

RUCKUS® R850

Indoor Wi-Fi 6 8x8:8 Access Point with 5.9 Gbps Data Rate



Benefits

Connect More Devices Simultaneously

Improve device performance, by enabling more simultaneous device connections with built-in 12 spatial streams (8x8:8 in 5GHz, 4x4:4 in 2.4GHz), MU-MIMO and OFDMA technology.

Ultra-High-Density Performance

Provides exceptional end-user experience within stadiums, large public venues, convention centers and school auditoriums with the RUCKUS® Ultra-High-Density Technology Suite.

Enhanced Security

Supports the latest Wi-Fi security standard, WPA3, for enhanced protection from man-in-the-middle attacks in the most secure way.

Multi-Gigabit Access Speeds

Optimized multi-gigabit Wi-Fi performance delivered using built-in 5GbE/2.5GbE Ethernet ports to connect to multi-gigabit switches.

Device Management Options

Manage the R850 with cloud, on premise physical/virtual appliances and control auto-provisioning for faster deployment and seamless firmware upgrades.

Better Mesh Networking

Minimize complexity by reducing expensive cabling with SmartMesh that dynamically creates self-forming, self-healing mesh networks.

Converged Access Point

Eliminate siloed wireless networks with a unified platform that augments Wi-Fi with onboard BLE & Zigbee radios with the option to integrate other wireless technologies via the USB port.

More Than Wi-Fi

Support services beyond Wi-Fi with [RUCKUS IoT Suite](#), [Cloudpath®](#) security and onboarding software, [SPoT](#) Wi-Fi locationing engine, and [RUCKUS analytics](#).

The RUCKUS® R850 is based on the latest Wi-Fi standard, Wi-Fi 6, which 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 RUCKUS R850 is our highest capacity dual-band, dual-concurrent Wi-Fi 6 access point (AP) that supports 12 spatial streams (8x8:8 in 5GHz, 4x4:4 in 2.4GHz). The R850, with OFDMA, TWT and MU-MIMO capabilities, efficiently manages up to 1,024 client connections with increased capacity, improved coverage and performance in ultra-high dense environments. Furthermore, a 5 Gbps multi-gigabit Ethernet port mitigates backhaul capacity bottlenecks.

Additionally, the R850 is IoT- and LTE-ready, and supports wireless standards beyond Wi-Fi in combination with the RUCKUS IoT Suite and our CBRS/OpenG modules.

The R850 addresses the increasing client demands in transit hubs, auditoriums, stadiums, conference centers, and other highly trafficked 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 R850 when paired with the RUCKUS Ultra-High-Density Technology Suite found only in the RUCKUS Wi-Fi portfolio, dramatically improves network performance through a combination of patented wireless innovations and learning algorithms that 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're deploying ten or ten thousand APs, the R850 is also easy to manage through our collection of on-premises or cloud-based management options.



Corporate Armor

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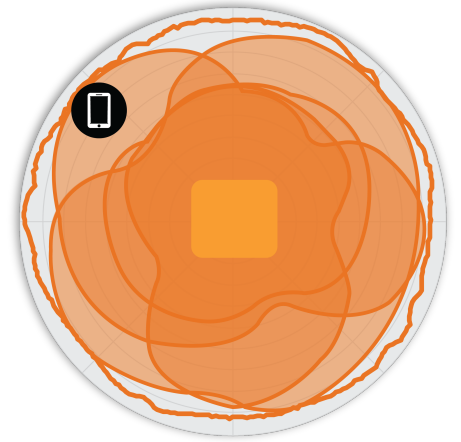
Access Point Antenna Pattern

RUCKUS' BeamFlex+ adaptive antennas allow the R850 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+ Pattern

