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.

**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 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**
Support services beyond Wi-Fi with Ruckus IoT Suite, Cloudpath security and onboarding software, SPoT Wi-Fi locationing engine, 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. Users and guests still expect consistent, reliable connectivity wherever they roam.

The RUCKUS 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.
RUCKUS R510
Indoor 802.11ac Wave 2 2x2:2 Wi-Fi Access Point

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.
Access Point Antenna Pattern

Ruckus’ BeamFlex+ adaptive antennas allow the R510 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.
RUCKUS R510
Indoor 802.11ac Wave 2 2x2:2 Wi-Fi Access Point

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

<table>
<thead>
<tr>
<th>Wi-Fi Standards</th>
<th>IEEE 802.11a/b/g/n/ac Wave 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supported Rates</td>
<td>802.11ac: 6.5 to 867Mbps (MC50 to MC59, NSS = 1 to 2 for VHT20/40/80)</td>
</tr>
<tr>
<td></td>
<td>802.11n: 6.5 Mbps to 300Mbps (MC50 to MC515)</td>
</tr>
<tr>
<td></td>
<td>802.11a: 54, 48, 36, 24, 18, 12, 9, 6Mbps</td>
</tr>
<tr>
<td></td>
<td>802.11b: 11, 5.5, 2 and 1 Mbps</td>
</tr>
</tbody>
</table>

### Supported Channels

- **2.4GHz:** 1-13
- **5GHz:** 36-64, 100-144, 149-165

### MIMO

- **2x2 SU-MIMO**
- **2x2 MU-MIMO**

### Spatial Streams

- **2 SU-MIMO**
- **2 MU-MIMO**

### Radio Chains and Streams

- **2x2:2**

### Channelization

- **20, 40, 80MHz**

### Security

- WPA-PSK, WPA-TKIP, WPA2 AES, WPA3, 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

<table>
<thead>
<tr>
<th>Antenna Type</th>
<th>BeamFlex+ adaptive antennas with polarization diversity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antenna Gain (max)</td>
<td>Up to 3dBi</td>
</tr>
<tr>
<td>Peak Transmit Power (aggregate across MIMO chains)</td>
<td>2.4GHz: 26dBm</td>
</tr>
<tr>
<td></td>
<td>5GHz: 25dBm</td>
</tr>
<tr>
<td>Minimum Receive Sensitivity</td>
<td>-101dBm (2.4GHz)</td>
</tr>
<tr>
<td></td>
<td>-96dBm (5GHz)</td>
</tr>
<tr>
<td>Frequency Bands</td>
<td>ISM (2.4-2.484GHz)</td>
</tr>
<tr>
<td></td>
<td>U-NII-1 (5.15-5.25GHz)</td>
</tr>
<tr>
<td></td>
<td>U-NII-2A (5.25-5.35GHz)</td>
</tr>
<tr>
<td></td>
<td>U-NII-2C (5.47-5.725GHz)</td>
</tr>
<tr>
<td></td>
<td>U-NII-3 (5.725-5.85GHz)</td>
</tr>
</tbody>
</table>

### 2.4GHZ RECEIVE SENSITIVITY

<table>
<thead>
<tr>
<th>Rate</th>
<th>HT20</th>
<th>HT40</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCS0</td>
<td>-95</td>
<td>-92</td>
</tr>
<tr>
<td>MCS7</td>
<td>-77</td>
<td>-74</td>
</tr>
</tbody>
</table>

### 5GHZ RECEIVE SENSITIVITY

<table>
<thead>
<tr>
<th>Rate</th>
<th>HT20</th>
<th>HT40</th>
<th>HT80</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCS0</td>
<td>-96</td>
<td>-93</td>
<td>-90</td>
</tr>
<tr>
<td>MCS7</td>
<td>-77</td>
<td>-75</td>
<td>-72</td>
</tr>
</tbody>
</table>

### 2.4GHZ TX POWER TARGET

<table>
<thead>
<tr>
<th>Rate</th>
<th>Pout (dBm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCS0 HT20</td>
<td>22</td>
</tr>
<tr>
<td>MCS7 HT20</td>
<td>19</td>
</tr>
</tbody>
</table>

*Rx sensitivity varies by band, channel width and MCS rate.*
5GHZ TX POWER TARGET

<table>
<thead>
<tr>
<th>Rate</th>
<th>Pout (dBm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC50 VHT20</td>
<td>22</td>
</tr>
<tr>
<td>MC57 VHT20</td>
<td>19</td>
</tr>
<tr>
<td>MC50 VHT40, VHT80</td>
<td>22</td>
</tr>
<tr>
<td>MC57 VHT40, VHT80</td>
<td>19</td>
</tr>
</tbody>
</table>

PERFORMANCE AND CAPACITY

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

- Client Capacity
  - Up to 512 clients per AP

- SSID
  - Up to 31 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
  - Unleashed
  - Cloud
  - 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 & Suppliant

- Tunnel
  - L2TP, GRE, Soft-GRE

- Policy Management Tools
  - Application Recognition and Control
  - Access Control Lists
  - Device Fingerprinting
  - Rate Limiting

- IoT Capable
  - Yes

PHYSICAL INTERFACES

- Ethernet
  - 2 x 1GbE ports, RJ-45, PoE in on one port

- USB
  - USB 2.0 port, Type A Connector

PHYSICAL CHARACTERISTICS

- Physical Size
  - 16.8(L) x 16.5(W) x 4.1(H) cm
  - 6.6(L) x 6.49(W) x 1.6(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

<table>
<thead>
<tr>
<th>Power Supply</th>
<th>Maximum Power Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>802.3af</td>
<td>12.6W</td>
</tr>
<tr>
<td>DC Input 12VDC 10A</td>
<td>11.9W</td>
</tr>
</tbody>
</table>

2 Refer to Unleashed datasheets for SKU ordering information.
3 Max power varies by country setting, band, and MCS rate.
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

CommScope.com
Visit our website or contact your local CommScope representative for more information.
© 2020 CommScope, Inc. All rights reserved.

Unless otherwise noted, all trademarks identified by ™ or ® are registered trademarks, respectively, of CommScope, Inc. This document is for planning purposes only and is not intended to modify or supplement any specifications or warranties relating to CommScope products or services. CommScope is committed to the highest standards of business integrity and environmental sustainability, with a number of CommScope’s facilities across the globe certified in accordance with international standards, including ISO 9001, TL 9000, and ISO 14001.

Further information regarding CommScope’s commitment can be found at www.commscope.com/About-Us/Corporate-Responsibility-and-Sustainability.