R720

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

DATA SHEET

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.

SERVICE 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 WIFI

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.
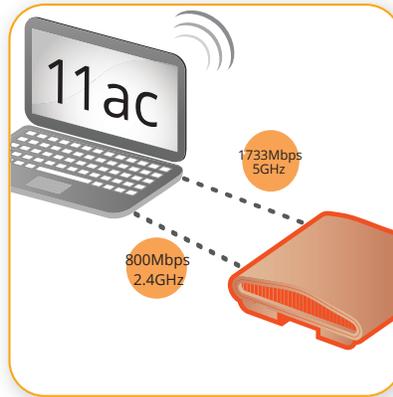
- Extended coverage with patented BeamFlex+ utilizing mult-directional antenna patterns
- Improved throughput with ChannelFly which dynamically find less congested Wi-Fi channels to use

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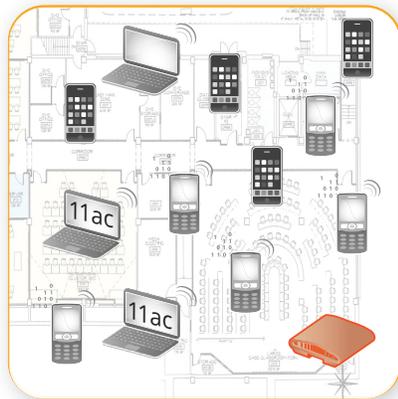
Whether you're deploying ten or ten thousand APs, the R720 is also easy to manage through Ruckus' appliance, virtual and cloud management options.
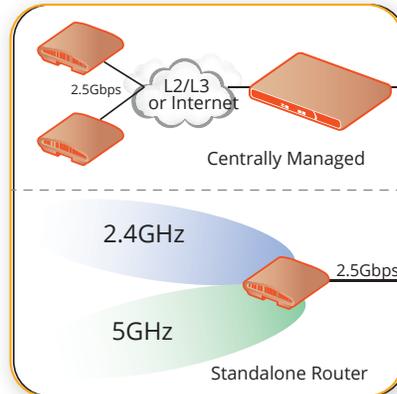
BeamFlex+
Adaptive Antenna
Technology

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

1733Mbps
5GHz

800Mbps
2.4GHz

Deployment Scenarios

Architectural Flexibility

2.5Gbps

L2/L3
or Internet

Centrally Managed

2.4GHz

5GHz

2.5Gbps

Standalone Router

(6 cm)

(21 cm)

(23 cm)

Weight is 1.12 kg. (2.5 lbs.)

Front View

Pad-lock
security latch

Integrated key holes for wall or
ceiling mount (adjustable acoustic
drop ceiling bracket included)

Kensington Lock Eye

Power
Connector

Two Ethernet ports:
One 2.5GbE with 802.3af/at/bt (PoE, PoE+, PoH,
UPoE) and one 1GbE.

