

## DATA SHEET



### BENEFITS

#### INDUSTRY'S HIGHEST PERFORMING 802.11AC WAVE 2 STANDARD

- Transmit to multiple clients at the same time with MU-MIMO
- More efficient use of the RF spectrum
- Improve network efficiency & throughput even for non-Wave 2 clients

#### BETTER RECEPTION AND MORE CONSISTENT PERFORMANCE

- Adaptive polarization diversity
- Dual-polarized antennas
- Enhanced DFS and Spectrum analysis capability

#### REDUCED WI-FI INTERFERENCE

- Up to 15dB of interference mitigation
- Up to 50 percent reduction in co-channel interference to neighboring APs
- Statistical, real-time capacity analysis of all channels to automatically selects best performing channels

#### IDEAL HIGH-PERFORMANCE OUTDOOR ACCESS POINT

- Fast and easy mounting to street lights, traffic controls and street furniture
- Industrial-grade IP-67 hardened enclosures (-40°C to +65°C)
- Smart Mesh to eliminate cost and time associated with cumbersome Ethernet drops
- Flexible backhaul interfaces such as SFP Fiber and Gigabit Ethernet

### Ruckus' High Capacity, High Performance Four-Stream 802.11ac Wave 2 Outdoor AP

Ruckus T710 Unleashed enables controller-less Wi-Fi architecture for small business environments with superior performance, lower costs and simplified management. Separate controllers and access point licenses are no longer needed, significantly reducing upfront costs. Set-up is also easy, thanks to a simplified web interface that helps businesses configure Wi-Fi in just 60 seconds

Featuring BeamFlex+ adaptive antenna technology, the ZoneFlex T710 Unleashed offers a substantial increase in performance and range by optimizing antenna coverage on a per client, per transmission basis. BeamFlex+ additionally mitigates co-channel interference by directing Wi-Fi signals where they are needed instead of towards neighboring access points. The T710's BeamFlex+ adaptive antenna system is also equipped with dual polarization antennas, allowing the access point to adapt to the physical orientation of client devices and maximize uplink performance.

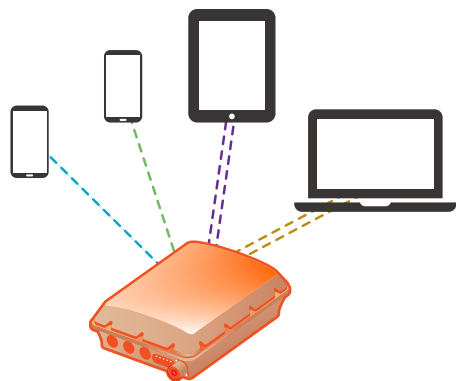
With throughput capacities of 800Mbps (2.4GHz) and 1733Mbps (5GHz), the ZoneFlex T710 Unleashed supports the highest available throughput for Wi-Fi clients. 802.11ac Multi-User MIMO (MU-MIMO) support allows the T710 Unleashed to simultaneously transmit to multiple MU-MIMO capable devices, drastically improving airtime efficiency, overall throughput, and availability. The T710 Unleashed is compatible with a wide array of MU-MIMO, SU-MIMO and legacy Wi-Fi clients.

The ZoneFlex T710 Unleashed can function either as a standalone AP or as part of centrally-managed Wireless LAN.

The ZoneFlex T710 Unleashed is specifically designed with industrial-grade features such as GPS and secure image download. Also included is a SFP fiber interface that enables seamless connectivity to a fiber backhaul with no additional converters. Via Ethernet connections, the T710 Unleashed supports Link Aggregation Control Protocol (LACP) to optimize backhaul throughput.

The ZoneFlex T710 Unleashed is purpose-built to deliver unparalleled performance, capacity and coverage in dynamic outdoor environments that are characteristic of high density utilization and interference.

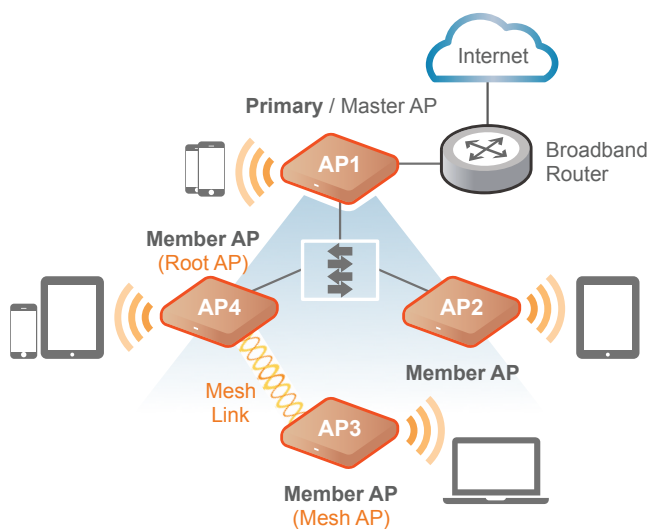
Ideal use cases include: public outdoor hotspots, parking lots, outdoor coverage for enterprise and schools where support for data intensive streaming multimedia applications like HD IP video is imperative.



