



## data sheet

### BENEFITS

#### Industry's highest performing three-stream AP

ZoneFlex 7982 delivers up to 4x higher TCP throughput increases over competitive three-stream APs across all distances

#### High concurrent client capacity

Capable of supporting up to 500 concurrent client stations per AP

#### Reduced Wi-Fi interference

Up to 15 dB of interference mitigation and a 50 percent reduction in interference to neighboring APs

#### Flexible deployment options

Standalone with router functionality or controller-based deployment with any of Ruckus ZoneDirectors

#### Dual concurrent 3x3:3 MIMO and BeamFlex

Three spatial streams combined with BeamFlex adaptive antenna technology ensures the most throughput out of the total 900 Mbps available without the client capabilities for transmit beamforming

#### Adaptive polarization diversity with MRC (PD-MRC)

Dual-polarized antennas that are dynamically selected provide better reception for hard to hear clients and more consistent performance as clients constantly change orientation

#### Improved performance to legacy clients

Increases throughput to single and dual-stream clients by combining BeamFlex, polarization diversity and three radio chains

#### Best in class channel selection with ChannelFly™

Capacity-driven channel selection predict and automatically selects best performing channel based on statistical, real-time capacity analysis of all RF channels

# ZoneFlex™ 7982

## DUAL-BAND 3X3:3 802.11N SMART WI-FI AP

### The Industry's Highest Capacity, Highest Performing Three-Stream 802.11n AP

Ruckus ZoneFlex 7982 is the industry's first dual-band, three-stream 802.11n access point that incorporates Ruckus-patented BeamFlex™ adaptive antenna arrays. Coupled with transmit beamforming (TxBF), when available, the ZoneFlex 7982 delivers the highest throughput of any AP in its class.

The ZoneFlex 7982 ensures the most reliable connectivity within challenging and ever-changing RF environments. With BeamFlex, the ZoneFlex 7982 offers a 2-4x increase in performance and range and is capable of delivering up to 9 dB of signal-to-interference-plus-noise (SINR) improvement and up to 15 dB of interference mitigation over other APs. Capable of supporting 500 concurrent clients, the ZoneFlex 7982 simultaneously supports spatial multiplexing and BeamFlex to deliver the best price/performance of any three-stream 802.11n AP.

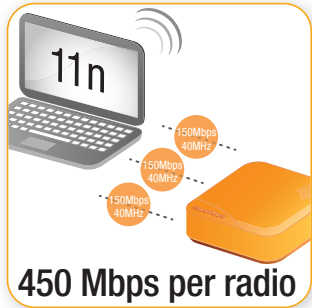
With a stream throughput of 450 Mbps per radio, the ZoneFlex 7982 ensures maximum throughput to three-stream capable clients while also improving single and dual-stream client performance. This is achieved through the unique combination of adaptive antenna technology, predictive channel selection and adaptive polarization diversity. Backward compatible with all existing clients, the ZoneFlex 7982 can function either as a standalone AP or as part of centrally-managed Wireless LAN with the Ruckus ZoneDirector Smart WLAN controller.

ZoneFlex 7982 is purpose-built for high-capacity, high performance and interference-laden environments such as airports, public venues, hotels, universities and conference centers. The perfect choice for data-intensive streaming multimedia applications, the ZoneFlex 7982 delivers picture perfect HD-quality IP video while supporting VoIP and data applications that have stringent quality of service requirements.

Smart Meshing makes the ZoneFlex 7982 ideal for reliably extending Wi-Fi services to areas where cabling Ethernet isn't possible or economical — saving time and money.

