DATASHEET

RA340 AI-ENABLED ACCESS POINT

For Enterprises, Service Providers, SMBs, and Carriers

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.

Intelligence at the Edge

The RA340 is a high-performance access point that offers a powerful edge-computing solution and an easy-to-manage wireless connectivity solution for businesses. Combined with Aprecomm's AI Engine, it serves as the intelligent network node in the Relay2 edge-computing platform to deliver connected business services at the edge, enabling enhanced user experiences.

The RA340 supports Wave 2 technology and dual-radio, 4x4 MU-MIMO with four spatial streams and delivers aggregated data rates up to 2.3 Gbps in 2.4 GHz and 5 GHz bands with 802.11ac (Wi-Fi 5).

Combining high-performance wireless access with a powerful multicore processor, dedicated memory, and solid-state storage, the RA340 brings business-critical applications and services to life.. Value-added applications—such as compute-intensive, video/content, and time-sensitive services—are able to run locally, allowing for business solutions never before possible, all while greatly increasing performance and cost saving at the edge.

PRODUCT AT A GLANCE

- **Enterprise-Class 802.11ac Access Point** offering high-performance, secure Wi-Fi 6 connectivity

- **Powerful Edge Computing and Storage** enabling on-premises application SaaS and performance-critical content delivery

- **Real-Time Insights** of WLAN performance provided by an artificial intelligence engine

- **Open Container Engine with SDK and API** enabling easy third-party applications development and integration

- **Plug-and-Play Deployment, Cloud Managed** fast-service rollout, ease of access, and low OPEX

- **Multitenancy Management** supporting managed service providers (MSP) service practice

- **Virtual Wireless Expert** to always understand your wireless network and keep improving it

FEATURES

MANAGED VIRTUAL AP (MVAP)

Each physical RA340 can be virtualized into as many as 16 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 MVAP 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 everything clean to yield far superior performance.

MVAP is ideal for providing hassle-free, secure Wi-Fi access to tenant businesses in incubation centers, shopping centers, multifamily residential buildings, and 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

Edge-Computing Hardware

Supporting a quad-core ARM processor with extra memory and storage, the RA340 provides the extra processing, memory, and storage power to deliver a wide variety of value-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. 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.

Application Hosting and Management

The RA340 has been architected to directly host a wide variety of applications via containers. The RA340 can host multiple containers, with each providing isolated environments in which one or more applications can run. Containers enable third-party applications to be installed in a secure and isolated manner. Cloud management simplifies the deployment and maintenance of business-critical applications across many locations.

Edge Content Hosting

Equipped with edge storage up to 512 GB, RA340 enables businesses to host and cache digital and web content at the edge of the networks. By keeping digital content at the edge of the networks, closer to the user, businesses can deliver their content quickly and reliably, even at a loss of internet connectivity. It optimizes content viewers' experiences, saves network bandwidth, and eases IT administration operation support.

AI Insights

With its artificial intelligence, the RA340 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 RA340 will be able to self-diagnose the problems occurring in the fields. 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.

FEATURES

HIGH-PERFORMANCE WIRELESS

Microsoft Azure
Certified

Enterprise-Class WLAN Security Features

The RA340 features integrated, easy-to-use networking and security technologies to provide truly robust connectivity. Advanced security features include WPA3, WPA2-Enterprise authentication with 802.1X, and client isolation. Networking features include VLAN tagging and advanced QoS, as well as rogue AP detection.

Client Traffic Control and Optimization

The RA340 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.

High-Density Capacity

The RA340 is designed for deployments in high client-dense environments, such as office networking, sporting venues, and convention centers. The dual-band radios deliver fast, reliable coverage in challenging environments for client devices that routinely use bandwidth-intensive applications.

