

## R720

Indoor 802.11ac Wave 2 4x4:4 Wi-Fi Access Point with 2.5Gbps backhaul



## Benefits

**Multi-Gigabit Access Speeds**

Liberate the multi-gigabit power of Wave 2 Wi-Fi by using built-in 2.5GbE (802.3bz) backhaul to connect to multi-gigabit switches.

**Stunning Performance**

Provide a great user experience no matter how challenging the environment with BeamFlex+™ adaptive antenna technology and a library of 4K+ directional antenna patterns.

**Serve More Devices**

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

**Multiple Management Options**

Manage the R720 from the cloud, or with on-premises physical/virtual appliances.

**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.

**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.

**Expandable Capabilities**

Augment AP capabilities through the onboard USB 2.0 port to provide additional technologies like BLE.

**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.

**A perfect storm of technology trends—the Internet of Things (IoT), bandwidth-hungry cloud and video applications, an explosion of new devices—is driving organizations in every industry to upgrade their WLAN infrastructure. 802.11ac Wave 2 can deliver the performance you need, but it can also quickly overload existing 1 Gbps backhaul connections. Who wants to bear the cost of running more Ethernet and using more switch ports to ensure greater throughput between wired and wireless?**

The Ruckus R720 indoor access point is our highest-capacity four-stream 802.11ac Wave 2 Wi-Fi AP. It features multi-gigabit technology, so you can step up to faster Wi-Fi speeds and 2.5GbE backhaul connectivity without having to replace your Cat 5e cabling or use additional switch ports. Deploy a high-performance, highly resilient Wi-Fi network without breaking the bank.

With hundreds of devices and nonstop wireless noise and interference, busy indoor environments can be the most challenging Wi-Fi deployments. The R720 makes it easy to deliver reliable, high-performance connectivity in large enterprises, office buildings, university campuses, convention centers, and practically any other indoor space.

The R720 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 find less congested Wi-Fi channels to use

With four stream MU-MIMO connectivity, the R720 can simultaneously transmit to multiple Wave 2 clients in the widest available channels, drastically improving RF efficiency even for non-Wave 2 clients. Additionally, the R720's integrated multi-gigabit technology provides a 2.5Gbps Ethernet interface, so you can more than double your backhaul capacity utilizing existing switches.

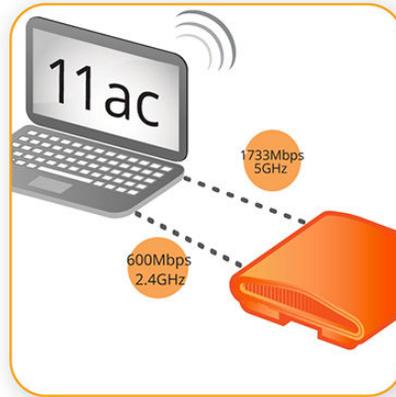
Whether you're deploying ten or ten thousand APs, the R720 is also easy to manage through Ruckus' appliance, virtual and cloud management options.

**BeamFlex+  
Adaptive Antenna  
Technology**

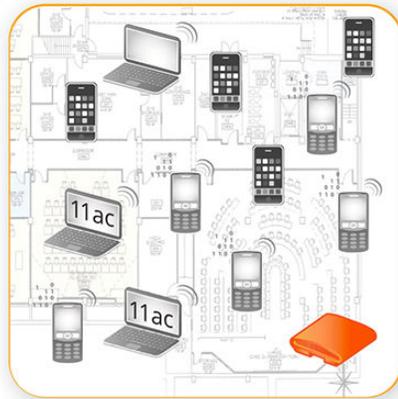


# R720

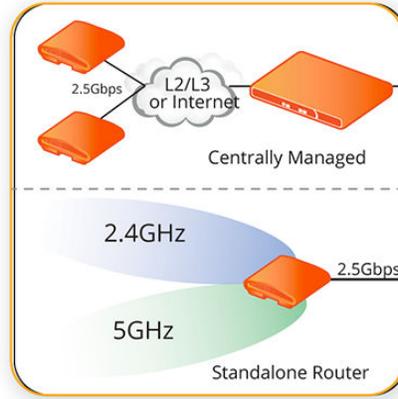
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Blinding fast Wave 2 4x4:4 802.11ac with MU-MIMO