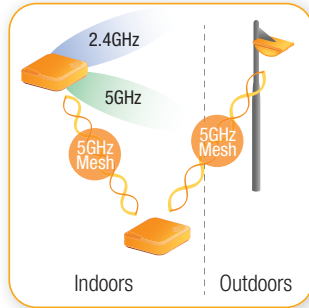
# ZoneFlex™ 7982

## DUAL-BAND 3X3:3 802.11N SMART WI-FI AP

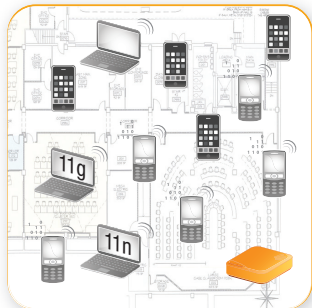


**450 Mbps per radio**

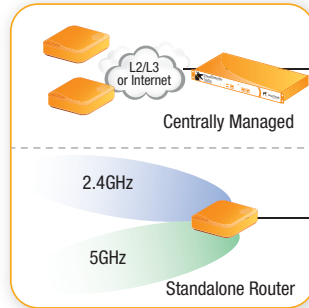
Blinding Fast 3-Stream 802.11n



Dual-band and Meshable



Ultra High User Density



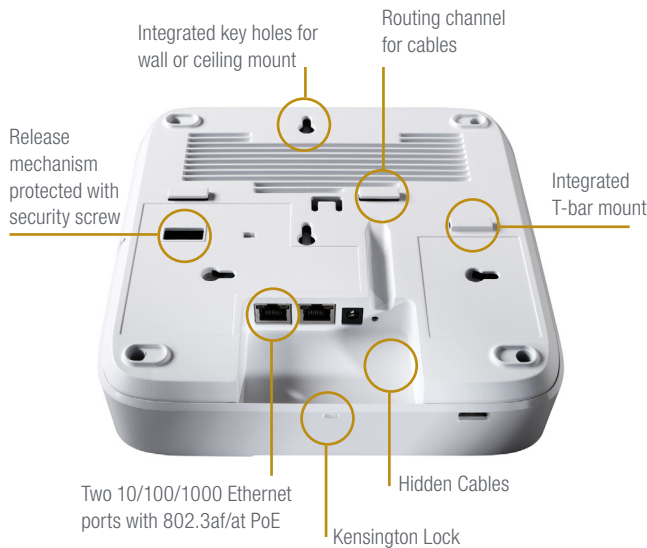
Architectural Flexibility

### FEATURES

- Concurrent dual-band (5 GHz/2.4 GHz) support
- Automatic interference avoidance, optimized for high-density environments
- Space Time Block Coding for increased handset performance
- Improved Maximum Ratio Combining (MRC) for best-in-class receive sensitivity
- Low Density Parity Check (LDPC) for increased data throughput at all ranges
- PD-MRC improves signal reception of mobile devices
- Integrated smart antenna array with a thousand unique patterns for ultra reliability
- Unmatched Rx sensitivity down to -101 dBm
- Either standalone or centrally managed
- Integrated NAT and DHCP support
- Compatible with 802.3af/at Power over Ethernet (PoE)
- Multicast IP video streaming support
- Four software QoS queues per client station
- Future support for advanced spectrum analysis
- Up to 16 BSSIDs with unique QoS and security policies
- Wall or ceiling mountable with unobtrusive design
- Built in mounting options for fast and easy deployment

- WEP, WPA-PSK (AES), 802.1X support for RADIUS and AD\*
- Smart Mesh Networking\*
- Zero-IT and Dynamic PSK\*
- Admission control/load balancing\*
- Band steering and airtime fairness
- Captive portal and guest accounts \*

\* when used with the ZoneDirector Smart WLAN controller.



weight is 1 kg. (2.25 lbs.)

# ZoneFlex™ 7982

## DUAL-BAND 3X3:3 802.11N SMART WI-FI AP

### Patented BeamFlex technology extends signal range, improves stability of client connections

The ZoneFlex 7982 integrates a patented software-controlled adaptive antenna array that delivers additional signal gain per radio chain. As BeamFlex adapts to client locations and antenna polarity, the smart antenna array optimizes the RF energy toward client on a per packet basis. This allows for up to 4x improvement in signal range and a reduction in packet loss from the ability to automatically mitigate interference and obstacles. By combining BeamFlex with the transmit-based beamforming, the ZoneFlex 7982 is capable of delivering up to 9 dB of SINR gain while offering concurrent support for spatial multiplexing.

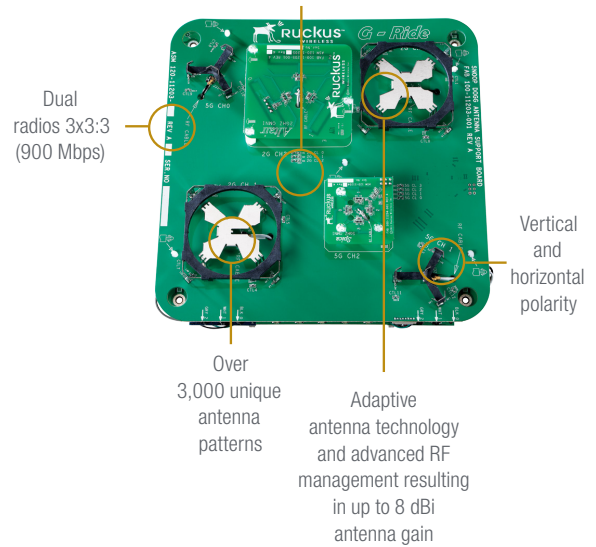
### Adaptive polarization diversity for unmatched reception of mobile client signals

