

# 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.

### GET 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

Enhance your network with Cloudpath™ security and management software, SPoT™ real-time Wi-Fi location engine and analytics software, 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.

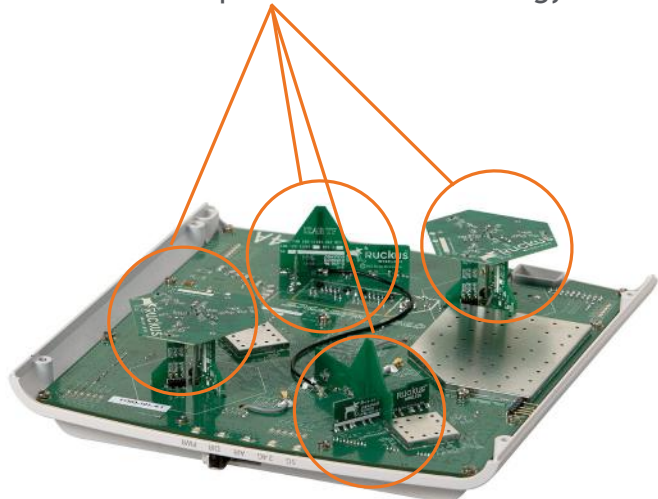
The R720 802.11ac Wave 2 Wi-Fi AP incorporates patented technologies found only in the Ruckus Wi-Fi portfolio.

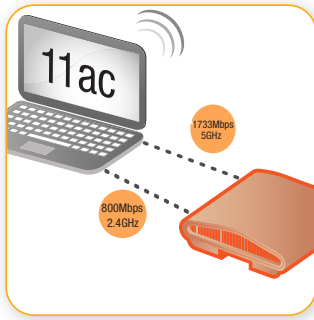
- Extended coverage with patented BeamFlex+ utilizing multi-directional antenna patterns
- Improved throughput with ChannelFly which dynamically find less congested Wi-Fi channels to use

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

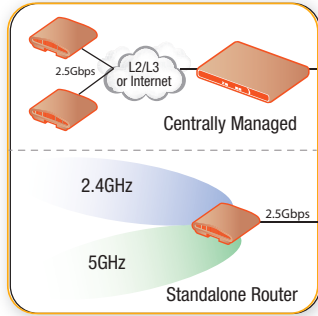




Blinding fast Wave 2 4x4:4 802.11ac with MU-MIMO



Deployment Scenarios



Architectural Flexibility



Weight is 1.12 kg. (2.5 lbs.)

## FEATURES

### WIRELESS FEATURES

- 4-stream 802.11ac Multi-User MIMO (MU-MIMO)
- Concurrent dual-band (5GHz/2.4GHz) support
- 80MHz, 80+80MHz and 160MHz channelization; 256-QAM modulation support; 1.733Gbps PHY rates at 5GHz
- 256-QAM support on 2.4GHz
- 802.11ac standard Tx Beamforming
- Backward compatible with legacy 802.11 clients
- Space Time Block Coding for increased handset performance
- Improved Maximum Ratio Combining (MRC) for best-in-class receive sensitivity
- Low Density Parity Check (LDPC) for increased data throughput at all ranges
- BeamFlex+ adaptive antenna technology (PD-MRC) improves signal reception of mobile devices
- Integrated smart antenna with many unique patterns for ultra reliability
- Unmatched Rx sensitivity down to -104 dBm
- Admission control/load balancing\*
- Band balancing

### INTERFACES

- One 2.5Gbps Ethernet port and one 1Gbps Ethernet port
- USB port for hosting Internet-of-Things (IoT) devices such as Bluetooth Low Energy (BLE) smart beacons

### POWER

- 802.3af/at/bt Power over Ethernet (PoE, PoE+, PoH, UPoE) via the 2.5Gbps Ethernet port.
- 48VDC input

Power Source	2.4GHz	5GHz	2nd Eth	USB
802.3af PoE	1x4 18dBm/chain	1x4 20dBm/chain	—	—
802.3at PoE+	4x4 18dBm/chain	4x4 20dBm/chain	—	—
PoH, UPoE, Injector, 48VDC	4x4 23dBm/chain	4x4 22dBm/chain	Yes	Yes

### SOFTWARE

- SPoT™ Real-time location engine and analytics software
  - Cloudpath™ security and management software)
  - SmartCell Insight (Networks analytics engine)
  - Integrated NAT and DHCP support
  - Multicast IP video streaming support
  - SmartMesh™ wireless meshing technology\*
  - Zero-IT (BYOD) and Dynamic PSK\*
  - Captive portal and guest accounts\*
- \* when used with management