Deployment Scenarios



Architectural Flexibility



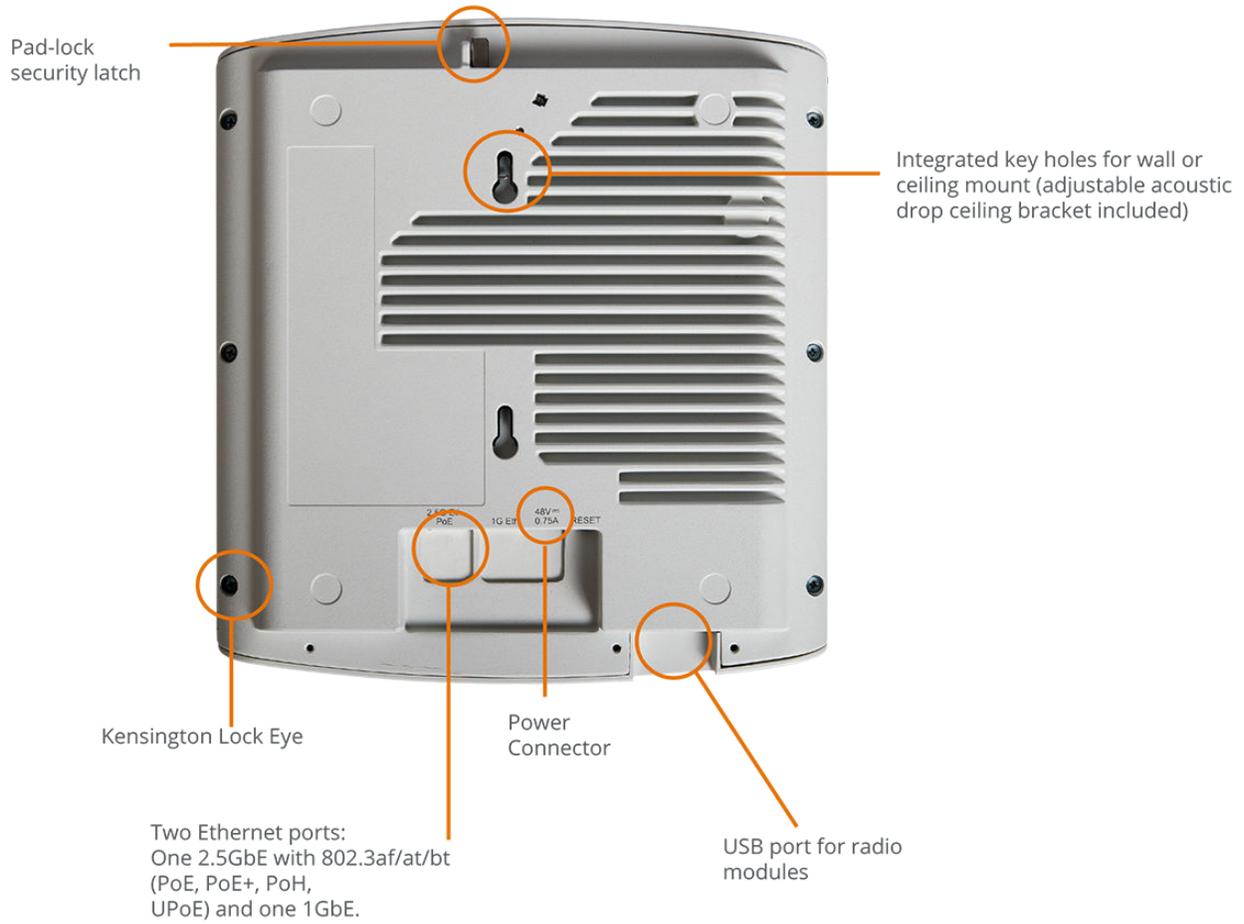
Weight is 1.12 kg. (2.5 lbs.)

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Front View



# R720

Indoor 802.11ac Wave 2 4x4:4 Wi-Fi Access Point with 2.5Gbps backhaul

## Access Point Antenna Pattern

Ruckus' BeamFlex+ adaptive antennas allow the R720 AP to dynamically choose among a host of antenna patterns (over 4,000 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.