Autoconfiguration and Optimization

When first plugged in, the RA340 automatically connects to the Relay2 cloud controller, where it downloads its configuration and joins the appropriate network. The RA340 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 (WIFI5)
- Dual-concurrent operation in 2.4 and 5 GHz bands
- Max rate: 600 Mbps in 2.4 GHz; 1.733 Gbps 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
- Optional dedicated Wi-Fi dual-band sniffer radio and BLE V4.2

802.11 n/ac Capabilities

- 4 x 4 MU-MIMO with four spatial streams
- Maximal ratio combining (MRC)
- 20 and 40 MHz (802.11n/ac), 80, 80+80, 160 Mhz (802.11ac)
- Aggregation of 90-byte packets with AES encryption
- Fast channel switching (1 ms)

Antennas

- Integrated internal omnidirectional antennas
- 3.74 dBi gain at 2.4 GHz, 5.7 dBi gain at 5 GHz

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

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

Interfaces

- 2x Gb Ethernet (RJ45) one with 802.3at PoE+
- 1x USB 2.0/3.0 port (max 0.5A), console port (RJ45)
- 1x DC power (5.5 mm x 2.1 mm, center positive)

Quality of Service

- Wireless multimedia (WMM)
- Unscheduled automatic power-saving delivery (U-APSD)
- Rate limiting per VLAN, per WLAN, per client

Edge-Computing Capabilities

- 2-core ARMv7 application processor at 1.7 GHz
- Two dedicated ARMv7network co-processors.
- 1 GB DDR memory, up to 512 GB SSD (8 GB factory default)

Power

- Power over Ethernet (802.3at PoE+)
- 12V DC 3A
- Power consumption: 24 W max
- Power over Ethernet and DC adapter sold separately

LED Indicators

- 1x power status indicator
- 2x Ethernet connectivity indicator
- 1x 2.4GHz indicator
- 1x 5GHz indicator

Physical Characteristics

- Dimensions: 8.47" x 8. 47" x 2.20" (215 mm x 215 mm x 56 mm), not including desk-mount feet or mounting plate
- Weight: 54.67 oz (1.55 kg)

Mounting

- All standard mounting hardware included
- Wall and ceiling mountable

Environmental Conditions

- Operating temperature: 32ºF to 149ºF (0ºC to +65ºC)
- Storage temperature: -4ºF to 158ºF (-20º C to +70º C)
- Operating humidity: <90% noncondensing

Regulatory and Certification

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

Warranty

- Limited lifetime hardware warranty (except power supply)

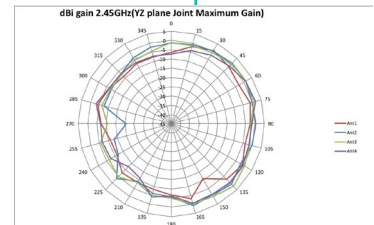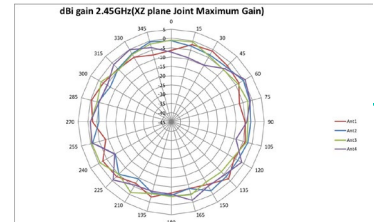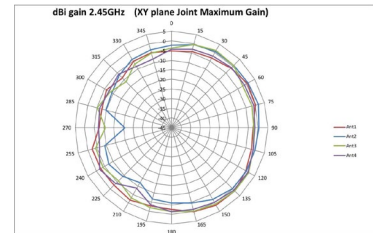## Ordering Information

- Product ID: RA340

RADIO AND ANTENNA

RF PERFORMANCE

2.4 GHz

Mode	Data Rate	TX Power	RX Sensitivity
802.11b	1 Mbps 11 Mbps	19 dBm 19 dBm	-96 dBm -90 dBm
802.11g	6 Mbps 54 Mbps	19 dBm 18 dBm	-91 dBm -74 dBm
802.11n (HT20)	MCS 0/8 MCS 1/9 MCS 2/10 MCS 3/11 MCS 4/12 MCS 5/13 MCS 6/14 MCS 7/15	18 dBm 18 dBm 18 dBm 18 dBm 18 dBm 18 dBm 17 dBm 17 dBm	-90 dBm -87 dBm -84 dBm -81 dBm -78 dBm -73 dBm -72 dBm -71 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 18 dBm 18 dBm 18 dBm 18 dBm 18 dBm 17 dBm 16 dBm	-87 dBm -83 dBm -80 dBm -77 dBm -74 dBm -70 dBm -69 dBm -69 dBm

2.4 GHz ANTENNA COVERAGE

dBi gain 2.45GHz (XY plane Joint Maximum Gain)

dBi gain 2.45GHz(XZ plane Joint Maximum Gain)

dBi gain 2.45GHz(YZ plane Joint Maximum Gain)