Figure 2. R850 2.4GHz Azimuth Antenna Patterns



Figure 3. R850 5GHz Azimuth Antenna Patterns



Figure 4. R850 2.4GHz Elevation Antenna Patterns

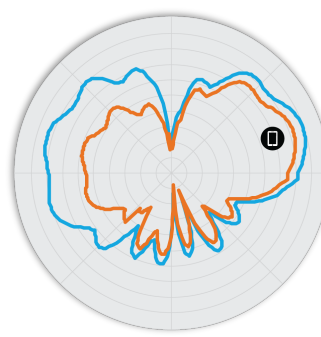
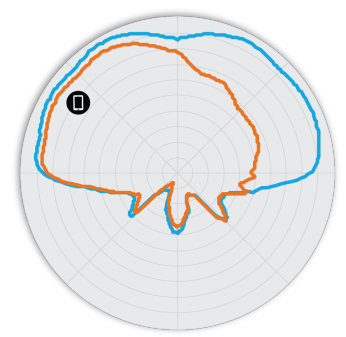


Figure 5. R850 5GHz Elevation Antenna Patterns



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 | <ul style="list-style-type: none">IEEE 802.11a/b/g/n/ac/ax |
| Supported Rates | <ul style="list-style-type: none">802.11ax: 4 to 4800 Mbps802.11ac: 6.5 to 3467 Mbps802.11n: 6.5 to 600 Mbps802.11a/g: 6 to 54 Mbps802.11b: 1 to 11 Mbps |
| Supported Channels | <ul style="list-style-type: none">2.4GHz: 1-135GHz: 36-64, 100-144, 149-165 |
| MIMO | <ul style="list-style-type: none">8x8 MU-MIMO8x8 SU-MIMO |
| Spatial Streams | <ul style="list-style-type: none">8 MU-MIMO8 SU-MIMO |
| Radio Chains and Streams | <ul style="list-style-type: none">8x8:8 |
| Channelization | <ul style="list-style-type: none">20, 40, 80, 160 MHz |
| Modulation | <ul style="list-style-type: none">OFDMA (up to 1024-QAM) |
| Security | <ul style="list-style-type: none">WPA-PSK, WPA-TKIP, WPA2 AES, 802.11i, Dynamic PSKWIPS/WIDS |
| Other Wi-Fi Features | <ul style="list-style-type: none">WMM, Power Save, TxBF, LDPC, STBC, 802.11r/k/vHotspotHotspot 2.0Captive PortalWISPr |

| RF | |
|--------------------|--|
| Antenna Type | <ul style="list-style-type: none">BeamFlex+ Adaptive Antennas with 4000+ unique antenna patternsHorizontal and Vertical polarization (PD-MRC) |
| Antenna Gain (max) | <ul style="list-style-type: none">Up to 2 dBi |
| Frequency Bands | <ul style="list-style-type: none">2.4 - 2.484 GHz5.17 - 5.33 GHz5.49 - 5.71 GHz5.735 - 5.835 GHz |

| 2.4GHZ RECEIVE SENSITIVITY | | | | | | | |
|----------------------------|------|------|-------|-------|------|-------|-------|
| HT20 | | HT40 | | VHT20 | | VHT40 | |
| MCS0 | MCS7 | MCS0 | MCS7 | MCS0 | MCS7 | MCS0 | MCS7 |
| -91 | -73 | -88 | -70 | -91 | -73 | -88 | -70 |
| HE20 | | | | HE40 | | | |
| MCS0 | MCS7 | MCS9 | MCS11 | MCS0 | MCS7 | MCS9 | MCS11 |
| -91 | -73 | -68 | -62 | -88 | -70 | -65 | -59 |

| 5GHZ RECEIVE SENSITIVITY | | | | | | | | | | | |
|--------------------------|------|------|-------|-------|------|------|-------|-------|------|------|-------|
| VHT20 | | | | VHT40 | | | | VHT80 | | | |
| MCS0 | MCS7 | MCS8 | MCS9 | MCS0 | MCS7 | MCS8 | MCS9 | MCS0 | MCS7 | MCS8 | MCS9 |
| -91 | -72 | -69 | — | -88 | -69 | — | -65 | -85 | -66 | — | -62 |
| HE20 | | | | HE40 | | | | HE80 | | | |
| MCS0 | MCS7 | MCS9 | MCS11 | MCS0 | MCS7 | MCS9 | MCS11 | MCS0 | MCS7 | MCS9 | MCS11 |
| -91 | -72 | -68 | -62 | -88 | -69 | -65 | -59 | -85 | -66 | -62 | -56 |

