



## RA250

### Service-Ready Access Point for Enterprises, SMB, Service Providers, and Carriers

#### INTELLIGENCE AT THE EDGE

The RA250 Service-Ready Access Point (SR-AP) serves as the intelligent edge in the Relay2 Service Delivery Platform. The RA250 is an innovative enterprise-class access point designed for edge delivery of business-critical applications over WiFi. It supports dual-radio, 2x2 MIMO with two spatial streams, and delivers data rates up to 867Mbps for 5 GHz clients with 802.11ac technology.

Combining high performance wireless access with a powerful processor, dedicated memory, and solid-state storage, business-critical applications and services are brought to life on the RA250. Value-added applications and compute-intensive services are able to run locally, allowing for business solutions never before possible, all while greatly increasing performance and cost savings at the edge. 802.11ac access and enterprise-class functionality ensure seamless delivery to connected clients in the most demanding deployment environments.

#### CONTROL IN THE CLOUD

The RA250 is easily managed through the feature-rich Relay2 Cloud Controller's intuitive browser-based interface to enable rapid deployment of both the network and hosted applications without training or certification. Self-configuring and easily managed over the web, the RA250 is ideal for distributed locations without on-site IT staff.

All aspects of the RA250 can be monitored 24x7 from the Relay2 Cloud Controller management interface, which delivers multiple levels of real-time alerts if the network or services encounter problems. All RA250 software, including both firmware and applications, receives updates from the cloud so new features and enhancements are delivered automatically, eliminating the possibility of missed patches.

#### PRODUCT AT A GLANCE

- **Enterprise-Class 802.11ac Access Point** – offering high-performance, scalable WiFi connectivity and hotspot services
- **Powerful Edge Computing, Memory, and Storage** – enabling edge applications and content hosting and delivery
- **Built-in Web Utilities and Contextual Intelligence** – simplifying service delivery and enhancing business intelligences
- **Open Platform with SDK and API** – enabling 3rd party applications integration
- **Cloud Managed** – ease access and low OPEX
- **Plug-n-Play Deployment** – fast service roll-out
- **Multi-Tenancy Management** – supporting managed service practice

## FEATURES

### SERVICE DELIVERY

#### EDGE COMPUTING HARDWARE

Supporting a 2-core processor with 1GB DDR memory and 8GB solid-state drive (with the ability to scale up to 2GB of DDR memory, and a 128GB solid-state drive), the RA250 has been specifically designed to provide the processing, memory, and storage power needed to deliver valued-added applications and services at the edge of the network.

#### APPLICATION HOSTING

The RA250 has been architected to directly host a broad variety of applications via containers. The RA250 can host multiple containers, which each provides isolated environments in which one or more applications can run. Containers enable 3rd party applications to be installed in a secure and isolated manner.

#### BUILT-IN WEB UTILITY SERVICES

To enable the creation of rich edge applications, Relay2 has incorporated a suite of built-in web utility services. These services include web caching, Splash page with Facebook authentication, web server, HTML insertion, deep packet inspection (DPI), and client location data. Each may be used on a standalone basis or as a building block to more comprehensive service solutions. In both cases, these web utility services push valuable functionality to the

edge of the network where they can provide real-time, relevant, and rich capabilities.

#### OPEN API & SDK

To facilitate the development and high-level integration of applications, Relay2 provides an open API and associated SDK. The API and SDK streamline the development of customized services and provide defined access both to the AP hardware and built-in web utility services.

#### APPLICATION MANAGEMENT

Applications are installed, managed, and monitored via the Relay2 Cloud Controller. Cloud management simplifies the deployment and maintenance of business-critical applications across many locations.

#### EDGE CONTENT HOSTING

Equipping with edge storage up to 128GB, RA250 enables businesses to host and cache digital and web content at the edge of the networks. By making digital content at edge of the networks, closer to the users, business can deliver their business-matter content fast and reliable, even at loss of Internet connectivity. It optimizes content viewers experiences, reduces network bandwidth load, and eases IT administration operation support.

### HIGH PERFORMANCE WIRELESS

#### HIGH DENSITY CAPACITY

The RA250 is designed for deployments in client-dense environments such as shopping centers, resorts, sporting venues, and convention centers. The dual-band SR-AP delivers fast reliable coverage in challenging environments for client devices that routinely use bandwidth-intensive applications.

#### ENTERPRISE-CLASS WLAN

The RA250 features integrated, easy-to-use networking and security technologies to provide truly robust connectivity. Advanced security features include AES encryption, WPA2-Enterprise authentication with 802.1X, and client isolation. Networking features include VLAN tagging and advanced QoS capabilities.

#### CLIENT TRAFFIC CONTROL AND OPTIMIZATION

The RA250 includes integrated layer 3 and 4 packet inspection and client traffic blocking, enabling better control of the WLAN. Integrated support of Wireless Multi Media (WMM) optimizes the performance of bandwidth-sensitive voice and video applications.

