-92</td>
</tr>
<tr>
<td>MCS7</td>
<td>-74</td>
<td>-74</td>
<td>-74</td>
</tr>
<tr>
<td>MCS0</td>
<td>-89</td>
<td>-89</td>
<td>-89</td>
</tr>
<tr>
<td>MCS7</td>
<td>-66</td>
<td>-66</td>
<td>-66</td>
</tr>
<tr>
<td>MCS0</td>
<td>-75</td>
<td>-75</td>
<td>-75</td>
</tr>
<tr>
<td>MCS7</td>
<td>-62</td>
<td>-62</td>
<td>-62</td>
</tr>
</tbody>
</table>

### 2.4GHz TX POWER TARGET

<table>
<thead>
<tr>
<th>Rate</th>
<th>Pout (dBm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC50</td>
<td>HT20</td>
</tr>
<tr>
<td>MC57</td>
<td>HT20</td>
</tr>
</tbody>
</table>

### 5GHz TX POWER TARGET

<table>
<thead>
<tr>
<th>Rate</th>
<th>Pout (dBm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VHT20</td>
<td>22</td>
</tr>
<tr>
<td>MC50</td>
<td>VHT40</td>
</tr>
<tr>
<td>MC57</td>
<td>VHT40, VHT80</td>
</tr>
<tr>
<td>MC59</td>
<td>VHT40, VHT80</td>
</tr>
</tbody>
</table>

### PERFORMANCE AND CAPACITY

#### Peak PHY Rates
- 2.4GHz: 300 Mbps
- 5GHz: 867 Mbps

#### Client Capacity
- Up to 100 clients per AP

#### SSID
- Up to 16 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
- 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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1. Rx sensitivity varies by band, channel width and MCS rate.
2. Refer to Unleashed datasheets for SKU ordering information.

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# H510
## Wall-Mounted 802.11ac Wave 2 Wi-Fi Access Point and Switch

### PHYSICAL INTERFACES

<table>
<thead>
<tr>
<th>Ethernet</th>
<th>USB</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 1 x 1GbE port, RJ-45</td>
<td>• 1 USB 2.0 port, Type A</td>
</tr>
<tr>
<td>• 4 x 1GbE ports, one PoE-out</td>
<td></td>
</tr>
</tbody>
</table>

### PHYSICAL CHARACTERISTICS

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

### POWER

<table>
<thead>
<tr>
<th>Power Supply</th>
<th>Maximum Power Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>802.3af/802.3at</td>
<td>12.9W</td>
</tr>
</tbody>
</table>

### CERTIFICATIONS AND COMPLIANCE

<table>
<thead>
<tr>
<th>Wi-Fi Alliance</th>
<th>Standards Compliance</th>
</tr>
</thead>
</table>
| • Wi-Fi CERTIFIED™ a, b, g, n, ac | • 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  
• EN 62311 Human Safety/RF Exposure  
• WEEE & RoHS  
• ISTA 2A Transportation |

### SOFTWARE AND SERVICES

<table>
<thead>
<tr>
<th>Location Based Services</th>
<th>Network Analytics</th>
<th>Security and Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>• SPoT</td>
<td>• SmartCell Insight (SCI)</td>
<td>• Cloudpath</td>
</tr>
</tbody>
</table>

### 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](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.

### Footnotes

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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