

# RUCKUS® T750

Outdoor 802.11ax 4x4:4 Wi-Fi AP with 2.5Gbps Backhaul



## Benefits

### Great Outdoor Wi-Fi

Experience high performance outdoor Wi-Fi 6 with IP-67 weather proofing and dual backhaul options with SFP and multi-gigabit 2.5 GbE ethernet port.

### Connect More Devices Simultaneously

Improve device performance, by enabling more simultaneous device connections with built-in 8 spatial streams (dual-concurrent, 4x4:4 in 5GHz, 4x4:4 in 2.4GHz), MU-MIMO and OFDMA technology while enhancing non-Wi-Fi 6 client performance. Support for up to 1,024 clients.

### High Density Performance

Provide exceptional end-user experience within high density public venues such as airports, amusement parks, stadiums, outdoor arenas, and other dense outdoor urban environments with the RUCKUS Ultra-High-Density Technology Suite.

### Converged Access Point

Allow customers to eliminate siloed networks and unify Wi-Fi and IoT wireless technologies into one single network by using built-in BLE and Zigbee, and also expand to any future wireless technologies through the pluggable IoT module.

### Power Other Devices

Daisy chain and power other devices like an IP camera, or another AP directly from the 1 GbE PoE output port.

### Multiple Management Options

Manage the T750 from the cloud, with on-premises physical/virtual appliances, or without a controller.

### Enhanced Security

Reinforce security with WPA3, the latest Wi-Fi security standard and receive enhanced protection from man-in-the-middle attacks.

**Outdoor locations such as stadiums, arenas can have the most demanding wireless requirements due to high client density. The RUCKUS® T750 access point (AP), based on the latest Wi-Fi 6 standard, brings in multi-gigabit Wi-Fi to support the ever raising expectation for highest quality of service from the users. T750 is IP-67 rated to withstand the rigors of outdoor deployments.**

The RUCKUS T750 is our high-end dual-band, dual-concurrent Wi-Fi 6 AP that supports eight spatial streams (4x4:4 in 5GHz, 4x4:4 in 2.4GHz). The T750, with OFDMA 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, the 2.5 GbE ethernet ensures that the backhaul will not be a bottleneck for full use of available Wi-Fi capacity.

The T750 addresses the increasing client demands in public venues such as airports, convention centers, plazas, malls, and other dense urban environments. 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 T750 is also easy to manage through physical, virtual and cloud management options.

The T750 is also designed with a small form factor pluggable (SFP) fiber interface that enable seamless connectivity to a fiber backhaul. The T750 boasts a built-in GPS. Furthermore, 1GbE PoE output port can power a variety of devices like an IP-based camera or even another AP.

In addition, organizations are increasingly leveraging IoT-based sensors to serve their customers better. These sensors run on non-Wi-Fi wireless technologies such as Wi-Fi , BLE or Zigbee. Organizations need a unified platform to eliminate network silos. The RUCKUS AP portfolio is equipped to solve these challenges.

The T750 has built-in IoT radios with onboard BLE and Zigbee capabilities. In addition, the T750 is a converged access point that allows customers to seamlessly integrate any new wireless technologies with pluggable IoT module.

The T750 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 are deploying ten or ten thousand APs, the T750 is also easy to manage through RUCKUS' physical and virtual management options.

# RUCKUS<sup>®</sup> T750

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## Access Point Antenna Pattern

RUCKUS' BeamFlex+ adaptive antennas allow the T750 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

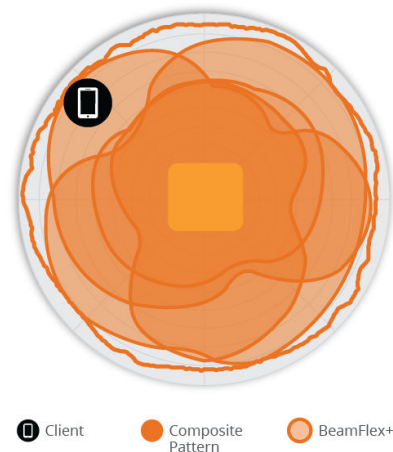


Figure 2. T750 2.4GHz Azimuth Antenna Patterns



Figure 3. T750 5GHz Azimuth Antenna Patterns



Figure 4. T750 2.4GHz Elevation Antenna Patterns



Figure 5. T750 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.

