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 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.
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.

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 Standards**
- IEEE 802.11a/b/g/n/ac Wave 2

**Supported Rates**
- **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**
- **2.4GHz**: 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**

**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
- Hotspot
- Hotspot 2.0
- Captive Portal
- Wi5Pr

**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>
</tbody>
</table>
| Peak Transmit Power (aggregate across MIMO chains) | 2.4GHz: 26dBm
| Minimum Receive Sensitivity | -101dBm (2.4GHz)
| 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>MCS0 HT20</th>
<th>MCS7 HT20</th>
</tr>
</thead>
<tbody>
<tr>
<td>HT20</td>
<td>-95</td>
<td>-77</td>
</tr>
<tr>
<td>HT40</td>
<td>-92</td>
<td>-74</td>
</tr>
</tbody>
</table>

**5GHz RECEIVE SENSITIVITY**

<table>
<thead>
<tr>
<th>Rate</th>
<th>MCS0 VHT20</th>
<th>MCS7 VHT20</th>
<th>MCS0 VHT40, VHT80</th>
<th>MCS7 VHT40, VHT80</th>
</tr>
</thead>
<tbody>
<tr>
<td>VHT20</td>
<td>-96</td>
<td>-77</td>
<td>-93</td>
<td>-75</td>
</tr>
<tr>
<td>VHT40</td>
<td>-90</td>
<td>-72</td>
<td>-90</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>

**5GHz TX POWER TARGET**

<table>
<thead>
<tr>
<th>Rate</th>
<th>Pout (dBm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCS0 VHT20</td>
<td>22</td>
</tr>
<tr>
<td>MCS7 VHT20</td>
<td>19</td>
</tr>
<tr>
<td>MCS0 VHT40, VHT80</td>
<td>22</td>
</tr>
<tr>
<td>MCS7 VHT40, VHT80</td>
<td>19</td>
</tr>
</tbody>
</table>

**PERFORMANCE AND CAPACITY**

| Peak PHY Rates | 2.4GHz: 300Mbps
| Client Capacity | Up to 512 clients per AP
| SSID | Up to 31 per AP

**RUCKUS RADIO MANAGEMENT**

<table>
<thead>
<tr>
<th>Antenna Optimization</th>
<th>BeamFlex+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wi-Fi Channel Management</td>
<td>ChannelFly</td>
</tr>
<tr>
<td>Client Density Management</td>
<td>Adaptive Band Balancing</td>
</tr>
<tr>
<td>SmartCast Quality of Service</td>
<td>QoS-based scheduling</td>
</tr>
<tr>
<td>Mobility</td>
<td>SmartRoam</td>
</tr>
<tr>
<td>Diagnostic Tools</td>
<td>Spectrum Analysis</td>
</tr>
</tbody>
</table>

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1 Rx sensitivity varies by band, channel width and MCS rate.
### 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 Enhancement      | • Authenticator & Suplicant  
| Policy Management Tools  | • Application Recognition and Control  
|                        | • Access Control Lists  
|                        | • Device Fingerprinting  
|                        | • Rate Limiting  

### PHYSICAL CHARACTERISTICS

| Physical Size       | 16.8(L) x 16.5(W) x 4.1(H) cm  
| 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

| Power Supply        | Maximum Power Consumption  
| 802.3af             | 12.6W  
| DC Input 12VDC 10A  | 11.9W  

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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.