T300
Outdoor 802.11ac 2x2:2 Wi-Fi Access Point

RUCKUS™
an ARRIS company

DATA SHEET

Modern users expect reliable connectivity on their mobile devices—anywhere, anytime. But in crowded outdoor venues with thousands of users and constant RF noise and interference, they are often frustrated by poor coverage, dropped connections, and reduced data rates. These bad Wi-Fi experiences can easily translate to negative perceptions of the venue overall.

The Ruckus T300 Series of dual-band 802.11ac outdoor access points provide consistent, reliable Wi-Fi connectivity in crowded public venues, at an affordable price. Available with either internal omni-directional antennas or optional external 5GHz antenna support, the T300 Series uses patented Ruckus antenna optimizations and interference mitigation technologies to extend range, improve throughput, and deliver industry-leading 802.11ac performance to every connected client. At the same time, the T300 Series is designed for fast, simple installation with an ultra-lightweight, low-profile, IP 67-rated enclosure that can stand up to the rigors of outdoor deployments.
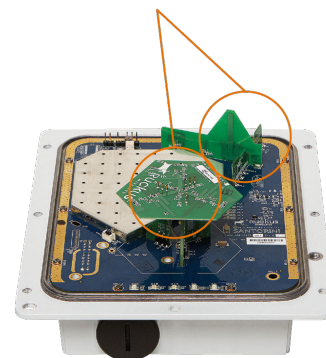
The Ruckus T300 Series is perfect for high-density public venues such as airports, conventions centers, plazas and malls, and other dense urban environments. By providing a superior Wi-Fi experience to every user in high-capacity outdoor spaces, venue operators can improve guest satisfaction and loyalty, deliver new kinds of wireless location-based services, and increase revenues.

The Ruckus T300 Series 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.

Whether you're deploying ten or ten thousand APs, the T300 Series is also easy to manage through Ruckus' appliance, virtual, and cloud management options.

BENEFITS

GOOD OUTDOOR WI-FI
Industrial-grade IP-67 hardened enclosures (-20°C to +65°C).

GREAT WI-FI PERFORMANCE
Provide a great user experience no matter how challenging the environment with BeamFlex+™ adaptive antenna technology using up tp 64-directional antenna patterns.

AUTOMATE OPTIMAL THROUGHPUT
Improve performance automatically with ChannelFly™ and machine learning, which finds less congested Wi-Fi channels with dynamic RF channel selection.

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.

BeamFlex+ Adaptive Antenna

RUCKUS T300: DUAL-BAND 802.11AC 2X2:2, 1167MBPS

Internal omni directional antenna for 2.4GHz and 5GHz

- Well suited to high-density deployments
- Best for omni coverage and high capacity

RUCKUS T300E: DUAL-BAND 802.11AC 2X2:2, 1167MBPS

Internal omni directional antenna for 2.4GHz and 5GHz, support for optional external 5GHz antennas

- Well suited to high-density deployments
- Best for "greenfield" applications requiring 2.5GHz access and long range 5GHz SmartMesh wirelss meshing technology

15 cm / 5.9"

18 cm / 7"

8.6 cm / 3.4"

PWR   DIR   AIR   2.4G   5G

.9 KG

Optional external 5GHz antennas (T300e only)

Protective vent to equalize pressure

Integrated dual-band BeamFlex+ adaptive antennas with PD-MRC

LED Indicators

802.3af Power over Ethernet (PoE) Input

ACCESS POINT ANTENNA PATTERN

Ruckus' BeamFlex+ adaptive antennas allow the T300 AP to dynamically choose among a host of antenna patterns (up to 64 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.

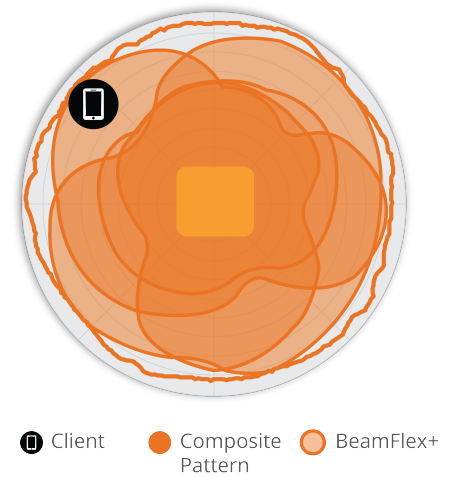**Figure 1. Example of BeamFlex+ pattern**

Client   Composite Pattern   BeamFlex+

Figure 2. T300 2.4GHz Azimuth Antenna Patterns

Figure 3. T300 5GHz Azimuth Antenna Patterns

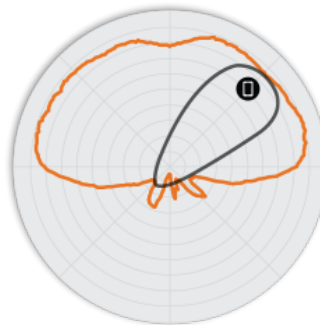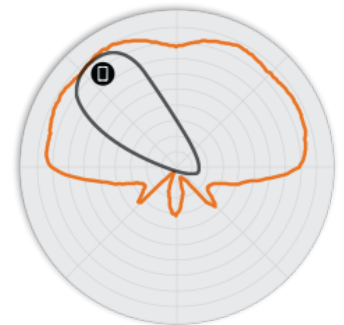**Figure 4. T300 2.4GHz Elevation Antenna Patterns**

Figure 5. T300 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.