| 2.4GHZ TX POWER TARGET (PER CHAIN) | | |
|------------------------------------|-------------------------|----------------------|
| Rate | Pout (dBm) - Full Power | Pout (dBm) - 802.3at |
| MCS0 HT20 | 20 | 20 |
| MCS7 HT20 | 16 | 16 |
| MCS8 VHT20 | 15 | 15 |
| MCS9 VHT40 | 14 | 14 |
| MCS11 HE40 | 12 | 12 |

| 5GHZ TX POWER TARGET (PER CHAIN) | | |
|----------------------------------|-------------------------|----------------------|
| Rate | Pout (dBm) - Full Power | Pout (dBm) - 802.3at |
| MCS0 VHT20 | 22 | 22 |
| MCS7 VHT40, VHT80 | 16.5 | 16.5 |
| MCS9 VHT40, VHT80 | 15 | 15 |
| MCS11 HE20, HE40, HE80 | 12.5 | 12.5 |

| PERFORMANCE AND CAPACITY | |
|---------------------------|---|
| Peak PHY Rates | <ul style="list-style-type: none">2.4GHz: 1.148 Gbps (11ax)5GHz: 4.8 Gbps (11ax) |
| Client Capacity | <ul style="list-style-type: none">Up to 1024 clients per AP |
| Simultaneous VoIP Clients | <ul style="list-style-type: none">Up to 60 per AP |
| SSID | <ul style="list-style-type: none">Up to 16 per radio |

| RUCKUS RADIO MANAGEMENT | |
|---|--|
| Antenna Optimization | <ul style="list-style-type: none">BeamFlex+PD-MRC |
| Wi-Fi Channel Management | <ul style="list-style-type: none">ChannelFly |
| Client Density Management | <ul style="list-style-type: none">Band BalancingClient Load BalancingAirtime FairnessAirtime-based WLAN Prioritization |
| Queuing & Scheduling | <ul style="list-style-type: none">SmartCast |
| Mobility | <ul style="list-style-type: none">SmartRoam |
| Diagnostic Tools | <ul style="list-style-type: none">Spectrum AnalysisSpeedFlex |
| High Density Deployments (RF Innovations) | <ul style="list-style-type: none">Perpacket Adaptive PowerAdaptive Wi-Fi Cell SizeTransient Client ManagementAirtime Decongestion |

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| NETWORKING | |
|-----------------------------|---|
| Controller Platform Support | <ul style="list-style-type: none">SmartZoneZoneDirectorStandaloneCloudUnleashed |
| Mesh | <ul style="list-style-type: none">SmartMesh™ wireless meshing technology |
| IP | <ul style="list-style-type: none">IPv4, IPv6 |
| VLAN | <ul style="list-style-type: none">802.1QBSSID-based (16 BSSIDs / radio)Port-basedDynamic, per user based on RADIUS |
| 802.1x | <ul style="list-style-type: none">Wired & wirelessAuthenticator & Supplicant |
| Tunnel | <ul style="list-style-type: none">RuckusGRE, SoftGRE |
| Policy Management Tools | <ul style="list-style-type: none">Application Recognition and ControlAccess Control ListsDevice Fingerprinting |
| IoT Capable | <ul style="list-style-type: none">Yes |

| OTHER RADIO TECHNOLOGIES | |
|--------------------------|---|
| IoT | <ul style="list-style-type: none">BLE, Zigbee |

| PHYSICAL INTERFACES | |
|---------------------|---|
| Ethernet | <ul style="list-style-type: none">1x 1/2.5/5 Gbps port, RJ-451x 10/100/1000 Mbps port, RJ-45 |
| USB | <ul style="list-style-type: none">1 USB 2.0 port, Type A |