#### AUTO CONFIGURATION & OPTIMIZATION

When first plugged in, the RA250 automatically connects to the Relay2 Cloud Controller where it downloads its configuration, and joins the appropriate network. The RA250 then self-optimizes, determining the ideal channel, transmit power, and client connection parameters.

### MANAGED VIRTUAL AP

Each physical RA250 can be virtualized into as many as 8 managed virtual AP (MVAP) instances, which enables multiple tenants to share a single common infrastructure. Each instance has its own management login, providing complete administrative control and visibility as well as security and segregation of networking and application resources. More than just a WLAN profile, tenants are able to manage and control a MVAP as if it was his own physical AP.

This Relay2 patent-pending capability allows venue operators and property owners to monetize their wireless infrastructure by selling each AP to multiple groups or organizations ranging from tenants to service providers. Using MVAP eliminates the need to overbuild infrastructure, which reduces per tenant costs and keeps spectrum clean to yield far superior radio performance.

MVAP is ideal for providing hassle-free, secure WiFi access to tenant businesses in a shopping center or temporary access to event organizers and exhibitors at convention centers. Alternatively, MVAP can enable property owners to provide a neutral host solution to multiple carriers and hotspot operators offering public access WiFi. In both scenarios, MVAP customers are freed from maintaining a physical device, while enjoying enterprise-class features and performance.

## TECHNICAL SPECIFICATIONS

### Radios

One 2.4 GHz 802.11b/g/n, one 5 GHz 802.11a/n/ac

Dual concurrent operation in 2.4 & 5GHz bands

Max rate: 300Mbps in 2.4GHz; 867Mbps in 5GHz

Operating frequency range (country specific restrictions apply):  
2.400 – 2.483GHz; 5.150 – 5.250GHz; 5.725 – 5.825GHz

### 802.11n/ac Capabilities

2 x 2 MIMO with 2 spatial streams

Maximal ratio combining (MRC)

20 and 40MHz channels (802.11n/ac), 80MHz (802.11ac)

Aggregation of 90-byte packets with AES encryption

Fast channel switching (1ms)

### Antenna

Integrated internal omni-directional antennas

3dBi gain at 2.4GHz, 4.7dBi gain at 5GHz

### Wireless Optimization

Band steering

Client load balancing

Auto channel switching

5GHz dynamic channel selection

### WLAN Network

IPv4 and VLAN tagging (802.1q)

Client DHCP relay per VLAN and per WLAN

Seamless client L2 roaming

Wireless multicast optimization

### Security

WPA, WPA2-PSK, WPA2-Enterprise with 802.1X

TKIP and AES encryption

Guest isolation

Rogue AP detection

Black list and MAC address filtering

Stateless ACL

Client to client traffic blocking

### Quality of Service

Wireless multi media (WMM)

Advanced power save (U-APSD)

Rate limiting per VLAN, per WLAN, per client

### Physical Characteristics

Dimensions: 10.25" x 6.13" x 1.44" (260.40 mm x 155.80 mm x 36.60 mm), not including desk-mount feet or mounting plate

Weight: 23 Oz (0.65 kg)

### Power

Power over Ethernet (802.3at PoE+ compatible)

48V DC

Power consumption: 24W max

Power over Ethernet and DC adapter sold separately

### Interfaces

1x Gb Ethernet (RJ45) with 802.3at PoE+

2x USB 2.0/3.0 ports (combined max. 0.8A)

1x DC power (5mm x 2.1mm, center positive)

### LED Indicators

1x Power status indicator

1x Ethernet connectivity indicator

1x 2.4GHz indicator

1x 5GHz indicator

### Service Delivery

2-core processor, 1GB DDR memory, & 8GB solid-state drive  
(extensible up to 2GB DDR, & 128GB SSD)

Built-in web utility services: web caching, web server, HTML  
insertion, client analytics

### Mounting

All standard mounting hardware included

Desktop, wall, and ceiling mountable

### Environmental Conditions

Operating temp.: 32°F to 104°F (0°C to +40°C)

Storage temp.: -4° F to 158° F (-20° C to +70° C)

Operating humidity: 15% to 95% non-condensing

### Regulatory & Certification

FCC (US), IC (Canada), TA (China), NCC (Taiwan), TELEC (Japan)

WiFi Alliance Certified

### Warranty

Limited lifetime hardware warranty (except power supply)