Figure 1. Example of BeamFlex+ pattern

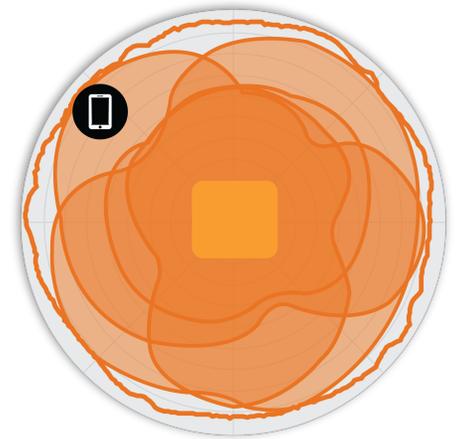


Figure 2. R720 2.4GHz Azimuth Antenna Patterns



Figure 3. R720 5GHz Azimuth Antenna Patterns



Figure 4. R720 2.4GHz Elevation Antenna Patterns

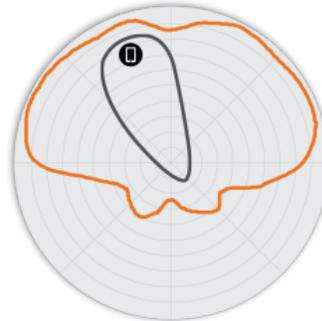
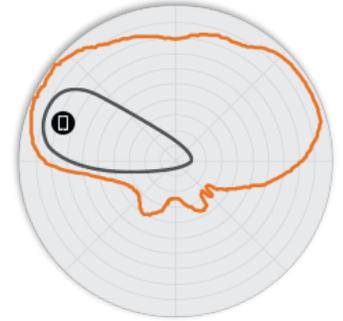


Figure 5. R720 5GHz Elevation Antenna Patterns



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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## Indoor 802.11ac Wave 2 4x4:4 Wi-Fi Access Point with 2.5Gbps backhaul

Wi-Fi	
Wi-Fi Standards	<ul style="list-style-type: none"> <li>IEEE 802.11a/b/g/n/ac Wave 2</li> </ul>
Supported Rates	<ul style="list-style-type: none"> <li>802.11ac: 6.5 to 1,733Mbps (MCS0 to MCS9, NSS = 1 to 4 for VHT20/40/80, NSS = 1 to 2 for VHT160)</li> <li>802.11n: 6.5 Mbps to 600Mbps (MCS0 to MCS31)</li> <li>802.11a/g: 54, 48, 36, 24, 18, 12, 9, 6Mbps</li> <li>802.11b: 11, 5.5, 2 and 1 Mbps</li> </ul>
Supported Channels	<ul style="list-style-type: none"> <li>2.4GHz: 1-13</li> <li>5GHz: 36-64, 100-144, 149-165</li> </ul>
MIMO	<ul style="list-style-type: none"> <li>4x4 SU-MIMO</li> <li>4x4 MU-MIMO</li> </ul>
Spatial Streams	<ul style="list-style-type: none"> <li>4 for both SU-MIMO &amp; MU-MIMO</li> </ul>
Radio Chains and Streams	<ul style="list-style-type: none"> <li>4x4:4</li> </ul>
Channelization	<ul style="list-style-type: none"> <li>20, 40, 80, 160/80+80MHz</li> </ul>
Security	<ul style="list-style-type: none"> <li>WPA-PSK, WPA-TKIP, WPA2 AES, 802.11i, Dynamic PSK</li> <li>WIPS/WIDS</li> </ul>
Other Wi-Fi Features	<ul style="list-style-type: none"> <li>WMM, Power Save, Tx Beamforming, LDPC, STBC, 802.11r/k/v</li> <li>Hotspot</li> <li>Hotspot 2.0</li> <li>Captive Portal</li> <li>WISPr</li> </ul>

RF	
Antenna Type	<ul style="list-style-type: none"> <li>BeamFlex+ adaptive antennas with polarization diversity</li> <li>Adaptive antenna that provides 4,000+ unique antenna patterns per band</li> </ul>
Antenna Gain (max)	<ul style="list-style-type: none"> <li>Up to 3dBi</li> </ul>
Peak Transmit Power (Tx port/chain + Combining gain)	<ul style="list-style-type: none"> <li>2.4GHz: 29dBm</li> <li>5GHz: 28dBm</li> </ul>
Frequency Bands	<ul style="list-style-type: none"> <li>ISM (2.4-2.484GHz)</li> <li>U-NII-1 (5.15-5.25GHz)</li> <li>U-NII-2A (5.25-5.35GHz)</li> <li>U-NII-2C (5.47-5.725GHz)</li> <li>U-NII-3 (5.725-5.85GHz)</li> </ul>