| PHYSICAL CHARACTERISTICS | |
|--------------------------|---|
| Physical Size | <ul style="list-style-type: none">22.19 x 24.96 x 6 cm8.74 x 9.83 x 2.36 in. |
| Weight | <ul style="list-style-type: none">1.53 kg3.37 lbs |
| Mounting | <ul style="list-style-type: none">Wall, Acoustic ceiling, DeskSecure Bracket (sold separately) |
| Physical Security | <ul style="list-style-type: none">Hidden Latching Mechanism |
| Operating Temperature | <ul style="list-style-type: none">-0C (32F) to 50°C (122°F) |
| Operating Humidity | <ul style="list-style-type: none">Up to 95%, non-condensing |

| POWER CONSUMPTION | | | |
|----------------------------|-------------------|--|---|
| Mode | Power Consumption | System Configuration | Wi-Fi Radios |
| DC Power, PoH, uPoE (Idle) | 16.1W | <ul style="list-style-type: none">5Gbps Ethernet Enabled1Gbps Ethernet EnabledUSB Enabled (3W)Zigbee/BLE Enabled (0.5W) | 2.4GHz (4x4) Enabled 5GHz (8x8) Enabled (No Clients Associated) |
| DC Power, PoH, uPoE (Max) | 31.0W | <ul style="list-style-type: none">5Gbps Ethernet Enabled1Gbps Ethernet EnabledUSB Enabled (3W)Zigbee/BLE Enabled (0.5W) | 2.4GHz (4x4) Tx 20 dBm 5GHz (8x8) Tx 22 dBm |
| 802.3at (Mode 0)* | 23.8W | <ul style="list-style-type: none">5Gbps Ethernet Enabled1Gbps Ethernet EnabledUSB Enabled (3W)Zigbee/BLE Disabled | 2.4GHz (4x4) Tx 20 dBm 5GHz (4x4) Tx 22 dBm |
| 802.3at (Mode 1)* | 25.31W | <ul style="list-style-type: none">5Gbps Ethernet Enabled1Gbps Ethernet DisabledUSB Disabled (3W)Zigbee/BLE Disabled | 2.4GHz (4x4) Tx 20 dBm 5GHz (8x8) Tx 20 dBm |
| 802.3af (Not re-commended) | 12.4W | <ul style="list-style-type: none">5Gbps & 1Gbps Ethernet enabledUSB DisabledZigbee/BLE Disabled | 2.4GHz disabled 5GHz disabled |

*For 802.3at Mode 0/Mode 1 details - please refer to R850 AP Release Notes.

| CERTIFICATIONS AND COMPLIANCE | |
|-------------------------------|---|
| Wi-Fi Alliance | <ul style="list-style-type: none">Wi-Fi CERTIFIED™ a, b, g, n, ac, axPasspoint*Vantage |
| Standards Compliance | <ul style="list-style-type: none">EN 60950-1 SafetyEN 60601-1-2 MedicalEN 61000-4-2/3/5 ImmunityEN 50121-1 Railway EMCEN 50121-4 Railway ImmunityIEC 61373 Railway Shock & VibrationEN 62311 Human Safety/RF ExposureUL 2043 PlenumWEEE & RoHSISTA 2A Transportation |

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

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ORDERING INFORMATION

| | |
|---------------|--|
| 901-R850-XX00 | R850 dual-band (5GHz and 2.4GHz concurrent) 802.11ax wireless access point, Ultra-High Density performance, 12 spatial streams, adaptive antennas, PoE support. Includes adjustable acoustic drop ceiling bracket. Two Ethernet ports with 1GbE and 5Gbe. Does not include power adaptor |
|---------------|--|

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.

OPTIONAL ACCESSORIES

| | |
|---------------|--|
| 902-0180-XX00 | <ul style="list-style-type: none">PoE Injector (60W) |
| 902-1170-XX00 | <ul style="list-style-type: none">Power Supply (48V, 0.75A, 36W) |
| 902-1180-XX00 | <ul style="list-style-type: none">Multigigabit PoE injector (2.5/5/10)-BaseT PoE port, 60W |
| 902-0120-0000 | <ul style="list-style-type: none">Spare, Accessory Mounting Bracket |

PLEASE NOTE: When ordering Indoor APs, you must specify the destination region by indicating -US, or -W 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.

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