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

### FEATURES

- 802.11ac Multi-User MIMO (MU-MIMO)
- Concurrent dual-band (5GHz/2.4GHz) support
- 2,533Mbps maximum PHY rate (1733Mbps in 5GHz; 800Mbps in 2.4GHz)
- BeamFlex+ (PD-MRC) smart antenna, with support for 4,000+ unique antenna patterns enables up to 4dB of additional gain and up to 10dB of additional interference mitigation
- Antenna options: omni-directional and 120x30 degrees sector
- Unmatched Rx sensitivity down to -104dBm
- Improved Maximum Ratio Combining (MRC) for best-in-class receive sensitivity
- 802.11ac standard Tx Beamforming
- Space Time Block Coding for increased handset performance
- Low Density Parity Check (LDPC) for increased data throughput at all ranges
- 256-QAM support on 5GHz and 2.4GHz
- Backward compatible with legacy 802.11 clients
- Dedicated dual band RF monitor enabling enhanced performance while providing Zero-Wait DFS capability
- Gateway mode with NAT and DHCP services
- 2 10/100/1000 Ethernet ports
- Support for LACP (Link Aggregation Control Protocol) to maximize the backhaul bandwidth using both Ethernet ports
- SFP Fiber Interface providing flexibility to backhaul to fiber
- AC power input (100-250 Vac, 50/60 Hz)
- 802.3at (PoE+) PoE Input mode of operation
- 802.3at PoE Output Power Sourcing Equipment (PSE) mode of operation, useful for daisy chaining and powering an additional Mesh AP or another device like an IP Surveillance Camera
- IP 67 rated, -40°C to +65°C
- Integrated GPS for location applications
- Built in Wall or Pole mounting options for easy deployment
- Either standalone or centrally managed
- Secure image download – enhancing platform security
- Multicast IP video streaming support
- Four software QoS queues per client station
- Up to 16 BSSIDs with unique QoS and security policies
- WPA-PSK (AES), 802.1X support for RADIUS and AD
- Dynamic PSK
- Admission control/load balancing
- Band balancing
- Captive portal and guest accounts





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

The ZoneFlex T710 Unleashed 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 (polarization diversity) ensures the T710 Unleashed 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 ZoneFlex T710 Unleashed to transmit multiple spatial streams to multiple client devices simultaneously, increasing the total throughput and capacity of the wireless network. The ZoneFlex T710 Unleashed 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 because of the increased RF efficiency; more capacity remains to support non-Wave 2 clients.

### ADVANCED WLAN APPLICATIONS

When used with the Ruckus Smart WLAN management systems, the ZoneFlex T710 Unleashed 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 ZoneFlex T710 Unleashed works with various authentication servers including AD, LDAP, and RADIUS.

PHYSICAL CHARACTERISTICS	
Power	<ul style="list-style-type: none"> <li>AC Input: 100-250 Vac, 50/60 Hz</li> <li>PoE: 802.3at</li> </ul>
Physical Size	<ul style="list-style-type: none"> <li>31.7 cm (L), 24.1 cm (W), 9.5 cm (H)</li> </ul>
Weight	<ul style="list-style-type: none"> <li>6.5 lbs</li> </ul>
RF	<ul style="list-style-type: none"> <li>Adaptive antenna: 4,000+ unique antenna patterns, polarization diversity</li> <li>Maximum Transmit Power: 28dBm on 2.4GHz; 28 dBm on 5GHz</li> <li>Physical antenna gain: Omni - 3dBi (2.4 and 5GHz); Sector - 6dBi (2.4GHz), 8dBi (5GHz)</li> <li>BeamFlex SINR Tx gain: up to 6dB</li> <li>BeamFlex SINR Rx gain: up to 3-5dB</li> <li>Interference mitigation: up to 15dB</li> <li>Minimum Rx sensitivity: -104dBm</li> </ul>
Ethernet Ports	<ul style="list-style-type: none"> <li>2 Ethernet ports, auto MDX, auto-sensing, 10/100/1000 Mbps, RJ-45</li> <li>Power over Ethernet (802.3at) with Category 5/5e/6 cable</li> <li>Link Aggregation (LACP)</li> <li>SFP port to support fiber backhaul</li> </ul>
Environmental Conditions	<ul style="list-style-type: none"> <li>Operating Temperature: -40°F (-40°C) to +149°F (+65°C)</li> <li>Operating Humidity: up to 95% non-condensing</li> </ul>
Power Draw	When PoE Out is not used - <ul style="list-style-type: none"> <li>5.5W (minimum)</li> <li>10.4W (typical)</li> <li>25W peak</li> </ul>

