



DATASHEET

RA250 AI-ENABLED ACCESS POINT

For Enterprises, SMBs, Service Providers, and Carriers

Intelligence at the Edge

The RA250 access point, combined with Aprecomm's AI Engine, serves as the intelligent network node in the Relay2 edge-computing platform. The RA250 is an innovative enterprise-class access point designed for edge delivery of business-critical applications over Wi-Fi. It supports dual-radio, 2x2 MIMO with two spatial streams and delivers data rates up to 867 Mbps for 5 GHz clients with 802.11ac technology.

Combining high-performance wireless access with a powerful processor, dedicated memory, and solid-state storage, the RA250 brings business-critical applications and services to life. 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.

Pervasive Knowledge in the Cloud

Relay2 Cloud is not just another user interface to manage and configure access points: It is your virtual wireless expert, monitoring the wireless experience of your connected devices and helping you optimize it for your specific use case. This is done by harvesting and processing the available wealth of information generated by your wireless devices using the network. Based on this data, the Relay2 Cloud is correlating the various aspects of your network (wired/wireless) in real time, providing detailed and easy-to-understand insights, and providing information on how to improve network reliability and performance.

Relay2 Cloud learns about the behavior of every wireless client associated with it, deriving the best possible configuration to provide an unbeatable wireless customer experience. As the system is gaining more and more insights from active deployments, those learnings about optimal access-point configuration are made available to every customer subscribed to our services, further improving reliability and performance without further investment.



PRODUCT AT A GLANCE

- **Multitenancy Management** supporting managed service providers (MSP) service practice
- **Virtual Wireless Expert** to always understand your wireless network and keep improving it
- **Real-Time Insights** with an artificial intelligence engine providing real insights of WLAN performance
- **Enterprise-Class 802.11ac Access Point** offering high-performance, scalable Wi-Fi connectivity and hotspot services
- **Plug-and-Play Deployment, Cloud Managed** fast-service rollout, ease of access, and low OPEX
- **Open Platform with SDK and API** enabling third-party applications integration
- **Powerful Edge Computing, Memory, and Storage** enabling edge applications, content hosting, and delivery
- **Built-in Web Utilities and Contextual Intelligence** simplifying service delivery and enhancing business intelligence



FEATURES

MANAGED VIRTUAL AP (MVAP)

Each physical RA250 can be virtualized into as many as eight 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 an MVAP as if it was their 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 the spectrum clean to yield far superior radio performance.

MVAP is ideal for providing hassle-free, secure Wi-Fi 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 Wi-Fi. In both scenarios, MVAP customers are freed from maintaining a physical device while enjoying enterprise-class features and performance.

FEATURES

SERVICE DELIVERY

Edge-Computing Hardware

Supporting a 2-core processor with 1 GB DDR memory and 8 GB solid-state drive (with the ability to scale up to 2 GB of DDR memory and a 128 GB 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.

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 pages with Facebook authentication, web servers, 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, providing valuable functionality to the edge of the network, where they can provide real-time, relevant, and rich capabilities.

Application Hosting and Management

The RA250 has been architected to directly host a broad variety of applications via containers. The RA250 can host multiple containers, with each providing isolated environments in which one or more applications can run. 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.

AI Insights

With its artificial intelligence, the RA250 will proactively monitor the network to understand the behavior and demands of the connected wireless devices and measure the real-time wireless experience of each such device. Combined with pervasive knowledge in the cloud, the RA250 will be able to self-diagnose the problems occurring in the field. It also provides actionable, real-time insights to the IT administrators as to root causes in order to help improve the wireless experience.

Virtual Wireless Expert (VWE)*

A virtual wireless expert (VWE), built using Aprecomm's Evolv™ AI engine, is available to you 24/7, along with our Relay2 dashboard. Minimal Wi-Fi expertise is needed to manage Relay2 access points, as we are shipping a VWE with our dashboard. IT admins can now communicate in simple English with our VWE, which can answer all your network-related queries. The VWE also provides users with suggestions to improve the wireless experience.