# RUCKUS® T750

## Outdoor 802.11ax 4x4:4 Wi-Fi AP with 2.5Gbps Backhaul

Wi-Fi	
Wi-Fi Standards	<ul style="list-style-type: none"> <li>IEEE 802.11a/b/g/n/ac/ax</li> </ul>
Supported Rates	<ul style="list-style-type: none"> <li>802.11ax: 4 to 2400 Mbps</li> <li>802.11ac: 6.5 to 1732 Mbps</li> <li>802.11n: 6.5 to 600 Mbps</li> <li>802.11a/g: 6 to 54 Mbps</li> <li>802.11b: 1 to 11 Mbps</li> </ul>
Supported Channels	<ul style="list-style-type: none"> <li>2.4GHz: 1-13</li> <li>5GHz: 36-64, 100-144, 149-165</li> </ul>
MIMO	<ul style="list-style-type: none"> <li>4x4 SU-MIMO</li> <li>4x4 MU-MIMO</li> </ul>
Spatial Streams	<ul style="list-style-type: none"> <li>4 for both SU-MIMO &amp; MU-MIMO</li> </ul>
Radio Chains and Streams	<ul style="list-style-type: none"> <li>4x4:4</li> </ul>
Channelization	<ul style="list-style-type: none"> <li>20, 40, 80, 160MHz</li> </ul>
Security	<ul style="list-style-type: none"> <li>WPA-PSK, WPA-TKIP, WPA2-Personal, WPA2-Enterprise, WPA3-Personal, WPA3-Enterprise, AES, 802.11i, Dynamic PSK, OWE</li> <li>WIPS/WIDS</li> </ul>
Other Wi-Fi Features	<ul style="list-style-type: none"> <li>WMM, Power Save, Tx Beamforming, LDPC, STBC, 802.11r/k/v</li> <li>Hotspot</li> <li>Hotspot 2.0</li> <li>Captive Portal</li> <li>WISPr</li> </ul>

RF	
Antenna Type	<ul style="list-style-type: none"> <li>BeamFlex+ adaptive antennas with polarization diversity</li> <li>Adaptive antenna that provides 4,000+ unique antenna patterns per band</li> </ul>
Antenna Gain (max)	<ul style="list-style-type: none"> <li>Up to 3dBi</li> </ul>
Peak Transmit Power (Tx port/chain + Combining gain)	<ul style="list-style-type: none"> <li>2.4GHz: 28dBm</li> <li>5GHz: 28dBm</li> </ul>
Frequency Bands	<ul style="list-style-type: none"> <li>ISM (2.4-2.484GHz)</li> <li>U-NII-1 (5.15-5.25GHz)</li> <li>U-NII-2A (5.25-5.35GHz)</li> <li>U-NII-2C (5.47-5.725GHz)</li> <li>U-NII-3 (5.725-5.85GHz)</li> </ul>

2.4GHZ RECEIVE SENSITIVITY (dBm)							
HT20				HT40			
MCS0	MCS7	MCS9	MCS11	MCS0	MCS7	MCS9	MCS11
-98	-79	-76	-70	-95	-76	-73	-67

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	22
MCS7, HT20	19.5
MCS8, HE20	19
MCS9, HE40	18.5
MCS11, HE40	17

5GHZ TX POWER TARGET (PER CHAIN)	
Rate	Pout (dBm)
MCS0, VHT20	22
MCS7, VHT40, VHT80	20
MCS9, VHT40, VHT80	18.5
MCS11, HE20, HE40, HE80	17

PERFORMANCE AND CAPACITY	
Peak PHY Rates	<ul style="list-style-type: none"> <li>2.4 GHz: 1148 Mbps</li> <li>5 GHz: 2400 Mbps</li> </ul>
Client Capacity	<ul style="list-style-type: none"> <li>Up to 1024 clients per AP</li> </ul>
SSID	<ul style="list-style-type: none"> <li>Up to 31 per AP</li> </ul>