In dynamic indoor and urban Wi-Fi environments device orientation constantly changes. This affects the polarization of the transmissions. Traditional Wi-Fi antennas are static in nature and only listen using one polarization. This prevents them from capturing the full signal from mobile client devices. The Ruckus 7982 listens in all polarizations simultaneously. This results in a over 2x (4 dB) gain to mobile devices with weak transmitters.

### Advanced WLAN applications with Smart/OS

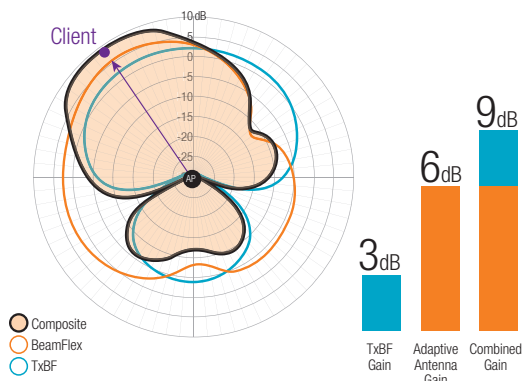
When used with the Ruckus ZoneDirector Smart WLAN controller, the ZoneFlex 7982 supports a wide range of value-added applications such as guest networking, Smart Wireless Meshing, Dynamic PSK, hotspot authentication, wireless intrusion prevention and many more. WLANs can also be grouped and shared by specific APs. In a centrally managed configuration, the ZoneFlex 7982 works with various authentication servers including AD, LDAP, and RADIUS.

Additive effect of chip-based beamforming of 3 dB signal gain once client compatibility become ubiquitous in the years ahead



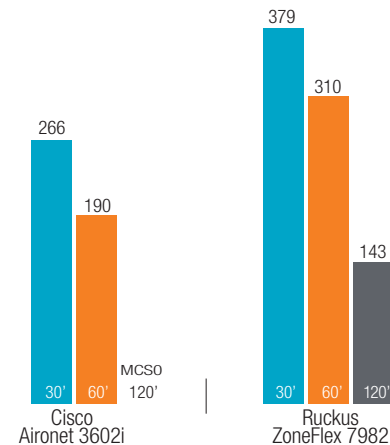
Competitive Three-Stream AP Performance Testing at Range

Increased Antenna Gain using TxBF with BeamFlex



Ruckus access points uniquely combine the benefits of adaptive antenna arrays with transmit beamforming to provide unmatched reliability and TCP performance in real-world deployments

2.4/5 GHz simultaneous, single client TCP throughput (Mbps) using Ixia Chariot



## Specifications

PHYSICAL CHARACTERISTICS	
POWER	<ul style="list-style-type: none"> <li>DC Input: 12 VDC 1.5A</li> <li>PoE: Compatible with 802.3af/at</li> </ul>
PHYSICAL SIZE	<ul style="list-style-type: none"> <li>20.3 cm (L), 20.3 cm (W), 5 cm (H)</li> </ul>
WEIGHT	<ul style="list-style-type: none"> <li>1kg (2.25 lbs.)</li> </ul>
RF	<ul style="list-style-type: none"> <li>Adaptive antenna array that provides 3,000+ unique antenna patterns</li> <li>Maximum EIRP<sup>1</sup> 2.4 GHz: 34 dBm</li> <li>5 GHz: 32 dBm</li> <li>Physical antenna gain: 8dBi (2.4 and 5GHz)</li> <li>BeamFlex SINR Tx gain: up to 9 dB</li> <li>BeamFlex SINR Rx gain: up to 4 dB</li> <li>Interference mitigation: up to 15 dB</li> <li>Minimum Rx sensitivity: -101 dBm</li> </ul>
ETHERNET PORTS	<ul style="list-style-type: none"> <li>2 ports, auto MDX, auto-sensing 10/100/1000 Mbps, RJ-45</li> <li>Power over Ethernet (802.3af) with Category 5/5e/6 cable</li> </ul>
ENVIRONMENTAL CONDITIONS	<ul style="list-style-type: none"> <li>Operating Temperature: 32°F (0°C) - 122°F (50°C)</li> <li>Operating Humidity: up to 95% non-condensing</li> </ul>
POWER CONSUMPTION	<ul style="list-style-type: none"> <li>5W (minimum)</li> <li>7W (typical)</li> <li>13W (peak)</li> </ul>