Edge Content Hosting*

Equipping with edge storage of up to 128 GB, the RA250 enables businesses to host and cache digital and web content at the edge of the network. By keeping digital content at the edge of the network, closer to the users, businesses can deliver their content quickly and reliably, even at a loss of internet connectivity. It optimizes content viewers' experiences, reduces network bandwidth load, and eases IT administration operation support.



* Subscription required

FEATURES

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 AI-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 multimedia (WMM) optimizes the performance of bandwidth-sensitive voice and video applications.

Autoconfiguration and 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.



TECHNICAL SPECIFICATIONS

Radios

- One 2.4 GHz 802.11b/g/n, one 5 GHz 802.11a/n/ac
- Dual concurrent operation in 2.4 and 5 GHz bands
- Max rate: 300 Mbps in 2.4 GHz; 867 Mbps in 5 GHz
- Operating frequency range (country-specific restrictions apply): 2.400–2.483 GHz; 5.150–5.350 GHz; 5.725–5.825 GHz

802.11n/ac Capabilities

- 2 x 2 MIMO with two spatial streams
- Maximal ratio combining (MRC)
- 20 and 40 MHz channels (802.11n/ac), 80MHz (802.11ac)
- Aggregation of 90-byte packets with AES encryption
- Fast channel switching (1 ms)

Antennas

- Integrated internal omnidirectional antennas
- 3 dBi gain at 2.4 GHz, 4.7 dBi gain at 5 GHz

Virtual Wireless Expert

- Real-time wireless experience measurement and monitoring
- Natural language interface to answer your questions
- Band steering and client load balance using AI insights
- Auto channel selection using radio-pattern analysis

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
- Blacklist 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)
- 48 V DC
- Power consumption: 24 W 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 (5 mm x 2.1 mm, center positive)

LED Indicators

- 1x power status indicator
- 1x Ethernet connectivity indicator
- 1x 2.4 GHz indicator
- 1x 5 GHz indicator

Service Delivery

- 2-core processor, 1 GB DDR memory, and 8 GB solid-state drive (extensible up to 2 GB DDR and 128 GB 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 temperature: 32°F to 104°F (0°C to +40°C)
- Storage temperature: -40°F to 158°F (-40°C to +70°C)
- Operating humidity: <90% noncondensing

Regulatory and Certification

- FCC (US), IC (Canada), TA (China), NCC (Taiwan), TELEC (Japan)
- Wi-Fi Alliance Certified

Warranty

- Limited lifetime hardware warranty (except power supply)

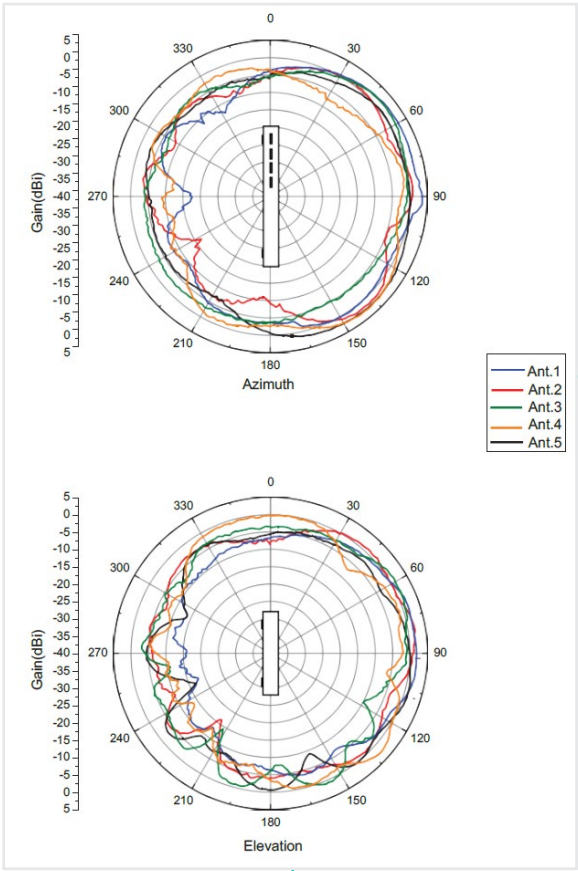
Ordering Information

- RA250: 2x2 802.11ac AI-AP

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
	MCS 7/15	15 dBm	-69 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
	MCS 7/15/23	15 dBm	-66 dBm