RUCKUS RADIO MANAGEMENT	
Antenna Optimization	<ul style="list-style-type: none"> <li>BeamFlex+</li> <li>Polarization Diversity with Maximal Ratio Combining (PD-MRC)</li> </ul>
Wi-Fi Channel Management	<ul style="list-style-type: none"> <li>ChannelFly</li> <li>Background Scan Based</li> </ul>
Client Density Management	<ul style="list-style-type: none"> <li>Adaptive Band Balancing</li> <li>Client Load Balancing</li> <li>Airtime Fairness</li> <li>Airtime-based WLAN Prioritization</li> </ul>
SmartCast Quality of Service	<ul style="list-style-type: none"> <li>QoS-based scheduling</li> <li>Directed Multicast</li> <li>L2/L3/L4 ACLs</li> </ul>
Mobility	<ul style="list-style-type: none"> <li>SmartRoam</li> </ul>
Diagnostic tools	<ul style="list-style-type: none"> <li>Spectrum Analysis</li> <li>SpeedFlex</li> </ul>

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NETWORKING	
Controller Platform Support	<ul style="list-style-type: none"> <li>SmartZone</li> <li>ZoneDirector</li> <li>Cloud</li> <li>Standalone</li> <li>Unleashed</li> </ul>
Mesh	<ul style="list-style-type: none"> <li>SmartMesh™ wireless meshing technology. Selfhealing Mesh</li> </ul>
IP	<ul style="list-style-type: none"> <li>IPv4, IPv6, dual-stack</li> </ul>
VLAN	<ul style="list-style-type: none"> <li>802.1Q (1 per BSSID or dynamic per user based on RADIUS)</li> <li>VLAN Pooling</li> <li>Port-based</li> </ul>
802.1x	<ul style="list-style-type: none"> <li>Authenticator &amp; Supplicant</li> </ul>
Tunnel	<ul style="list-style-type: none"> <li>L2TP, GRE, Soft-GRE</li> </ul>
Policy Management Tools	<ul style="list-style-type: none"> <li>Application Recognition and Control</li> <li>Access Control Lists</li> <li>Device Fingerprinting</li> <li>Rate Limiting</li> </ul>
IoT Capable	<ul style="list-style-type: none"> <li>Yes</li> </ul>

OTHER RADIO TECHNOLOGIES	
GPS	<ul style="list-style-type: none"> <li>Types GLONAS...etc</li> </ul>

PHYSICAL INTERFACES		
	T750	T750SE
Ethernet	<ul style="list-style-type: none"> <li>1x2.5 Gbps, 1 x 10/100/1000 Mbps ports, RJ-45</li> <li>LACP</li> </ul>	
Fiber	<ul style="list-style-type: none"> <li>SFP, 1Gbps, SFP+ 10 Gbps</li> </ul>	
USB	<ul style="list-style-type: none"> <li>1 USB 2.0 port, Type A</li> </ul>	—
External Antenna Connectors	—	<ul style="list-style-type: none"> <li>4x N-type female connectors</li> </ul>

PHYSICAL CHARACTERISTICS		
	T750	T750SE
Physical Size	<ul style="list-style-type: none"> <li>34.64cm (L), 24.06cm (W), 10.17cm (H)</li> <li>13.64in (L) x 9.47in (W) x 4.0in (H)</li> </ul>	<ul style="list-style-type: none"> <li>34.08cm (L), 24.06cm (W), 11.17cm (H)</li> <li>13.42in (L) x 9.47in (W) x 4.4in (H)</li> </ul>
Weight	<ul style="list-style-type: none"> <li>2.84kg</li> <li>6.27lbs</li> </ul>	<ul style="list-style-type: none"> <li>3.31kg</li> <li>7.3lbs</li> </ul>
Mounting	<ul style="list-style-type: none"> <li>Pole Mount</li> <li>Wall Mount</li> <li>Flat Surface</li> <li>Bracket included in the box</li> </ul>	
Operating Temperature	<ul style="list-style-type: none"> <li>-40°C (-40°F) to 65°C (145°F)</li> </ul>	
Operating Humidity	<ul style="list-style-type: none"> <li>Up to 95%, non-condensing</li> </ul>	
Wind Survivability	<ul style="list-style-type: none"> <li>Up to 266km/h (165mph)</li> </ul>	