### ACCESSORIES

- Wall or ceiling mountable with padlock security
- Built in mounting options for fast and easy deployment

# R720

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

### PATENTED BEAMFLEX+ TECHNOLOGY EXTENDS SIGNAL RANGE, IMPROVES STABILITY OF CLIENT CONNECTIONS

The R720 integrates patented software-controlled adaptive antennas that delivers additional signal gain per radio chain. As BeamFlex+ adapts to client locations and antenna polarity, the smart antenna technology optimizes the RF energy toward client on a per packet basis. This allows for substantial performance improvement and a reduction in packet loss from the ability to automatically mitigate interference. BeamFlex+, with PD-MRC or polarization diversity, ensures the R720 listens in all polarizations simultaneously. This results in significant receive signal gain from mobile devices with weak transmitters.

### MULTI-USER MIMO (MU-MIMO)

802.11ac MU-MIMO allows the R720 to transmit multiple spatial streams to multiple client devices simultaneously, increasing the total throughput and capacity of the wireless network. The R720 is able to provide up to four clients each their own dedicated full-bandwidth channel using an MU-MIMO technique known as spatial reuse. This capability enables several benefits:

1. Efficient use of available spectrum effectively multiplies the total capacity of a network, allowing it to meet the increasing data demand driven by the proliferation of mobile Wi-Fi clients and data-hungry applications such as high-definition video streaming.
2. Additionally, MU-MIMO does not require client devices to time-share connections with other clients on the network as in legacy Wi-Fi, which means each device experiences less wait time and makes the network more responsive overall. Even legacy clients benefit from MU-MIMO on the wireless network, because substantially increased efficiency for MU clients leaves the network with more free time and capacity by supporting multiple users.

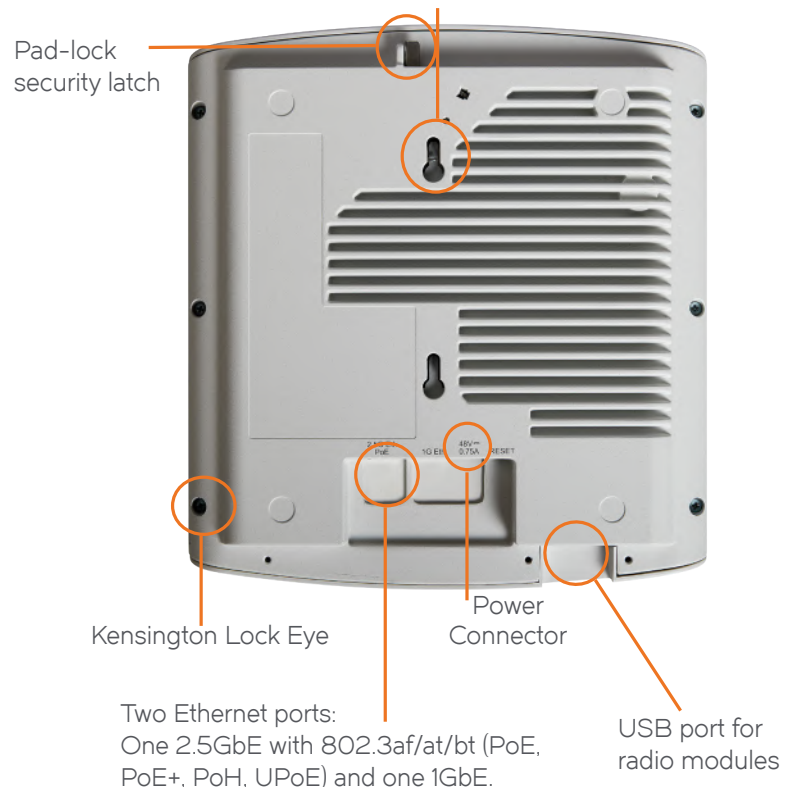
### ADVANCED WLAN APPLICATIONS

When used with the Ruckus WLAN management systems, the R720 supports a wide range of value-added applications such as guest networking, Dynamic PSK, hotspot authentication, wireless intrusion prevention and many more. WLANs can also be grouped and shared by specific APs. In a centrally managed configuration, the R720 works with various authentication servers including AD, LDAP, and RADIUS.