RF PERFORMANCE

5 GHz

Mode	Data Rate	TX Power	RX Sensitivity
802.11a	6 Mbps 54 Mbps	18 dBm 16 dBm	-91 dBm -74 dBm
802.11n (HT20)	MCS 0/8 MCS 1/9 MCS 2/10 MCS 3/11 MCS 4/12 MCS 5/13 MCS 6/14 MCS 7/15	18 dBm 18 dBm 18 dBm 18 dBm 17 dBm 16 dBm 15 dBm 15 dBm	-90 dBm -87 dBm -85 dBm -82 dBm -78 dBm -74 dBm -73 dBm -71 dBm
802.11n (HT40)	MCS 0/8 MCS 1/9 MCS 2/10 MCS 3/11 MCS 4/12 MCS 5/13 MCS 6/14 MCS 7/15	18 dBm 18 dBm 18 dBm 18 dBm 17 dBm 16 dBm 15 dBm 14 dBm	-88 dBm -84 dBm -82 dBm -79 dBm -75 dBm -71 dBm -70 dBm -69 dBm

5 GHz ANTENNA COVERAGE

dBi gain 5.55GHz(XY plane Joint Maximum Gain)

dBi gain 5.55GHz(XY plane Joint Maximum Gain)

dBi gain 5.55GHz(YZ plane Joint Maximum Gain)
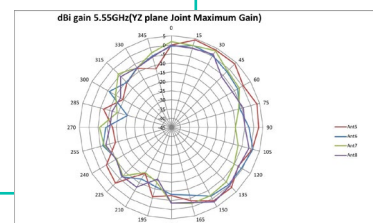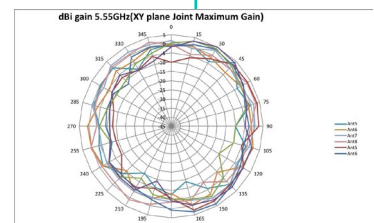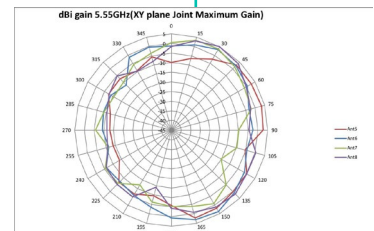
RADIO AND ANTENNA

RF PERFORMANCE

5 GHz

Mode	Data Rate	TX Power	RX Sensitivity
802.11ac (HT20)	MCS 0 MCS 1 MCS 2 MCS 3 MCS 4 MCS 5 MCS 6 MCS 7 MCS 8	18 dBm 18 dBm 18 dBm 18 dBm 17 dBm 16 dBm 15 dBm 15 dBm 14 dBm	-90 dBm -86 dBm -84 dBm -81 dBm -77 dBm -73 dBm -72 dBm -71 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 18 dBm 18 dBm 18 dBm 17 dBm 16 dBm 15 dBm 14 dBm 14 dBm 13 dBm	-88 dBm -85 dBm -83 dBm -80 dBm -76 dBm -72 dBm -71 dBm -70 dBm -66 dBm -65 dBm
802.11n (HT80)	MCS 0 MCS 1 MCS 2 MCS 3 MCS 4 MCS 5 MCS 6 MCS 7 MCS 8 MCS 9	18 dBm 18 dBm 18 dBm 18 dBm 17 dBm 16 dBm 15 dBm 14 dBm 14 dBm 13 dBm	-85 dBm -81 dBm -79 dBm -76 dBm -72 dBm -68 dBm -67 dBm -66 dBm -62 dBm -61 dBm
802.11ac HT80+ 80 HT160)	MCS 0 MCS 1 MCS 2 MCS 3 MCS 4 MCS 5 MCS 6 MCS 7 MCS 8 MCS 9	18 dBm 18 dBm 18 dBm 18 dBm 17 dBm 16 dBm 15 dBm 14 dBm 14 dBm 13 dBm	-80 dBm -78 dBm -75 dBm -72 dBm -69 dBm -65 dBm -64 dBm -62 dBm -57 dBm -56 dBm