### Ordering Information

RA250: 2x2 802.11ac SR-AP

# RADIO & ANTENNA

2.4GHz

## RF PERFORMANCE

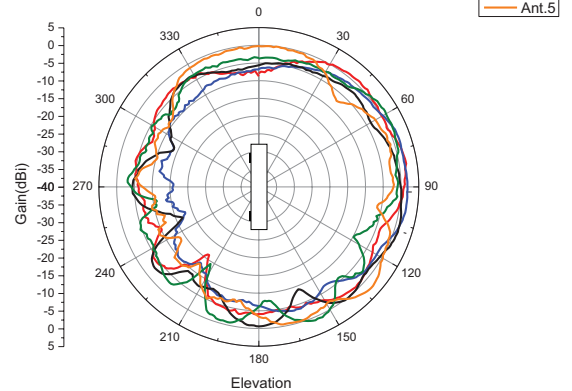
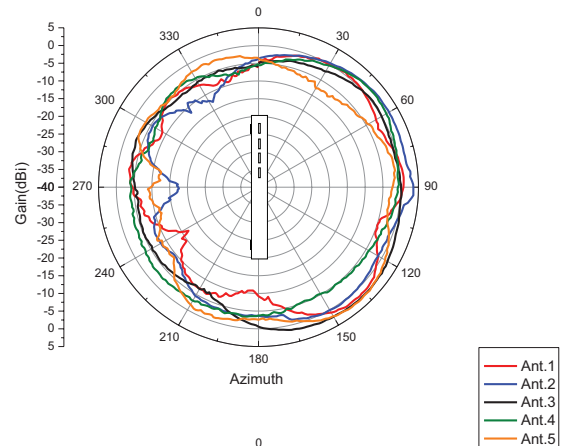
Mode	Data Rate	TX Power	RX Sensitivity
802.11b	1 Mbps	20 dBm	-91 dBm
	11 Mbps	20 dBm	-88 dBm
802.11g	6 Mbps	20 dBm	-91 dBm
	54 Mbps	16 dBm	-75 dBm
802.11n (HT20)	MCS 0/8	20 dBm	-89 dBm
	MCS 1/9	19 dBm	-86 dBm
	MCS 2/10	18 dBm	-83 dBm
	MCS 3/11	17 dBm	-80 dBm
	MCS 4/12	16 dBm	-77 dBm
	MCS 5/13	15 dBm	-72 dBm
	MCS 6/14	15 dBm	-71 dBm
802.11n (HT40)	MCS 0/8/16	20 dBm	-86 dBm
	MCS 1/9/17	19 dBm	-83 dBm
	MCS 2/10/18	18 dBm	-80 dBm
	MCS 3/11/19	17 dBm	-77 dBm
	MCS 4/12/20	16 dBm	-74 dBm
	MCS 5/13/21	15 dBm	-70 dBm
	MCS 6/14/22	15 dBm	-69 dBm

## RF PERFORMANCE

Mode	Data Rate	TX Power	RX Sensitivity
802.11a	6 Mbps 54 Mbps	18 dBm 14 dBm	-93 dBm -75 dBm
802.11n (HT20)	MCS 0/8/16	18 dBm	-88 dBm
	MCS 1/9/17	17 dBm	-86 dBm
	MCS 2/10/18	16 dBm	-83 dBm
	MCS 3/11/19	15 dBm	-80 dBm
	MCS 4/12/20	14 dBm	-77 dBm
	MCS 5/13/21	13 dBm	-72 dBm
	MCS 6/14/22	13 dBm	-71 dBm
802.11n (HT40)	MCS 0/8/16	18 dBm	-85 dBm
	MCS 1/9/17	17 dBm	-83 dBm
	MCS 2/10/18	16 dBm	-80 dBm
	MCS 3/11/19	15 dBm	-77 dBm
	MCS 4/12/20	14 dBm	-74 dBm
	MCS 5/13/21	13 dBm	-72 dBm
	MCS 6/14/22	13 dBm	-71 dBm
802.11ac (HT20)	MCS 0	18 dBm	-88 dBm
	MCS 1	17 dBm	-86 dBm
	MCS 2	16 dBm	-83 dBm
	MCS 3	15 dBm	-80 dBm
	MCS 4	14 dBm	-76 dBm
	MCS 5	13 dBm	-72 dBm
	MCS 6	12 dBm	-71 dBm
	MCS 7	12 dBm	-69 dBm
802.11ac (HT40)	MCS 0	18 dBm	-89 dBm
	MCS 1	17 dBm	-83 dBm
	MCS 2	16 dBm	-80 dBm
	MCS 3	15 dBm	-77 dBm
	MCS 4	14 dBm	-74 dBm
	MCS 5	13 dBm	-71 dBm
	MCS 6	12 dBm	-70 dBm
	MCS 7	11 dBm	-69 dBm
	MCS 8	10 dBm	-64 dBm
802.11ac (HT80)	MCS 0	18 dBm	-86 dBm
	MCS 1	17 dBm	-79 dBm
	MCS 2	16 dBm	-77 dBm
	MCS 3	15 dBm	-74 dBm
	MCS 4	14 dBm	-70 dBm
	MCS 5	13 dBm	-68 dBm
	MCS 6	12 dBm	-67 dBm
	MCS 7	11 dBm	-66 dBm
	MCS 8	10 dBm	-61 dBm

5 GHz

## 2.4 GHz ANTENNA COVERAGE



## 5 GHz ANTENNA COVERAGE