Front View

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



BeamFlex+ Adaptive Antenna Technology

PHYSICAL CHARACTERISTICS	
Power <sup>1</sup>	<ul style="list-style-type: none"> <li>DC Input: 48VDC 2A</li> <li>PoE: 802.3af/at/bt</li> </ul>
Physical Size	<ul style="list-style-type: none"> <li>23 cm (L), 21 cm (W), 6 cm (H)</li> </ul>
Weight	<ul style="list-style-type: none"> <li>1.12 kg (2.5 lb)</li> </ul>
Ethernet Ports	<ul style="list-style-type: none"> <li>One 2.5Gbps Ethernet port and one 1Gbps Ethernet port</li> <li>Power over Ethernet (802.3af/at/bt) with Category 5/5e/6 cable</li> </ul>
USB Port	<ul style="list-style-type: none"> <li>USB 2.0</li> <li>Type A connector - ideal for BLE dongles and sensors</li> </ul>
Mounting Options	<ul style="list-style-type: none"> <li>Electrical wallbox; Standard US and EU single gang wall jack</li> <li>Optional bracket for offset &amp; wall mount</li> </ul>
Environmental Conditions	<ul style="list-style-type: none"> <li>Operating Temperature: 14°F (-10°C) - 122°F (50°C)</li> <li>Operating Humidity: up to 95% non-condensing</li> </ul>
Lock Options	<ul style="list-style-type: none"> <li>Hidden latching mechanism</li> <li>Kensington Lock Hole</li> <li>T-bar Torx</li> <li>Bracket (902-0108-0000) Torx screw &amp; padlock (sold separately)</li> </ul>
Power Draw	<ul style="list-style-type: none"> <li>5.5W (minimum)</li> <li>11.4W (typical)</li> <li>12.95W peak with 802.3af</li> <li>25W peak with 802.3at</li> <li>35W peak with full power</li> </ul>

RF	
Antenna	<ul style="list-style-type: none"> <li>Adaptive antenna that provides up to 4000+ unique antenna patterns</li> <li>Maximum transmit power (aggregate) is 28dBm for both 2.4 &amp; 5GHz</li> </ul>
Physical Antenna Gain	<ul style="list-style-type: none"> <li>3dB (2.4 and 5GHz)</li> </ul>
Beamflex+ SINR Tx Gain <sup>2</sup>	<ul style="list-style-type: none"> <li>up to 6dB</li> </ul>
Beamflex+ SINR Rx Gain	<ul style="list-style-type: none"> <li>up to 3-5dB</li> </ul>
Interference Mitigation	<ul style="list-style-type: none"> <li>up to 15dB</li> </ul>
Minimum Rx Sensitivity <sup>3</sup>	<ul style="list-style-type: none"> <li>-104dBm</li> </ul>

PERFORMANCE AND CAPACITY	
Phy Data Rates	<ul style="list-style-type: none"> <li>Up to 800Mbps (2.4GHz)</li> <li>Up to 1733Mbps (5GHz)</li> </ul>
Concurrent Stations	<ul style="list-style-type: none"> <li>Up to 512</li> </ul>
Simultaneous VoIP Clients	<ul style="list-style-type: none"> <li>Up to 60 (802.11e/WMM), 30 per radio</li> </ul>

NETWORK ARCHITECTURE	
IP	<ul style="list-style-type: none"> <li>IPv4, IPv6, dual-stack</li> </ul>
VLANs	<ul style="list-style-type: none"> <li>802.1Q (1 per BSSID or dynamic, per user based on RADIUS)</li> <li>Port-based</li> </ul>
802.1X for Wired Ports	<ul style="list-style-type: none"> <li>Authenticator</li> <li>Supplicant</li> </ul>
Tunneling	<ul style="list-style-type: none"> <li>L2TP</li> </ul>

MULTIMEDIA AND QUALITY OF SERVICE	
802.11e/WMM	<ul style="list-style-type: none"> <li>Supported</li> </ul>
Software Queues	<ul style="list-style-type: none"> <li>Per WLAN priority (2), Per traffic type (4), per client</li> </ul>
Traffic Classification	<ul style="list-style-type: none"> <li>Automatic, heuristics and TOS based or VLAN-defined</li> </ul>
Rate Limiting	<ul style="list-style-type: none"> <li>Dynamic per-user or per-WLAN</li> </ul>

\*Ruckus wireless proprietary and confidential. Specifications subject to change without notice.

