DATA SHEET

RUCKUS® R750

Indoor Wi-Fi 6 (802.11ax) Access Point for Ultra-Dense Environments

Benefits

Connect more devices simultaneously

Improve device performance, by enabling more simultaneous device connections with built-in 8 spatial streams (4x4:4 in 5GHz, 4x4:4 in 2.4GHz), MU-MIMO and OFDMA technology.

High density performance

Provides exceptional end-user experience within large meeting halls, general enterprise spaces, and large classrooms with the RUCKUS Ultra-High-Density Technology Suite.

Converged Access Point

Allows customers to eliminate siloed networks and unify WiFi and non-WiFi wireless technologies into one single network by using built-in BLE and Zigbee, and also expanding to any future wireless technologies through the USB port.

Multigigabit access speeds

Optimized multi-gigabit Wi-Fi performance delivered using the built-in 2.5GbE port to connect to multigigabit switches.

Multiple management options

Manage the R750 with on premise physical/ virtual appliances and control auto-provisioning for faster deployment and seamless firmware upgrades.

Enhanced Security

Enhanced securityThe latest Wi-Fi security standard with WPA3 and receive enhanced protection from man-in-the-middle attacks in the most secure way.

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.

The RUCKUS R750 is based on the latest Wi-Fi 6 standard and bridges the performance gap from 'gigabit' Wi-Fi to 'multi-gigabit' Wi-Fi in support of the,insatiable demand for better and faster Wi-Fi. The R750 is the first Wi-Fi 6 AP to,be certified by Wi-Fi Alliance as Wi-Fi CERTIFIED 6. As part of the Wi-Fi Alliance,testbed, the R750 validates other devices for Wi-Fi CERTIFIED 6 interoperability.

The RUCKUS R750 is our high-end dual-band, dual-concurrent Wi-Fi 6 AP that supports 8 spatial streams (4x4:4 in 5GHz, 4x4:4 in 2.4GHz). The R750, with OFDMA and MU-MIMO capabilities, e iciently manages up to 1024 client connections with increased capacity, improved coverage and performance in ultra-high dense environments.

The R750, with OFDMA, TWT and MU-MIMO capabilities, e iciently manages up to 1024 client connections with increased capacity, improved coverage and performance in ultra-dense environments. Furthermore, multi-gigabit Ethernet ensures the backhaul is not a bottleneck for full use of available Wi-Fi capacity.

Also, wireless requirements within enterprises are expanding beyond Wi-Fi with BLE, Zigbee and many other non-Wi-Fi wireless technologies. Enterprises need a uni ied plat orm to eliminate network silos. The RUCKUS AP port olio is equipped to solve these challenges through wireless convergence.

The R750 has built-in IoT radios with onboard BLE and Zigbee capabilities. In addition, the R750 is a converged access point that allows customers to seamlessly integrate any new wireless technologies with our USB port.

The R750 addresses the increasing client demands in transit hubs, auditoriums, conference centers, and other high tra ic indoor spaces. It is the perfect choice for data-intensive streaming multimedia applications like 4K video transmissions, while supporting latency sensitive voice and data applications with stringent quality-of-service requirements. The R750 is also easy to manage through RUCKUS physical and virtual cloud management options.

The R750 when paired with the RUCKUS Ultra-High-Density Technology Suite found only in the RUCKUS Wi-Fi port olio, dramatically improves network performancethrough a combination of patented wireless innovations and learning algorithmsthat includes:

- **Airtime Decongestion:** Increases average network throughput in heavily congested environments
- **Transient Client management:** Reduces interference traffic from unconnected Wi-Fi devices
- **BeamFlex® + Antennas:** Extended coverage and optimized throughput with patented multi-directional antennas and radio patterns

Whether you are deploying ten or ten thousand APs, the R750 is also easy to manage through RUCKUS' physical and virtual management options.

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Front View

Weight: 2.23 lbs (1.01kg)

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Access Point Antenna Pattern

RUCKUS' BeamFlex+ adaptive antennas allow the R750 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

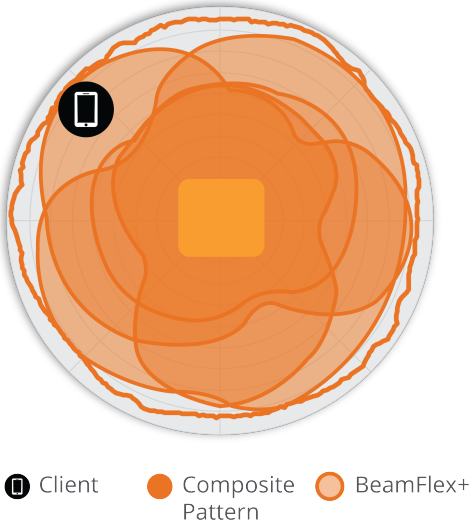

Figure 2. R750 2.4GHz Azimuth Antenna Patterns

Figure 3. R750 5GHz Azimuth Antenna Patterns

Figure 4. R750 2.4GHz Elevation Antenna Patterns

Figure 5. R750 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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WI-FI	
Wi-Fi Standards	• IEEE 802/11a/b/g/n/ac/ax
Supported Rates	• 802.11ax: 4 to 2400 Mbps • 802.11ac: 6.5 to 1732 Mbps • 802.11n: 6.5 to 600 Mbps • 802.11a/g: 6 to 54 Mbps • 802.11b: 1 to 11 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
Radio Chains and Streams	• 4x4:4
Channelization	• 20, 40, 80, 160MHz
Security	• WPA-PSK, WPA-TKIP, WPA2 AES, WPA3, 802.11i, Dynamic PSK, OWE • 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 4,000+ unique antenna patterns per band
Antenna Gain (max)	• Up to 3dBi
Peak Transmit Power (Tx port/chain + Combining gain)	• 2.4GHz: 26dBm • 5GHz: 28 dBm
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 (dBm)

