Relay2
AI enabled by Aprecomm

RA340
AI Enabled Access Point

For Enterprises, Service Providers, SMB and Carriers

Microsoft Azure Certified

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 wave2 technology, dual-radio, 4x4 MU-MIMO with four spatial streams, and delivers aggregated data rates up 2.3 Gbps in 2.4GHz and 5 GHz bands with 802.11ac (WIFI5).

Combining high performance wireless access with a powerful multi-core processor, dedicated memory, and solid-state storage, business-critical applications and services are brought to life on the RA340. Value-added applications, such as compute-intensive, video/content, 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.

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 the connected devices helping you optimizing 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 and provide detailed and easy to understand insights and will provide information how to improve the network reliability and performance.

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

PRODUCT AT A GLANCE

- **Enterprise-Class 802.11ac Access Point** – offering high-performance, secure Wi-Fi connectivity and networking services
- **Powerful Edge Computing and Storage** – enabling on-premises application SaaS and performance critical content delivery
- **Real Time Insights** – Artificial Intelligence Engine providing Real Insights of WLAN performance
- **Virtual Wireless Expert –** Wireless Expert will always understand your wireless network and keep improving it
- **Open container engine with SDK and API** – enabling easy 3rd party applications development and integration
- **Plug-n-Play Deployment, Cloud Managed** – fast service roll-out, ease access and low OPEX
- **Multi-Tenancy Management** – supporting Managed Service Providers (MSP) service practice

FEATURES

EDGE SERVICES

EDGE COMPUTING HARDWARE

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

APPLICATION HOSTING AND MANAGEMENT

The RA340 has been architected to directly host a broad variety of applications via containers. The RA340 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. Cloud management simplifies the deployment and maintenance of business-critical applications across many locations.

A.I. INSIGHTS

RA340 with its Artificial Intelligence will proactively monitor Network to understand behavior of the connected wireless devices, their demands and measure real time wireless experience of each such device. Combined with Pervasive Knowledge in the cloud, RA340 will be able to Self-Diagnose the problems occurring in the fields. They also provide actionable insights in Real time to the IT Administrators to Root Cause and improve Wireless Experience.

VIRTUAL WIRELESS EXPERT (VWE)

Virtual Wireless Expert (VWE), built using Aprecomm's Evolv™ AI Engine available for your 24x7 along with our Relay2 Dashboard. Minimal Wi-Fi Expertise is needed to manage our Relay2 Access Points as we are shipping a Virtual Expert with our Dashboard. IT Admins can now communicate in simple English with our VWE which can answer all your Network related Queries. VWE also provide users with suggestions to improve Wireless Experience.

EDGE CONTENT HOSTING

Equipped with edge storage up to 512GB, 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 fast and reliable, even at loss of Internet connectivity. It optimizes content viewers experiences, saves networkbandwidth and eases IT administration operation support.

HIGH PERFORMANCE WIRELESS

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.

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 WPA2-Enterprise authentication with 802.1X, and client isolation. Networking features include VLAN tagging and advanced QoS capabilities. 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 Multi Media (WMM) optimizes the performance of bandwidth-sensitive voice and video applications.

AUTO CONFIGURATION & 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.

MANAGED VIRTUAL AP

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 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 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 radio spectrum clean to yield far superior radio performance.

MVAP is ideal for providing hassle-free, secure Wi-Fi access to tenant businesses in incubation centers, shopping center, multi-family residential, 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.

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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 & 5GHz bands

Max rate: 600Mbps in 2.4GHz; 1.733Gbps in 5GHz

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

Optional dedicated WI-FI dual band sniffer radio and BLE V4.2

802.11n/ac Capabilities

4 x 4 MU-MIMO with 4 spatial streams

Maximal ratio combining (MRC)

20 and 40MHz (802.11n/ac), 80, 80+80, 160Mhz (802.11ac)

Aggregation of 90-byte packets with AES encryption

Fast channel switching (1ms)

Antenna

Integrated internal omni-directional antennas

3.74 dBi gain at 2.4GHz, 5.7 dBi gain at 5GHz

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

Black list and MAC address filtering

Stateless ACL

Client to client traffic blocking

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 @1.7GHz

2 dedicated ARMv7network co-processors.

1GB DDR memory, up to 512GB SSD (8GB factory default)

Power

Power over Ethernet (802.3at PoE+)

12V DC 3A

Power consumption: 24W max.

Power over Ethernet and DC adapter sold separately

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 (5.5mm x 2.0mm, center positive)

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 temp.: 32ºF to 104ºF (0ºC to +40ºC)

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

Operating humidity: < 90% non-condensing

Regulatory & Certification

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

TA (China)

Warranty

Limited lifetime hardware warranty (except power supply)

Ordering Information

Product ID: RA340

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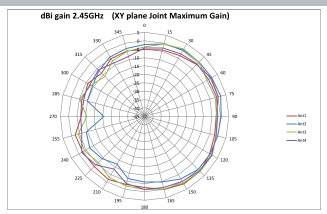
RADIO & ANTENNA

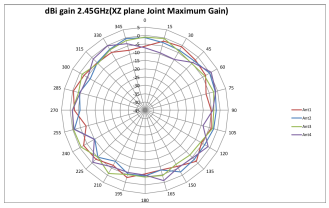
2.4GHz

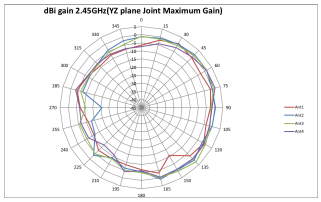
RF PERFORMANCE

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





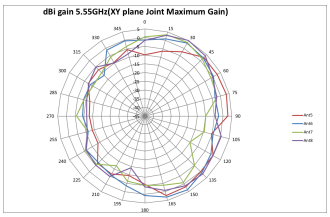


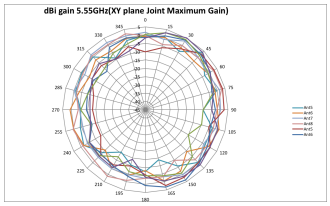
5 GHz

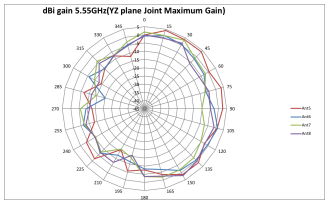
RF PERFORMANCE

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
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
802.11ac (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

5 GHz ANTENNA COVERAGE







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RADIO & ANTENNA

RF PERFORMANCE

5 GHz

Mode	Data Rate	TX Power	RX Sensitivity
802.11ac HT80+ 80 HT160)	MCS 0	18 dBm	-80 dBm
	MCS 1	18 dBm	-78 dBm
	MCS 2	18 dBm	-75 dBm
	MCS 3	18 dBm	-72 dBm
	MCS 4	17 dBm	-69 dBm
	MCS 5	16 dBm	-65 dBm
	MCS 6	15 dBm	-64 dBm
	MCS 7	14 dBm	-62 dBm
	MCS 8	14 dBm	-57 dBm
	MCS 9	13 dBm	-56 dBm

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