MANAGEMENT	
Deployment Options	<ul style="list-style-type: none"> <li>Standalone (individually managed)</li> <li>Centrally managed</li> </ul>

WI-FI	
Standards	<ul style="list-style-type: none"> <li>IEEE 802.11a/b/g/n/ac</li> </ul>
Supported Data Rates	<ul style="list-style-type: none"> <li>802.11ac: 29.3 Mbps - 1733 Mbps (160MHz<sup>4</sup>)</li> <li>802.11n: 6.5 Mbps - 216.7 Mbps (20MHz) 13.5 Mbps - 800 Mbps (40MHz)</li> <li>802.11a: 54, 48, 36, 24, 18, 12, 9 and 6 Mbps</li> <li>802.11b: 11, 5.5, 2 and 1 Mbps</li> <li>802.11 Gbps: 54, 48, 36, 24, 18, 12, 9 and 6 Mbps</li> </ul>
Radio Chains	<ul style="list-style-type: none"> <li>4x4</li> </ul>
Spatial Streams	<ul style="list-style-type: none"> <li>4</li> </ul>
MIMO	<ul style="list-style-type: none"> <li>SU-MIMO - Up to 4 streams</li> <li>MU-MIMO - Up to 4 streams</li> </ul>
Channelization	<ul style="list-style-type: none"> <li>20MHz, 40MHz, 80MHz, 80+80MHz and/or 160MHz</li> </ul>
Frequency Band	<ul style="list-style-type: none"> <li>IEEE 802.11ac: 5.15 - 5.85GHz</li> <li>IEEE 802.11a/n: 5.15 - 5.85GHz</li> <li>IEEE 802.11b: 2.4 - 2.484GHz</li> </ul>
BSSIDs	<ul style="list-style-type: none"> <li>Up to 16 (2.4GHz)</li> <li>Up to 16 (5GHz)</li> </ul>
Power Save	<ul style="list-style-type: none"> <li>Supported</li> </ul>
Certifications	<ul style="list-style-type: none"> <li>WEEE/RoHS compliance</li> <li>EN 60601-1-2 Medical</li> <li>Wi-Fi Alliance certified</li> <li>UL 2043 plenum rated</li> </ul>
Subway And Railroad Certifications	<ul style="list-style-type: none"> <li>EN50121-1 EMC</li> <li>EN50121-4 Immunity</li> <li>IEC 61373 Shock &amp; Vibration</li> </ul>

## PRODUCT ORDERING INFORMATION

MODEL	DESCRIPTION
R720 Wi-Fi 802.11ac Wave 2 Access Point	
901-R720-XX00 <sup>5</sup>	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.
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

When ordering Ruckus 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

- 1 Max power varies by country setting, band, and MCS rate
- 2 BeamFlex+ gains are statistical system-level effects (including TxBF), translated to enhanced SINR here, and based on observations over time in real-world conditions with multiple APs and many clients
- 3 Rx sensitivity varies by band, channel width, and MCS rate
- 4 With 160MHz channelization enabled, the R720 runs in two spatial stream mode (2x2:2)
- 5 Refer to price list for the complete list of current country certifications

Warranty: Sold with a limited lifetime warranty.  
For details see: <http://support.ruckuswireless.com/warranty>



PHYSICAL CHARACTERISTICS	
Physical Size	<ul style="list-style-type: none"> <li>23 cm (L), 21 cm (W), 6 cm (H)</li> </ul>
Weight	<ul style="list-style-type: none"> <li>1.12 kg (2.5 lb.)</li> </ul>
Ethernet Ports	<ul style="list-style-type: none"> <li>One 2.5Gbps Ethernet port and one 1Gbps Ethernet port</li> <li>Power over Ethernet (802.3af/at/bt) with Category 5/5e/6 cable</li> <li>Link Aggregation (LACP)</li> </ul>
USB Port	<ul style="list-style-type: none"> <li>USB 2.0</li> <li>Type A connector - ideal for BLE dongles and sensors</li> </ul>
Mounting Options	<ul style="list-style-type: none"> <li>Electrical wallbox; Standard US and EU single gang wall jack</li> <li>Optional bracket for offset &amp; wall mount</li> </ul>
Operating Temperature	<ul style="list-style-type: none"> <li>14°F (-10°C) - 122°F (50°C)</li> </ul>
Operating Humidity	<ul style="list-style-type: none"> <li>up to 95% non-condensing</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 (902-0108-0000) Torx screw &amp; padlock (sold separately)</li> </ul>