POWER		
Mode	Power Consumption	System Configuration
AC Power	63.7W (SFP+ Backhaul) 64.6W (Ethernet Backhaul)	<ul style="list-style-type: none"> <li>Full Functionality</li> <li>2nd Ethernet Port enabled</li> <li>PSE Out (26W) available</li> <li>Onboard IoT enabled</li> <li>USB enabled (3W) - omni SKU</li> </ul>
802.3bt Class 7 (Maximum Functionality With PSE Out)	57W	<ul style="list-style-type: none"> <li>Full Functionality</li> <li>2nd Ethernet Port enabled</li> <li>PSE Out (26W) available</li> <li>Onboard IoT enabled</li> <li>USB enabled (3W) - omni SKU</li> </ul>
802.3at (Reduced Functionality Without PSE)	24.2W	<ul style="list-style-type: none"> <li>2nd Ethernet Port enabled</li> <li>PSE Out disabled</li> <li>Onboard IoT enabled</li> <li>USB enabled (3W) - omni SKU</li> </ul>
Idle	10.75W	<ul style="list-style-type: none"> <li>2nd Ethernet Port enabled</li> <li>PSE Out disabled</li> <li>Onboard IoT disabled</li> <li>USB disabled</li> </ul>

Certifications and Compliance	
Wi-Fi Alliance*	<ul style="list-style-type: none"> <li>Wi-Fi CERTIFIED™ a, b, g, n, ac</li> <li>Wi-Fi CERTIFIED™ 6</li> <li>Wi-Fi Enhanced Open™</li> <li>WPA2™ - Personal</li> <li>WPA2™ - Enterprise</li> <li>WPA3™ - Personal</li> <li>WPA3™ - Enterprise</li> <li>Wi-Fi Agile Multiband™</li> <li>Wi-Fi Optimized Connectivity™</li> <li>Wi-Fi Vantage™</li> <li>WMM®</li> <li>Passpoint®</li> </ul>
Standards Compliance**	<ul style="list-style-type: none"> <li>EN 60950-1 Safety</li> <li>EN 60601-1-2 Medical</li> <li>EN 61000-4-2/3/5 Immunity</li> <li>EN 50121-1 Railway EMC</li> <li>EN 50121-4 Railway Immunity</li> <li>IEC 61373 Railway Shock &amp; Vibration</li> <li>EN 62311 Human Safety/RF Exposure</li> <li>WEEE &amp; RoHS</li> <li>ISTA 2A Transportation</li> </ul>

\*For complete list of WFA certifications, please see the Wi-Fi Alliance website.

\*\*For current certification status, please see the price list.

Software and Services	
Location based services	<ul style="list-style-type: none"> <li>SPoT</li> </ul>
Network Analytics	<ul style="list-style-type: none"> <li>SmartCell Insight (SCI)</li> <li>RUCKUS Analytics</li> </ul>
Security and Policy	<ul style="list-style-type: none"> <li>Cloudpath</li> </ul>