HT20		HT40		VHT20		VHT40	
MCS0	MCS7	MCS0	MCS7	MCS0	MCS7	MCS0	MCS7
-96	-78	-93	-75	-96	-78	-93	-75
HE 20				HE40			
MCS0	MCS7	MCS9	MCS11	MCS0	MCS7	MCS9	MCS11
-96	-78	-73	-67	-93	-75	-70	-64

5GHZ RECEIVE SENSITIVITY (dBm)

VHT20				VHT40				VHT80			
MCS0	MCS7	MCS8	MCS9	MCS0	MCS7	MCS8	MCS9	MCS0	MCS7	MCS8	MCS9
-98	-80	-77	-	-95	-77	-	-72	-92	-74	-	-69
HE20				HE40				HE80			
MCS0	MCS7	MCS9	MCS11	MCS0	MCS7	MCS9	MCS11	MCS0	MCS7	MCS9	MCS11
-98	-80	-75	-70	-95	-77	-72	-67	-92	-74	-69	-64

2.4GHZ TX POWER TARGET (PER CHAIN)

Rate	Pout (dBm)
MCS0 HT20	20
MCS7 HT20	16
MCS8 VHT20	15
MCS9 VHT40	14
MCS11 HE40	12

5GHZ TX POWER TARGET (PER CHAIN)

Rate	Pout (dBm)
MCS0, VHT20	22
MCS7, VHT40, VHT80	19
MCS9, VHT40, VHT80	17
MCS11, HE20, HE40, HE80	15

PERFORMANCE AND CAPACITY	
Peak PHY Rates	• 2.4GHz: 1148 Mbps • 5GHz: 2400 Mbps
Client Capacity	• Up to 1024 clients per AP
SSID	• Up to 31 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

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NETWORKING	
Controller Platform Support	• SmartZone • ZoneDirector • Unleashed[1] • Standalone • Cloud
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 Recognition and Control • Access Control Lists • Device Fingerprinting • Rate Limiting
IoT Capable	• Yes

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	• 23.5cm (L), 20.6cm (W), 6.2cm (H) • 9.3in (L) x 8.1in (W) x 2.4in (H)
Weight	• 1.01 kg • 2.23 lbs
Mounting	• Wall, acoustic ceiling, desk • Secure bracket (sold separately)
Physical Security	• Hidden latching mechanism • T-bar Torx • Bracket (902-0120-0000) Torx screw & padlock (sold separately)
Operating Temperature	• 0°C (32°F) - 50°C (122°F)
Operating Humidity	• Up to 95%, non-condensing

POWER[2]

Power Supply	Operating Characteristics	Max Power Consumption
802.3af PoE	• 2.4GHz radio: 2x4, 19dBm per chain • 5GHz radio: 2x4, 20dBm per chain • 2nd Ethernet port, onboard IoT & USB disabled	PoE: 12.54W
802.3at PoE+	• Full Functionality • 2.4GHz radio: 4x4, 20 dBm per chain • 5GHz radio: 4x4, 22 dBm per chain • 2nd Ethernet Port, onboard IoT & USB Enabled (3W)	PoE+ : 22.34W DC Power: 22.69W

CERTIFICATIONS AND COMPLIANCE	
Wi-Fi Alliance[3]	• Wi-Fi CERTIFIED™ a, b, g, n, ac, ax • Passpoint®, Vantage
Standards Compliance[4]	• 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-R750-XX00	• R750 dual-band (5GHz and 2.4GHz concurrent) 802.11ax wireless access point, 4x4:4 streams, adaptive antennas, dual ports, onboard BLE and Zigbee, 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.

[1] Refer to Unleashed datasheets for SKU ordering information.
[2] Max power varies by country setting, band, and MCS rate.
[3] For complete list of WFA certifications, please see Wi-Fi Alliance website.
[4] For current certification status, please see price list.

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OPTIONAL ACCESSORIES	
902-0180-XX00	• PoE Injector (60W)
902-1170-XX00	• Power Supply (48V, 0.75A, 36W)
902-1180-XX00	• Multigigabit PoE injector (2.5/5/10)-BaseT PoE port, 60W
902-0120-0000	• Spare, Accessory Mounting Bracket
902-0195-0000	• Spare, T-bar ceiling mount kit for mounting to flush frame ceiling

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.

About RUCKUS Networks

RUCKUS Networks builds and delivers purpose-driven networks that perform in the demanding environments of the industries we serve. Together with our network of trusted go-to-market partners, we empower our customers to deliver exceptional experiences to the guests, students, residents, citizens and employees who count on them.

www.ruckusnetworks.com

Visit our website or contact your local RUCKUS representative for more information.

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