POWER	
Power Options	<ul style="list-style-type: none"> <li>DC Input: 48VDC 2A</li> <li>PoE: 802.3af/at/bt</li> </ul>
PoE Power Consumption	<ul style="list-style-type: none"> <li>5.5W (minimum)</li> <li>11.4W (typical)</li> <li>12.95W peak with 802.3af</li> <li>25W peak with 802.3at</li> <li>35W peak with full power</li> </ul>
Power Modes	

Max power varies by country setting, band, and MCS rate

RF	
Antenna	<ul style="list-style-type: none"> <li>Adaptive antenna that provides up to 4000+ unique antenna patterns</li> <li>Maximum transmit power (aggregate) is 28dBm for both 2.4 &amp; 5GHz</li> </ul>
Antenna Gain (Max)	<ul style="list-style-type: none"> <li>3dBi (2.4 and 5GHz)</li> </ul>
Peak transmit power (aggregate across MIMO chains)	<ul style="list-style-type: none"> <li>12.95W peak with 802.3af</li> <li>25W peak with 802.3at</li> <li>35W peak with full power</li> </ul>
Minimum Rx Sensitivity <sup>3</sup>	<ul style="list-style-type: none"> <li>-104dBm</li> </ul>
Frequency Bands	<ul style="list-style-type: none"> <li>2.4 - 2.484GHz</li> <li>5.17 - 5.33GHz</li> <li>5.49 - 5.71GHz</li> <li>5.73 - 5.835GHz</li> </ul>

PERFORMANCE AND CAPACITY	
Phy Data Rates	<ul style="list-style-type: none"> <li>Up to 800Mbps (2.4GHz)</li> <li>Up to 1733Mbps (5GHz)</li> </ul>
Concurrent Stations	<ul style="list-style-type: none"> <li>Up to 512</li> </ul>
Simultaneous VoIP Clients	<ul style="list-style-type: none"> <li>Up to 60 (802.11e/WMM), 30 per radio</li> </ul>
WLAN	<ul style="list-style-type: none"> <li>16 per radio</li> </ul>

NETWORKING	
Controller Platform Support	<ul style="list-style-type: none"> <li>SmartZone</li> <li>ZoneDirector</li> <li>Cloud Wi-Fi</li> <li>Unleashed</li> <li>Stand Alone</li> </ul>
Mesh	<ul style="list-style-type: none"> <li>SmartMesh™ wireless meshing technology</li> </ul>
IP	<ul style="list-style-type: none"> <li>IPv4, IPv6, dual-stack</li> </ul>
VLANs	<ul style="list-style-type: none"> <li>802.1Q</li> <li>BSSID-based</li> <li>Port-based</li> <li>Dynamic, per user based on RADIUS</li> </ul>
802.1x	<ul style="list-style-type: none"> <li>Wired &amp; wireless authentication &amp; supplicant</li> </ul>
NAT/DHCP	<ul style="list-style-type: none"> <li>Supported</li> </ul>
Tunneling	<ul style="list-style-type: none"> <li>L2TP, RuckusGRE, softDRE</li> </ul>
Quality of Service	<ul style="list-style-type: none"> <li>802.11e/WMM</li> <li>Traffic prioritization based on WLAN traffic type</li> <li>Software queues per client</li> </ul>

WI-FI	
Standards	<ul style="list-style-type: none"> <li>IEEE 802.11a/b/g/n/ac</li> </ul>
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Spatial Streams	<ul style="list-style-type: none"> <li>4</li> </ul>
MIMO	<ul style="list-style-type: none"> <li>SU-MIMO - Up to 4 streams</li> <li>MU-MIMO - Up to 4 streams</li> </ul>
Channelization	<ul style="list-style-type: none"> <li>20MHz, 40MHz, 80MHz, 80+80MHz and/or 160MHz</li> </ul>
Security	<ul style="list-style-type: none"> <li>WPA-PSK, WPA-TKIP, WPA2 AES, 802.11i</li> </ul>
Power Save	<ul style="list-style-type: none"> <li>Supported</li> </ul>

CERTIFICATIONS & COMPLIANCE	
Countries	U.S., Europe, Australia, Brazil, Canada, Chile, China, Colombia, Costa Rica, Hong Kong, India, Indonesia, Israel, Japan, Korea, Malaysia, Mexico, New Zealand, Peru, Philippines, Saudi Arabia, Singapore, South Africa, Taiwan, Thailand, UAE, Vietnam
Wi-Fi Alliance	Wi-Fi CERTIFIED™ a, b, g, n, ac Passpoint®
Standards Compliance	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 EN 50385 Human Safety/RF Exposure WEEE & RoHS ISTA 2A Transportation

