

# R710

Indoor 802.11ac Wave 2 4x4:4 Wi-Fi Access Point



## DATA SHEET



Bandwidth-hungry voice and video applications. Internet of Things (IoT) connections. An explosion of new devices and content. With these kinds of demands, organizations in every industry need more from their Wi-Fi. But with hundreds of devices and nonstop wireless noise and interference, busy indoor spaces can make challenging wireless environments.

The Ruckus R710 is a premier indoor access point, delivering industry-leading performance and reliability in the most demanding high-density locations. With data rates up to 800Mbps (2.4GHz) and 1.733Gbps (5GHz), the R710 delivers the highest available throughput for Wi-Fi clients.

The R710 delivers reliable, high-performance connectivity in schools, universities, public venues, hotels, conference centers, and other busy indoor spaces. The perfect choice for data-intensive streaming multimedia applications, it delivers picture-perfect HD-quality IP video, while supporting voice and data applications with stringent quality-of-service requirements.

The R710 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 finds less congested Wi-Fi channels to use.

With MultiUser MIMO (MU-MIMO) connectivity, the R710 can simultaneously transmit to multiple client devices, drastically improving RF efficiency, overall throughput, and availability—even for non-Wave 2 clients. The R710 also features a USB port for hosting IoT devices such as Bluetooth Low Energy (BLE) beacons, and dual Gigabit Ethernet ports that support Link Aggregation for higher-capacity backhaul to the switch. The R710 supports up to 512 clients per AP and features capacity-based admission control to prevent APs from getting congested with too many attached devices.

Whether you're deploying ten or ten thousand APs, the R710 is also easy to manage through Ruckus' appliance, virtual and cloud management options.

## 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 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.

### 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.

### MULTIPLE MANAGEMENT OPTIONS

Manage the R710 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.

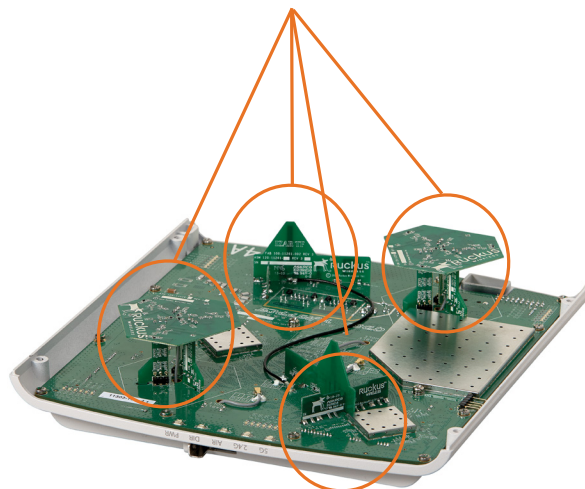
### EXPANDED BACKHAUL

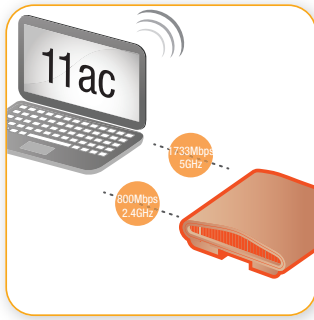
Pair two onboard 1GbE ports with link aggregation (LACP) to maximize throughput between the AP and wired switch.

### MORE THAN WI-FI

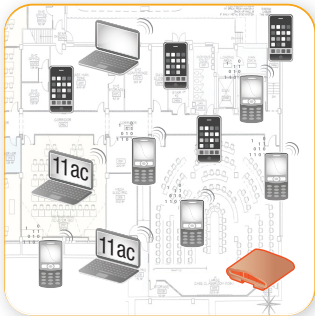
Enhance your network with Cloudpath™ security and management software, SPoT™ real-time Wi-Fi location engine and analytics software, and SCI network analytics.

### BeamFlex Adaptive Antenna Technology

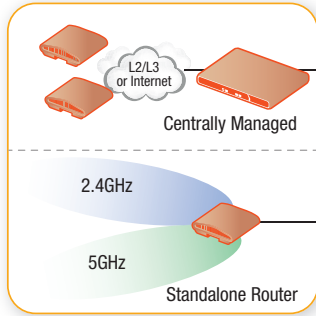




Blinding fast Wave 2 4x4:4 802.11ac with MU-MIMO



Deployment Scenarios



Architectural Flexibility



weight is 1.1 kg. (2.3 lbs.)