PERFORMANCE AND CAPACITY	
PHY DATA RATES	<ul style="list-style-type: none"> <li>Up to 450 Mbps per radio</li> </ul>
CONCURRENT STATIONS	<ul style="list-style-type: none"> <li>Up to 500</li> </ul>
SIMULTANEOUS VoIP CLIENTS	<ul style="list-style-type: none"> <li>Up to 60 (802.11e/WMM support), 30 per radio</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 FOR WIRED PORTS	<ul style="list-style-type: none"> <li>Authenticator</li> <li>Supplicant</li> </ul>
TUNNELING	<ul style="list-style-type: none"> <li>L2TP, PPPoE</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>Managed by ZoneDirector</li> <li>Managed by FlexMaster</li> </ul>
CONFIGURATION	<ul style="list-style-type: none"> <li>Web User Interface (HTTP/S)</li> <li>CLI (Telnet/SSH), SNMP v1, 2, 3</li> <li>TR-069 vis FlexMaster</li> </ul>
AUTO SOFTWARE UPDATES	<ul style="list-style-type: none"> <li>FTP or TFTP, remote auto available</li> </ul>

WI-FI	
STANDARDS	<ul style="list-style-type: none"> <li>IEEE 802.11a/b/g/n</li> <li>2.4GHz and 5GHz concurrent operation</li> </ul>
SUPPORTED DATA RATES	<ul style="list-style-type: none"> <li><b>802.11n:</b> 6.5 Mbps – 216.7 Mbps (20MHz) 13.5 Mbps – 450 Mbps (40MHz)</li> <li><b>802.11a:</b> 54, 48, 36, 24, 18, 12, 9 and 6 Mbps</li> <li><b>802.11b:</b> 11, 5.5, 2 and 1 Mbps</li> <li><b>802.11g:</b> 54, 48, 36, 24, 18, 12, 9 and 6 Mbps</li> </ul>
RADIO CHAINS/ STREAMS	<ul style="list-style-type: none"> <li>3 x 3:3</li> </ul>
RF POWER OUTPUT	<ul style="list-style-type: none"> <li>Max Transmit Power(1) 23 dBm on 2.4 GHz; 21 dBm on 5 GHz</li> </ul>
CHANNELIZATION	<ul style="list-style-type: none"> <li>20 MHz and/or 40 MHz</li> </ul>
FREQUENCY BAND	<ul style="list-style-type: none"> <li>IEEE 802.11n: 2.4 – 2.484 GHz and 5.15 – 5.85 GHz</li> <li>IEEE 802.11a: 5.15 – 5.85 GHz</li> <li>IEEE 802.11b: 2.4 – 2.484 GHz</li> </ul>
OPERATING CHANNELS	<ul style="list-style-type: none"> <li>US/Canada: 1-11, Europe ( ETSI X30): 1-13, Japan X41: 1-13</li> <li>5 GHz channels: Country dependent</li> </ul>
BSSID	<ul style="list-style-type: none"> <li>Up to eight per radio (16 total)</li> </ul>
POWER SAVE	<ul style="list-style-type: none"> <li>Supported</li> </ul>
WIRELESS SECURITY	<ul style="list-style-type: none"> <li>WEP, WPA-PSK, WPA-TKIP, WPA2 AES, 802.11i</li> <li>Authentication via 802.1X, local authentication database, support for RADIUS, LDAP, and ActiveDirectory</li> </ul>
CERTIFICATIONS	<ul style="list-style-type: none"> <li>U.S., Europe, Canada</li> <li>WEEE/RoHS compliance</li> <li>EN 60601-1-2</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>

<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

## Product Ordering Information

MODEL	DESCRIPTION
<b>ZoneFlex 7982 Dual Band 802.11n Access Point</b>	
901-7982-XX00	ZoneFlex dual-band (5 GHz and 2.4 GHz concurrent) 802.11n wireless access point, 3x3:3 streams, adaptive antenna array, dual ports, PoE support. Does not include power adapter.
<b>Optional Accessories</b>	
902-0162-XXYY	PoE injector (90 – 264 VAC 47-63 Hz)
902-0169-XX10, XX11	Power supply (90 – 264 VAC 47-63 Hz)

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