USB port for radio
modules
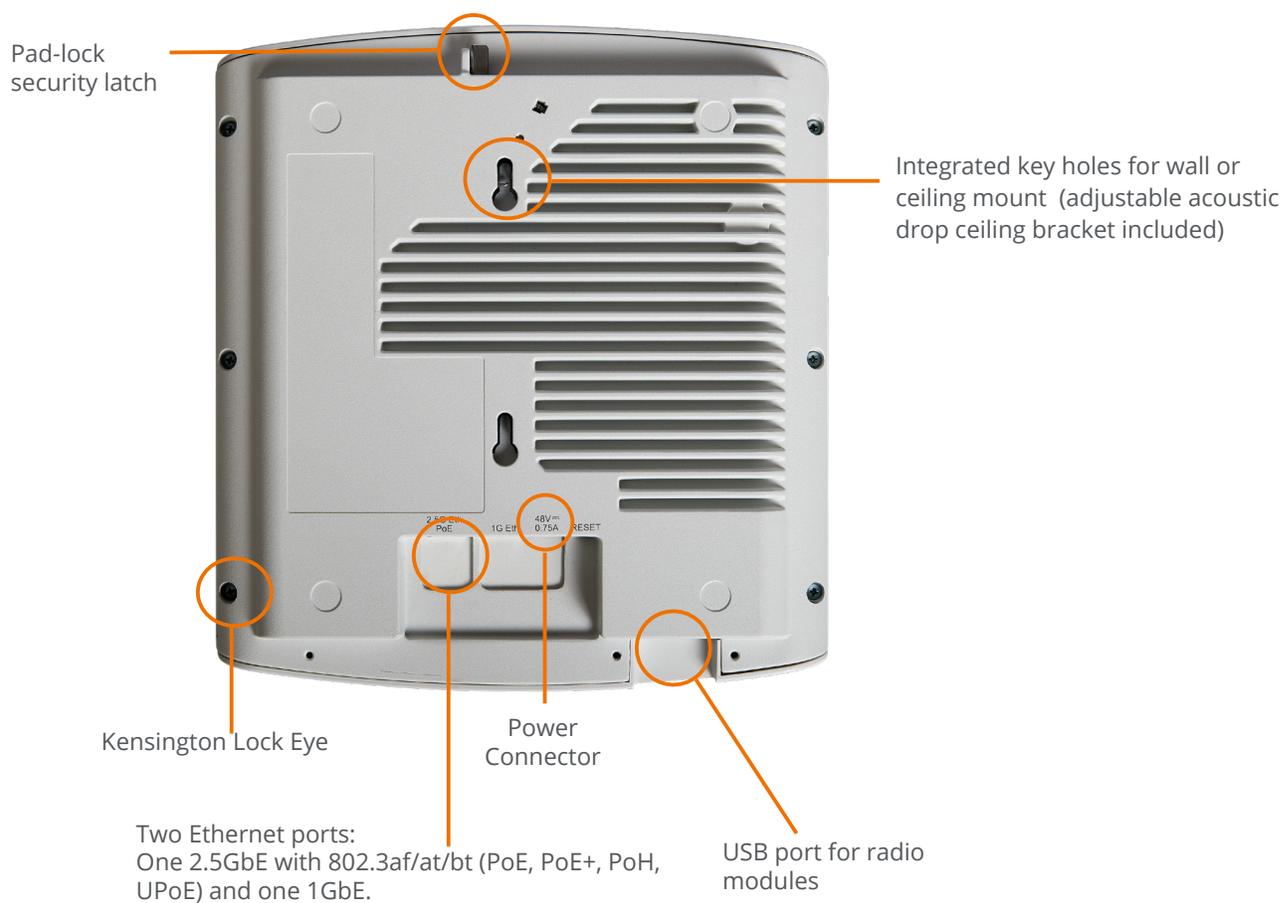
ACCESS POINT ANTENNA PATTERN

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.
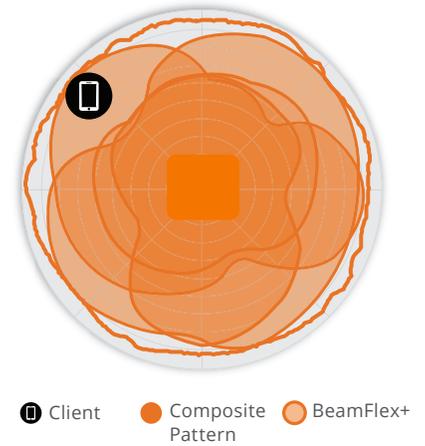
Figure 1. Example of BeamFlex+ pattern

Client   Composite Pattern   BeamFlex+
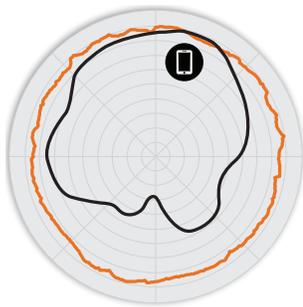
Figure 2. R720 2.4GHz Azimuth Antenna Patterns

Figure 3. R720 5GHz Azimuth Antenna Patterns

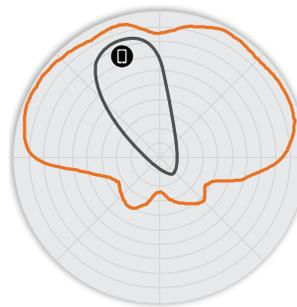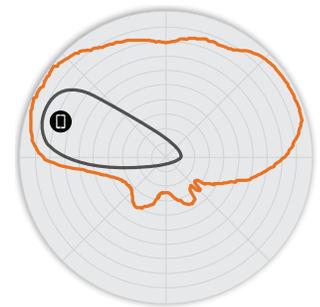**Figure 4. R720 2.4GHz Elevation Antenna Patterns**

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.