## FEATURES

### WIRELESS

- 802.11ac Multi-User MIMO (MU-MIMO)
- Concurrent dual-band (5 GHz/2.4 GHz) support
- 80 MHz channelization; 256-QAM modulation support; 1733 Mbps PHY rates at 5 GHz
- 256-QAM support on 2.4GHz
- 802.11ac standard Tx Beamforming
- 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+ (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
- WPA-PSK (AES), 802.1X support for RADIUS and AD\*
- Admission control/load balancing\*
- Band balancing

### INTERFACES

- 2 x 2GbE ports for uplink
- Ethernet Port Link Aggregation (LACP)
- USB port for hosting Internet-of-Things (IoT) devices such as Blue-tooth Low Energy (BLE) smart beacons

### POWER

- 802.3af/at/bt Power over Ethernet (PoE, PoE+, PoH, UPoE)
- 12VDC input

POWER SOURCE	2.4GHz	5GHz	2 <sup>ND</sup> ETH	USB
802.3af PoE	2x4 19dBm/chain	4x4 20dBm/chain	--	--
802.3at PoE+/ injector, VDC	4x4 22dBm/chain	4x4 20dBm/chain	Yes	Yes

### SOFTWARE

- Integrated NAT and DHCP support
- Multicast IP video streaming support
- Zero-IT and Dynamic PSK\*
- Captive portal and guest accounts \*
- SPoT™ Real-time location engine and analytics software
- Cloudpath™ Security and management software
- SmartCell Insight (Networks analytics engine)

### ACCESSORIES

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

\* when used with management.

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

The R710 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 and obstacles. BeamFlex+ with PD-MRC or polarization diversity ensures the R710 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 R710 to transmit multiple spatial streams to multiple client devices simultaneously, increasing the total throughput and capacity of the wireless network. The R710 is able to provide up to three clients each their own dedicated full-bandwidth channel using an MU-MIMO technique known as spatial reuse. This capability enables several benefits.

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 and uses such as high-definition video streaming. 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.

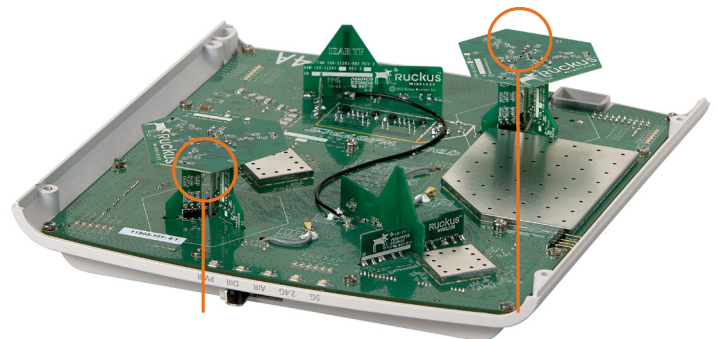
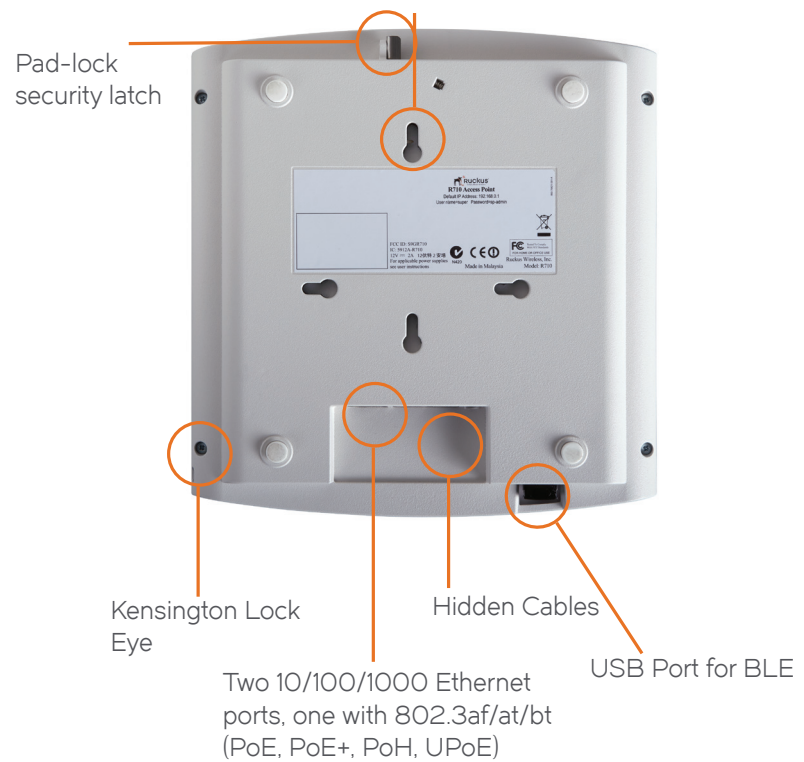
### ADVANCED WLAN APPLICATIONS