# RUCKUS® T750

## Outdoor 802.11ax 4x4:4 Wi-Fi AP with 2.5Gbps Backhaul

ORDERING INFORMATION	
901-T750-XX01	<ul style="list-style-type: none"> <li>RUCKUS T750 802.11ax Outdoor Wireless Access Point, 4x4:4 Stream, Omnidirectional Beamflex+ coverage, 2.4GHz and 5GHz concurrent dual band, (1x) 2.5G Ethernet port, (1x) 10/100/1000 Ethernet port, 100-240 Vac, POE in and PSE out, Fiber SFP/SFP+, GPS, IP-67 Outdoor enclosure, -40 to 65C Operating Temperature. Mounting bracket included. Does not include power adapter.</li> </ul>
901-T750-XX02	<ul style="list-style-type: none"> <li>RUCKUS T750 802.11ax Outdoor Wireless Access Point, 4x4:4 Stream, Omnidirectional Beamflex+ coverage, 2.4GHz and 5GHz concurrent dual band, (1x) 2.5G Ethernet port, (1x) 10/100/1000 Ethernet port, 100-240 Vac, POE in and PSE out, Fiber SFP/SFP+, IP-67 Outdoor enclosure, -40 to 65C Operating Temperature. <b>No GPS functionality.</b> Mounting bracket included. Does not include power adapter.</li> </ul>
901-T750-XX51	<ul style="list-style-type: none"> <li>RUCKUS T750SE 802.11ax Outdoor Wireless Access Point, 4x4:4 Stream, 120-Degree Sector antenna included and option to attach external antennae, 2.4GHz and 5GHz concurrent dual band, (1x) 2.5G Ethernet port, (1x) 10/100/1000 Ethernet ports, 100-240 Vac, POE in and PSE out, Fiber SFP/SFP+, GPS, IP-67 Outdoor enclosure, -40 to 65C Operating Temperature. Mounting bracket included. Does not include power adapter.</li> </ul>
901-T750-XX52	<ul style="list-style-type: none"> <li>RUCKUS T750SE 802.11ax Outdoor Wireless Access Point, 4x4:4 Stream, 120-Degree Sector antenna included and option to attach external antennae, 2.4GHz and 5GHz concurrent dual band, (1x) 2.5G Ethernet port, (1x) 10/100/1000 Ethernet ports, 100-240 Vac, POE in and PSE out, Fiber SFP/SFP+, IP-67 Outdoor enclosure, -40 to 65C Operating Temperature. <b>No GPS functionality.</b> Mounting bracket included. Does not include power adapter.</li> </ul>

See RUCKUS price list for country-specific ordering information. PLEASE NOTE: When ordering APs, you must specify the destination region by indicating -US, -WW, -JP or -Z2 instead of XX. For access points, -Z2 applies to the following countries: Algeria, Egypt, Israel, Morocco, Tunisia, and Vietnam. Warranty: Sold with a limited 1-year warranty.

For details see: <http://support.ruckuswireless.com/warranty>.

OPTIONAL ACCESSORIES	
902-0180-XX00	<ul style="list-style-type: none"> <li>PoE Injector (60W)</li> </ul>
902-0125-0000	<ul style="list-style-type: none"> <li>Secure articulating mounting bracket</li> </ul>
902-0134-0000	<ul style="list-style-type: none"> <li>Outdoor AP mounting bracket (weatherized aluminum), 180-degree adjustment range in both azimuth and elevation. Mounting support for solid wall or ceiling, vertical or horizontal pole 1" to 4" in diameter using enclosed mounting hardware. Pole diameter greater than 4" can be supported with user-supplied clamps.</li> </ul>
902-1180-XX00	<ul style="list-style-type: none"> <li>Multigigabit PoE injector (2.5/5/10)-BaseT PoE port, 60W</li> </ul>
911-2120-0000	<ul style="list-style-type: none"> <li>2.4GHz &amp; 5GHz 14/14.5dBi 4-port directional H/V high gain antenna; with 30 degrees 3dBm beam width and 4 N-type female connectors</li> </ul>
E1MG-LX-OM	<ul style="list-style-type: none"> <li>1000Base-LX SFP optic, SMF, LC connector, Optical Monitoring Capable</li> </ul>
E1MG-SX-OM	<ul style="list-style-type: none"> <li>1000Base-SX SFP optic, MMF, LC connector, Optical Monitoring Capable</li> </ul>
E1MG-SX-OM-8	<ul style="list-style-type: none"> <li>1000BASE-SX SFP optic MMF, LC connector, optical monitoring capable, 8-pack</li> </ul>
10G-SFPP-SR	<ul style="list-style-type: none"> <li>10GBASE-SR, SFP+ optic (LC), target range 300m over MMF</li> </ul>
10G-SFPP-LR	<ul style="list-style-type: none"> <li>10GBASE-LR, SFP+ optic (LC), for up to 10km over SMF</li> </ul>
10G-SFPP-USR	<ul style="list-style-type: none"> <li>10GBASE-USR, SFP+ optic (LC), target range 100m over MMF</li> </ul>
10G-SFPP-ER	<ul style="list-style-type: none"> <li>10GBASE-ER SFP+ optic (LC), for up to 40km over SMF</li> </ul>

PLEASE NOTE: 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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