WI-FI

Wi-Fi Standards	• IEEE 802.11a/b/g/n/ac
Supported Rates	• 802.11ac: 6.5 to 867Mbps (MCS0 to MCS9, NSS=1 to 2 for VHT20/40/80) • 802.11n: 6.5 Mbps to 300Mbps (MCS0 to MCS15) • 802.11a/g: 54, 48, 36, 24, 18, 12, 9, 6Mbps • 802.11b: 11, 5.5, 2 and 1 Mbps
Supported Channels	• 2.4GHz: 1-13 • 5GHz: 36-64, 100-144, 149-165
MIMO	• 2x2 SU-MIMO
Spatial Streams	• 2 SU-MIMO
Radio Chains and Streams	• 2x2:2
Channelization	• 20, 40, 80MHz
Security	• WPA-PSK, WPA-TKIP, WPA2 AES, 802.11i, Dynamic PSK • 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 64 unique antenna patterns per chain
Antenna Gain (max)	• Up to 3dBi
Peak Transmit Power (aggregate across MIMO chains)	• 2.4GHz: 26dBm • 5GHz: 25dBm
BeamFlex+ SINR Transmit Power Gain[1]	• Up to 6 dB
BeamFlex+ SINR Receive Power Gain[1]	• Up to 4 dB
Minimum Receive Sensitivity[2]	• -100dBm for 2.4GHz • -94dBm for 5GHz
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

HT20		HT40	
MCS0	**MCS7**	**MCS0**	**MCS7**
-92	-76	-89	-73

5GHZ RECEIVE SENSITIVITY

VHT20		VHT40		VHT80	
MCS0	**MCS7**	**MCS0**	**MCS7**	**MCS0**	**MCS7**
-95	-76	-92	-74	-90	-69

2.4GHZ TX POWER TARGET

Rate	Pout (dBm)
MCS0 HT20	26
MCS7 HT20	20
MCS0 HT40	26
MCS7 HT40	18

5GHZ TX POWER TARGET

Rate	Pout (dBm)
MCS0 VHT20	25
MCS7 VHT20	19
MCS0 VHT40, VHT80	25
MCS7 VHT40, VHT80	21

PERFORMANCE AND CAPACITY

Peak PHY Rates	• 2.4GHz: 300Mbps • 5GHz: 867Mbps
Client Capacity	• Up to 512 clients per AP
SSID	• Up to 43 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

[1] BeamFlex gains are statistical system level effects translated to enhanced SINR based on observations over time in real-world conditions with multiple APs and many clients.
[2] Rx sensitivity varies by band, channel width and MCS rate.

NETWORKING

Controller Platform Support	• SmartZone • ZoneDirector • Unleashed[3] • Cloud Wi-Fi • Standalone
Mesh	• SmartMesh™ wireless meshing technology. Self-healing Mesh
IP	• IPv4, IPv6
VLAN	• 802.1Q (1 per BSSID or dynamic per use 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

PHYSICAL INTERFACES

Ethernet	• 1 x 1GbE port, RJ-45

PHYSICAL CHARACTERISTICS

Physical Size	• 23.9(L) x 19.5(W) x 11.0(H) cm • 9.4(L) x 7.5(W) x 4.3(H) in
Weight	• 2.1 lbs (1 kg) with bracket • 2 lbs (0.9 kg) without bracket
Ingress Protection	• IP-67
Mounting	• Wall • Pole Mount 1" to 2.5" diameter
Physical Security	• Hidden latching mechanism • Kensington lock • T-bar Torx
Operating Temperature	• -20ºC (-4ºF) to 65ºC (149ºF)
Operating Humidity	• Up to 95%, non-condensing
Wind Survivability	• Up to 266 km/h (165 mph)

POWER[4]

Power Supply	Max Power Consumption
802.3af PoE Input (Class 3PD)	• 11W

CERTIFICATIONS AND COMPLIANCE

Wi-Fi Alliance[5]	• Wi-Fi CERTIFIED™ a, b, g, n, ac • Passpoint®, Vantage
Standards Compliance[6]	• 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-T300-XX01(XX = US, WW)*	• T300, omni, outdoor access point, 802.11ac 2x2:2 internal BeamFlex+ adaptive antenna technology, dual band concurrent, one Ethernet port, PoE input, includes mounting bracket and one year warranty. Does not include PoE injector.
901-T300-XX-81(XX = US, WW)**	• T300e, outdoor access point, 802.11ac 2x2:2 internal BeamFlex+ adaptive antenna technology 2GHz & 5GHz, external 5GHz N-female, dual band concurrent, one ethernet port, PoE input, includes mounting bracket and one year warranty. Does not include PoE injector or external 5GHz antenna.

See Ruckus price list for country-specific ordering information.
*Requires ZoneDirector 9.8.1, SCG 2.5.1 or vSCG 3.0 or greater.
Warranty: Sold with a limited one year warranty.
For details see: http://support.ruckuswireless.com/warranty.

OPTIONAL ACCESSORIES

902-0162-XXYY	• PoE injector (24W) (Sold in quantities of 1, 10 or 100)
902-0183-0000	• Spare Weatherizing Cable Gland with 1 hole
902-0125-0000	• Secure articulating mounting bracket
902-0182-0003	• Spare, Outdoor Mounting Bracket, AnyAngle
911-2101-DP01	• 5 GHz dual polarized high gain 21dBi directional antenna
911-2401-DP01	• 5 GHz dual polarized high gain 24dBi directional antenna

PLEASE NOTE: When ordering outdoor 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.

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

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