When used with the Ruckus Smart WLAN management systems, the R710 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 R710 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	<ul style="list-style-type: none"> <li>DC Input: 12 VDC 2A</li> <li>PoE: 802.3af/at</li> <li>802.3af mode feature: Limits 2.4GHz to 2x4 (2-chain transmit at 19dBm per chain, 4-chain receive). Turns off USB and Ethernet 1 port</li> </ul>
Physical Size	<ul style="list-style-type: none"> <li>22 cm (L), 22 cm (W), 6 cm (H)</li> </ul>
Weight	<ul style="list-style-type: none"> <li>1.05kg (2.2lb)</li> </ul>
Ethernet Ports	<ul style="list-style-type: none"> <li>2 ports, auto MDX, auto-sensing 10/100/1000 Mbps, RJ-45</li> <li>Power over Ethernet (802.3af/at) with Category 5/5e/6 cable</li> <li>Link Aggregation (LACP)</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>
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>
Environmental Conditions	<ul style="list-style-type: none"> <li>Operating Temperature: -4°F (-20°C) to 140°F (60°C)</li> <li>Operating Humidity: up to 95% non-condensing</li> </ul>
Power Draw	<ul style="list-style-type: none"> <li>5.5W (minimum)</li> <li>9.4W (typical)</li> <li>18.5W peak, no USB</li> <li>25W peak, including USB loading and 100m cable</li> <li>12.95W (peak in 802.3af mode)</li> </ul>

RF	
Antenna	<ul style="list-style-type: none"> <li>Adaptive antenna, 4,000+ unique antenna patterns</li> <li>Maximum transmit power (aggregate) is 28dBm for both 2.4 and 5GHz</li> </ul>
Physical Antenna Gain:	<ul style="list-style-type: none"> <li>3dBi (2.4 and 5GHz)</li> </ul>
BeamFlex SINR Tx gain:	<ul style="list-style-type: none"> <li>up to 6dBm</li> </ul>
BeamFlex SINR Rx gain:	<ul style="list-style-type: none"> <li>up to 3-5dBm</li> </ul>
Interference mitigation:	<ul style="list-style-type: none"> <li>up to 15dBm</li> </ul>
Minimum Rx sensitivity:	<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 800 Mbps (2.4GHz)</li> <li>Up to 1733 Mbps (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>

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

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

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>

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 (80MHz)</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>802.11g: 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 3 streams</li> </ul>
Channelization	<ul style="list-style-type: none"> <li>20 MHz, 40 MHz, and/or 80 MHz</li> </ul>
Frequency Band	<ul style="list-style-type: none"> <li>IEEE 802.11ac: 5.15 - 5.85 GHz</li> <li>IEEE 802.11a/n: 5.15 - 5.85 GHz</li> <li>IEEE 802.11b: 2.4 - 2.484 GHz</li> </ul>
BSSIDs	<ul style="list-style-type: none"> <li>Up to 16 (2.4 GHz)</li> <li>Up to 16 (5 GHz)</li> </ul>
Power Save	<ul style="list-style-type: none"> <li>Supported</li> </ul>
Certifications <sup>4</sup>	<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>

- 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 Refer to price list for current country certifications

## PRODUCT ORDERING INFORMATION

MODEL	DESCRIPTION
Ruckus R710 Smart Wi-Fi 802.11ac Access Point	
901-R710-XX00	R710 dual-band (5 GHz and 2.4 GHz concurrent) Wave 2 802.11ac wireless access point, 4x4:4 streams, adaptive antennas, dual ports, PoE support. Includes adjustable acoustic drop ceiling bracket. Does not include power adapter.
Optional Accessories	
902-0162-XX00	<ul style="list-style-type: none"> <li>PoE injector (90 - 264 VAC 47-63 Hz)</li> </ul>
902-1169-XX00	<ul style="list-style-type: none"> <li>Power supply (90 - 264 VAC 47-63 Hz)</li> </ul>
902-0120-0000	<ul style="list-style-type: none"> <li>Secure Mounting Bracket</li> </ul>

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.

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