2.4GHZ RECEIVE SENSITIVITY							
HT20		HT40		VHT20		VHT40	
MCS0	MCS7	MCS0	MCS7	MCS0	MCS7	MCS0	MCS7
-96	-77	-93	-76	-96	-75	-93	-75

5GHZ RECEIVE SENSITIVITY											
VHT20				VHT40				VHT80			
MCS0	MCS7	MCS8	MCS9	MCS0	MCS7	MCS8	MCS9	MCS0	MCS7	MCS8	MCS9
-96	-75	-74	—	-94	-76	-66	-72	-90	-70	-68	-66

2.4GHZ TX POWER TARGET	
Rate	Pout (dBm)
MCS0 HT20	22
MCS7 HT20	19

5GHZ TX POWER TARGET	
Rate	Pout (dBm)
VHT20	20
MCS0, VHT40	22
MCS7, VHT40, VHT80	19
MCS9, VHT40, VHT80	17

PERFORMANCE AND CAPACITY	
Peak PHY Rates	<ul style="list-style-type: none"> <li>2.4GHz: 600 Mbps</li> <li>5GHz: 1733 Mbps</li> </ul>
Client Capacity	<ul style="list-style-type: none"> <li>Up to 512 clients per AP</li> </ul>
SSID	<ul style="list-style-type: none"> <li>Up to 31 per AP</li> </ul>

RUCKUS RADIO MANAGEMENT	
Antenna Optimization	<ul style="list-style-type: none"> <li>BeamFlex+</li> <li>Polarization Diversity with Maximal Ratio Combining (PD-MRC)</li> </ul>
Wi-Fi Channel Management	<ul style="list-style-type: none"> <li>ChannelFly</li> <li>Background Scan Based</li> </ul>
Client Density Management	<ul style="list-style-type: none"> <li>Adaptive Band Balancing</li> <li>Client Load Balancing</li> <li>Airtime Fairness</li> <li>Airtime-based WLAN Prioritization</li> </ul>
SmartCast Quality of Service	<ul style="list-style-type: none"> <li>QoS-based scheduling</li> <li>Directed Multicast</li> <li>L2/L3/L4 ACLs</li> </ul>
Mobility	<ul style="list-style-type: none"> <li>SmartRoam</li> </ul>
Diagnostic Tools	<ul style="list-style-type: none"> <li>Spectrum Analysis</li> <li>SpeedFlex</li> </ul>

NETWORKING	
Controller Platform Support	<ul style="list-style-type: none"> <li>SmartZone</li> <li>ZoneDirector</li> <li>Unleashed<sup>1</sup></li> <li>Standalone</li> </ul>
Mesh	<ul style="list-style-type: none"> <li>SmartMesh™ wireless meshing technology. Self-healing Mesh</li> </ul>
IP	<ul style="list-style-type: none"> <li>IPv4, IPv6, dual-stack</li> </ul>
VLAN	<ul style="list-style-type: none"> <li>802.1Q (1 per BSSID or dynamic per user based on RADIUS)</li> <li>VLAN Pooling</li> <li>Port-based</li> </ul>
802.1x	<ul style="list-style-type: none"> <li>Authenticator &amp; Supplicant</li> </ul>
Tunnel	<ul style="list-style-type: none"> <li>L2TP, GRE, Soft-GRE</li> </ul>
Policy Management Tools	<ul style="list-style-type: none"> <li>Application Recognition and Control</li> <li>Access Control Lists</li> <li>Device Fingerprinting</li> <li>Rate Limiting</li> </ul>
IoT Capable	<ul style="list-style-type: none"> <li>Yes</li> </ul>

<sup>1</sup> Refer to Unleashed datasheets for SKU ordering information.