WI-FI	
Wi-Fi Standards	• IEEE 802.11a/b/g/n/ac
Supported Rates	• 802.11ac: 6.5 to 1,733Mbps (MCS0 to MCS9, NSS = 1 to 4 for VHT20/40/80, NSS = 1 to 2 for VHT160) • 802.11n: 6.5 Mbps to 600Mbps (MCS0 to MCS31) • 802.11a/g: 54, 48, 36, 24, 18, 12, 9, 6Mbps • 802.11b: 11, 5.5, 2 and 1 Mbps
Supported Channels	• 2.4GHz: 1-13 • 5GHz: 36-64, 100-144, 149-165
MIMO	• 4x4 SU-MIMO • 4x4 MU-MIMO
Spatial Streams	• 4 for both SU-MIMO & MU-MIMO
Channelization	• 20, 40, 80, 160/80+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 • WISPr

RF	
Antenna Type	• BeamFlex+ adaptive antennas with polarization diversity • Adaptive antenna that provides 4000+ unique antenna patterns per band
Antenna Gain (max)	• 3dBi for both 2.4GHz and 5GHz
Peak Transmit Power (Tx port/chain + Combining gain)	• 2.4GHz: 29dBm • 5Ghz: 28dBm
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		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	• 2.4GHz: 600 Mbps • 5GHz: 1733 Mbps
Client Capacity	• Up to 512 clients per AP (256 clients per band)
SSID	• Up to 32 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[1] • Standalone
Mesh	• SmartMesh™ wireless meshing technology. Self-healing Mesh
IP	• IPv4, IPv6, dual-stack
VLAN	• 802.1Q (1 per BSSID or dynamic per user based on RADIUS) • VLAN Pooling • Port-based
802.1x	• Authenticator & Supplicant
Tunnel	• L2TP, GRE, Soft-GRE
Policy Management Tools	• Application Visibility and Control • Access Control Lists • Device Fingerprinting • Rate Limiting

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

PHYSICAL INTERFACES

Ethernet	• One 2.5Gbps Ethernet port and one 1Gbps Ethernet port • Power over Ethernet (802.3af/at/bt) with Category 5/5e/6 cable • LLDP
USB	• 1 USB 2.0 port, Type A

PHYSICAL CHARACTERISTICS

Physical Size	• 22.7 cm (L), 21.3 cm (W), 6 cm (H) • 8.9in (L) x 8.4in (W) x 2.4in (H)
Weight	• 1.12 kg (2.5 lb.)
Mounting	• Wall, acoustic ceiling, desk • Secure bracket (sold separately)
Physical Security	• Hidden latching mechanism • Kensington Lock Hole • T-bar Torx • Bracket (902-0120-0000) Torx screw & padlock (sold separately)
Operating Temperature	• Operating Temperature: -10ºC (14ºF) - 50ºC (122ºF)
Operating Humidity	• Operating Humidity: up to 95% non-condensing

POWER[2]

Power Supply	Operating Characteristics	Max Power Consumption
802.3af PoE	• 2.4GHz radio: 1x4, 18dBm per chain • 5GHz radio: 1x4, 20dBm per chain • 2nd Ethernet port & USB disabled	12.95W
802.3at PoE+	• 2.4GHz radio: 4x4, 18dBm per chain • 5GHz radio: 4x4, 20dBm per chain • 2nd Ethernet port & USB disabled	25.5W
802.3bt/PoH/UPoE, Injector, 48VDC	• 2.4GHz radio: 4x4, 23dBm per chain • 5GHz radio: 4x4, 22dBm per chain	33.5W

CERTIFICATIONS AND COMPLIANCE

Wi-Fi Alliance[4]	• Wi-Fi CERTIFIED™ a, b, g, n, ac, ax[3] • Passpoint®, Vantage

CERTIFICATIONS AND COMPLIANCE

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 • UL 2043 Plenum • 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-R720-XX00	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.

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	• PoE injector (90 – 264 VAC 47-63 Hz)
902-1170-XX00	• AC/DC Power supply - 48V - 36W
902-0120-0000	• Secure Mounting 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.

[2] Max power varies by country setting, band, and MCS rate.
[3] Some certifications have not been completed—future.
[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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