PERFORMANCE AND CAPACITY	
Phy Data Rates	<ul style="list-style-type: none"> <li>Up to 800Mbps (2.4GHz)</li> <li>Up to 1733Mbps (5GHz)</li> </ul>
Concurrent Stations	<ul style="list-style-type: none"> <li>512</li> </ul>
Number Of Simultaneous VoIP Clients	<ul style="list-style-type: none"> <li>30</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	<ul style="list-style-type: none"> <li>Authenticator</li> <li>Supplicant</li> </ul>

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>

MANAGEMENT	
Deployment Options	<ul style="list-style-type: none"> <li>Standalone (individually managed)</li> <li>Centrally managed</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: 29.3Mbps - 1733Mbps (80MHz)</li> <li>802.11n: 6.5 Mbps - 216.7Mbps(20MHz) 13.5Mbps - 800 Mbps (40MHz)</li> <li>802.11a: 54, 48, 36, 24, 18, 12, 9 and 6Mbps</li> <li>802.11b: 11, 5.5, 2 and 1Mbps</li> <li>802.11g: 54, 48, 36, 24, 18, 12, 9 and 6Mbps</li> </ul>
Radio Chains/ Streams	<ul style="list-style-type: none"> <li>4x4:4</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>20MHz, 40MHz, and/or 80MHz</li> </ul>
Frequency Band	<ul style="list-style-type: none"> <li>IEEE 802.11ac: 5.15 - 5.85GHz</li> <li>IEEE 802.11a/n: 5.15 - 5.85GHz</li> <li>IEEE 802.11b: 2.4 - 2.484GHz</li> </ul>
BSSIDs	<ul style="list-style-type: none"> <li>Up to 16 per AP</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>

\*Wi-Fi Alliance certification in process

<sup>1</sup> Max power varies by country setting, band, and MCS rate  
<sup>2</sup> 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  
<sup>3</sup> Rx sensitivity varies by band, channel width, and MCS rate  
<sup>4</sup> Refer to price list for current country certifications

MODEL	DESCRIPTION
<b>ZoneFlex T710 Unleashed Dual band 802.11ac Wave 2 Access Point</b>	
9U1-T710-XX01	ZoneFlex T710 Unleashed, 802.11ac Outdoor Wireless Access Point, 4x4:4 Stream, Omnidirectional Beamflex+ coverage, 2.4GHz and 5GHz concurrent dual band, Dual 10/100/1000 Ethernet ports, 90-264 Vac, POE in and POE out, Fiber SFP, GPS, IP-67 Outdoor enclosure, -40 to 65C Operating Temperature. Includes standard 1-year warranty. For box contents, see Shipping Container Contents.
9U1-T710-XX51	ZoneFlex T710s Unleashed, 802.11ac Outdoor Wireless Access Point, 4x4:4 Stream, 120 degree sector Beamflex+ coverage, 2.4GHz and 5GHz concurrent dual band, Dual 10/100/1000 Ethernet ports, 90-264 Vac, POE in and POE out, Fiber SFP, GPS, IP-67 Outdoor enclosure, -40 to 65C Operating Temperature. Includes standard 1-year warranty. For box contents, see Shipping Container Contents.
<b>Optional Accessories</b>	
902-0180-XX00	Spare of Power over Ethernet (PoE) Injector (10/100/1000 Mbps) quantity of 1 unit (T710-series, 7762-series, 7782-series, 8800-S access points), US Plug
902-0202-0000	EPON Optical Network Terminal, SFP Optic Module, 20km reach, single mode, SC/UPC, -40 to 85C. Includes SC/UPC fiber patch cable
902-0203-0000	1000Base-LX, SFP (mini-GBIC) Optic Module, Single Mode, 10km reach, LC duplex, -40 to 85C. Includes LC-Duplex fiber patch cable
902-0183-0000	Spare Data Connector for T300-series, 7782-series, 8800; contains 1 weatherizing data cable gland
902-0185-0000	Spare Weatherized AC Connector for 7762-AC, 7782-series, and 8800; contains 4-pin AC connector
<p>PLEASE NOTE: When ordering ZoneFlex 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.</p> <p>For access points, -Z2 applies to the following countries: Algeria, Egypt, Israel, Morocco, Tunisia, and Vietnam</p> <p>Warranty: Sold with a limited one year warranty.</p>	