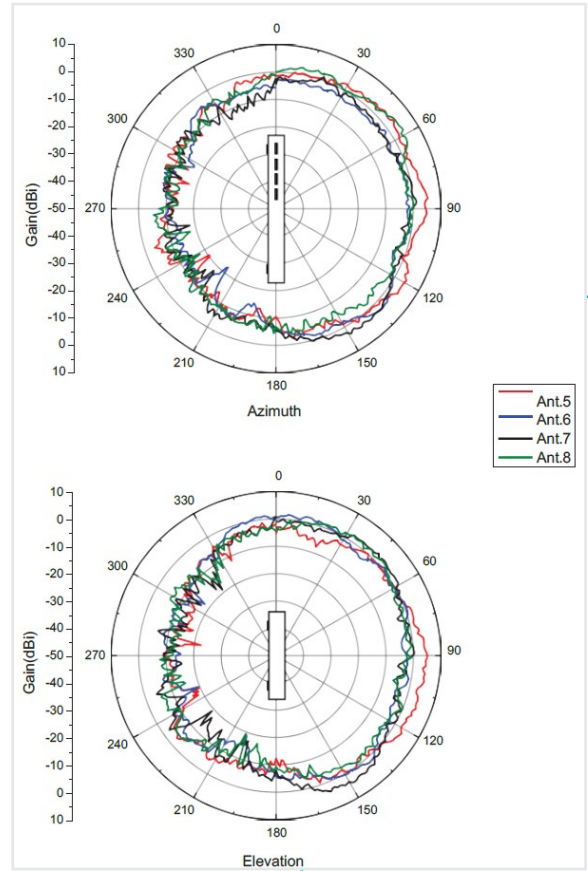
2.4 GHz ANTENNA COVERAGE



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 MCS 1/9/17 MCS 2/10/18 MCS 3/11/19 MCS 4/12/20 MCS 5/13/21 MCS 6/14/22 MCS 7/15/23	18 dBm 17 dBm 16 dBm 15 dBm 14 dBm 13 dBm 13 dBm 13 dBm	-88 dBm -86 dBm -83 dBm -80 dBm -77 dBm -72 dBm -71 dBm -69 dBm
802.11n (HT40)	MCS 0/8/16 MCS 1/9/17 MCS 2/10/18 MCS 3/11/19 MCS 4/12/20 MCS 5/13/21 MCS 6/14/22 MCS 7/15/23	18 dBm 17 dBm 16 dBm 15 dBm 14 dBm 13 dBm 13 dBm 13 dBm	-85 dBm -83 dBm -80 dBm -77 dBm -74 dBm -72 dBm -71 dBm -70 dBm
802.11ac (HT20)	MCS 0 MCS 1 MCS 2 MCS 3 MCS 4 MCS 5 MCS 6 MCS 7 MCS 8	18 dBm 17 dBm 16 dBm 15 dBm 14 dBm 13 dBm 12 dBm 12 dBm 12 dBm	-88 dBm -86 dBm -83 dBm -80 dBm -76 dBm -72 dBm -71 dBm -69 dBm -68 dBm
802.11ac (HT40)	MCS 0 MCS 1 MCS 2 MCS 3 MCS 4 MCS 5 MCS 6 MCS 7 MCS 8 MCS 9	18 dBm 17 dBm 16 dBm 15 dBm 14 dBm 13 dBm 12 dBm 11 dBm 10 dBm 10 dBm	-89 dBm -83 dBm -80 dBm -77 dBm -74 dBm -71 dBm -70 dBm -69 dBm -64 dBm -63 dBm
802.11ac (HT80)	MCS 0 MCS 1 MCS 2 MCS 3 MCS 4 MCS 5 MCS 6 MCS 7 MCS 8 MCS 9	18 dBm 17 dBm 16 dBm 15 dBm 14 dBm 13 dBm 12 dBm 11 dBm 10 dBm 10 dBm	-86 dBm -79 dBm -77 dBm -74 dBm -70 dBm -68 dBm -67 dBm -66 dBm -61 dBm -60 dBm

5 GHz ANTENNA COVERAGE



5 GHz