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PHYSICAL INTERFACES	
Ethernet	<ul style="list-style-type: none"> <li>One 2.5Gbps Ethernet port and one 1Gbps Ethernet port</li> <li>Power over Ethernet with Category 5/5e/6 cable</li> <li>LLDP</li> </ul>
USB	<ul style="list-style-type: none"> <li>1 USB 2.0 port, Type A</li> </ul>

PHYSICAL CHARACTERISTICS	
Physical Size	<ul style="list-style-type: none"> <li>22.7 cm (L), 21.3 cm (W), 6 cm (H)</li> <li>8.9in (L) x 8.4in (W) x 2.4in (H)</li> </ul>
Weight	<ul style="list-style-type: none"> <li>1.12 kg (2.5 lb.)</li> </ul>
Mounting	<ul style="list-style-type: none"> <li>Wall, acoustic ceiling, desk</li> <li>Secure bracket (sold separately)</li> </ul>
Physical Security	<ul style="list-style-type: none"> <li>Hidden latching mechanism</li> <li>Kensington Lock Hole</li> <li>T-bar Torx</li> <li>Bracket (902-0120-0000) Torx screw &amp; padlock (sold separately)</li> </ul>
Operating Temperature	<ul style="list-style-type: none"> <li>-10°C (14°F) - 50°C (122°F)</li> </ul>
Operating Humidity	<ul style="list-style-type: none"> <li>Up to 95%, non-condensing</li> </ul>

POWER <sup>2</sup>		
Power Supply	Operating Characteristics	Max Power Consumption
802.3af PoE	<ul style="list-style-type: none"> <li>2.4GHz radio: 1x4, 18dBm per chain</li> <li>5GHz radio: 1x4, 20dBm per chain</li> <li>2nd Ethernet port &amp; USB disabled</li> </ul>	12.95W
802.3at PoE+	<ul style="list-style-type: none"> <li>2.4GHz radio: 4x4, 18dBm per chain</li> <li>5GHz radio: 4x4, 20dBm per chain</li> <li>2nd Ethernet port &amp; USB disabled</li> </ul>	25.5W
PoH/UPoE, Injector, 48VDC	<ul style="list-style-type: none"> <li>2.4GHz radio: 4x4, 23dBm per chain</li> <li>5GHz radio: 4x4, 22dBm per chain</li> </ul>	33.5W

CERTIFICATIONS AND COMPLIANCE	
Wi-Fi Alliance <sup>3</sup>	<ul style="list-style-type: none"> <li>Wi-Fi CERTIFIED™ a, b, g, n, ac</li> <li>Passpoint®, Vantage</li> </ul>
Standards Compliance <sup>4</sup>	<ul style="list-style-type: none"> <li>EN 60950-1 Safety</li> <li>EN 60601-1-2 Medical</li> <li>EN 61000-4-2/3/5 Immunity</li> <li>EN 50121-1 Railway EMC</li> <li>EN 50121-4 Railway Immunity</li> <li>IEC 61373 Railway Shock &amp; Vibration</li> <li>UL 2043 Plenum</li> <li>EN 62311 Human Safety/RF Exposure</li> <li>WEEE &amp; RoHS</li> <li>ISTA 2A Transportation</li> </ul>

SOFTWARE AND SERVICES	
Location Based Services	<ul style="list-style-type: none"> <li>SPoT</li> </ul>
Network Analytics	<ul style="list-style-type: none"> <li>SmartCell Insight (SCI)</li> </ul>
Security and Policy	<ul style="list-style-type: none"> <li>Cloudpath</li> </ul>

ORDERING INFORMATION	
901-R720-XX00	<ul style="list-style-type: none"> <li>R720 dual-band (5GHz and 2.4GHz concurrent) Wave 2 802.11ac wireless access point, 4x4:4 streams, adaptive antennas, dual ports, PoE support. Includes adjustable acoustic drop ceiling bracket. One Ethernet port is 2.5GbE. Does not include power adaptor.</li> </ul>

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	
902-0180-XX00	<ul style="list-style-type: none"> <li>PoE Injector (60W)</li> </ul>
902-1170-XX00	<ul style="list-style-type: none"> <li>Power Supply (48V, 0.75A, 36W)</li> </ul>
902-0120-0000	<ul style="list-style-type: none"> <li>Spare, Accessory Mounting Bracket</li> </ul>
902-0195-0000	<ul style="list-style-type: none"> <li>Spare, T-bar ceiling mount kit for mounting to flush frame ceiling</li> </ul>

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.

<sup>2</sup> Max power varies by country setting, band, and MCS rate.

<sup>3</sup> For complete list of WFA certifications, please see Wi-Fi Alliance website.

<sup>4</sup> For current certification status, please see price list.

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