



RA280

Service-Ready Access Point for Businesses and IoT Service Providers to Delivery Innovative Services and Applications

INTELLIGENCE AT THE EDGE

The RA280 Service-Ready Access Point (SR-AP) serves as the intelligent edge in the Relay2 Service Delivery Platform. The RA280 is an innovative enterprise-class access point with Bluetooth interface integrated for businesses and service providers to easily delivery innovative edge applications and IoT services.

Combining high performance, multiple wireless access interfaces with a powerful processor, dedicated memory, and solid-state storage, business applications and IoT services are brought to life on the RA280. Value-added applications, such as IoT Gateway or Controller, Location Based Service (LBS), big data collection service, are able to run locally within the SR-AP at the edge. This “multi-access and edge-computing” integrated feature greatly simplifies service delivery, reduces service delivery cost, and optimizes user experiences, allowing for business solutions never before possible. The enterprise-class 802.11ac access offers rich functionalities, scalability, and reliability for businesses to delivery WiFi services in the most demanding deployment environments.

CONTROL IN THE CLOUD

The RA280 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 RA280 is ideal for distributed locations without on-site IT staff.

All aspects of the RA280 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 RA280 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

- **Built-in Bluetooth** – supporting smart retailer, smart city, smart building, and other IoT applications
- **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 RA280 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 RA280 has been architected to directly host a broad variety of applications via containers. The RA280 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, RA280 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

INTEGRATED BLE INTERFACE

The RA280 comes equipped with integrated BLE interface. This enables visibility to BLE devices in the AP range and development of the next generation of IoT applications that drive superior venue experiences right out of the box.

HIGH DENSITY CAPACITY

The RA280 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 RA280 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 RA280 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 RA280 automatically connects to the Relay2 Cloud Controller where it downloads its configuration, and joins the appropriate network. The RA280 then self-optimizes, determining the ideal channel, transmit power, and client connection parameters.

MANAGED VIRTUAL AP

Each physical RA280 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

Wi-Fi Radios

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

Concurrent operation in 2.4 & 5GHz bands and BLE

Max rate: 450Mbps in 2.4GHz; 1300Mbps in 5GHz

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

Bluetooth Low Energy Radio

One 2.4 GHz Bluetooth Low Energy (BLE 4.2 specifications compatible)

Channel Range 0 - 39 (40 channels)

Max rate: 1Mbps (over the air)

Up to 5dBm transmit power and -97 dBm receive sensitivity

Frequency range: 2.402 - 2.480 GHz

802.11n/ac Capabilities

3 x 3 MIMO with 3 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)

Maximum Clients: 252

Antenna

Integrated internal omni-directional antennas

Wi-Fi: 3.3dBi peak gain at 2.4GHz, 4.7dBi peak gain at 5GHz

BLE: 3.7dBi peak gain

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

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)

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

Power

Power over Ethernet (802.3at PoE+ compatible)

48V DC

Power consumption: 24W max

Power over Ethernet and DC adapter sold separately

Other 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*

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

*Regulatory compliance certification in-progress

Warranty

Limited lifetime hardware warranty (except power supply)

Ordering Information

RA280: 3x3 802.11ac SR-AP with BLE

RADIO & ANTENNA

2.4GHz

RF PERFORMANCE

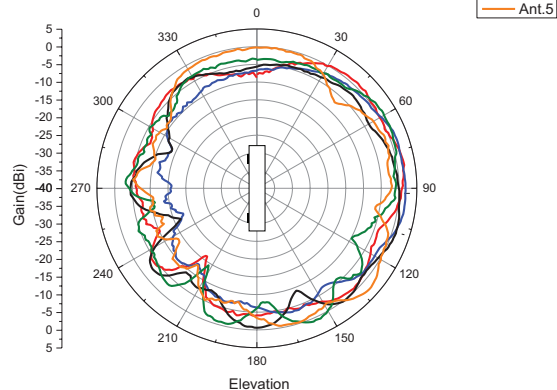
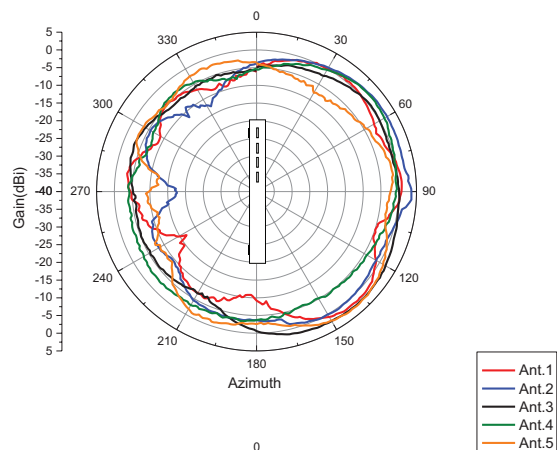
Mode	Data Rate	TX Power	RX Sensitivity
802.11b	1 Mbps	20 dBm	-91 dBm
	11 Mbps	20 dBm	-88 dBm
802.11g	6 Mbps	20 dBm	-91 dBm
	54 Mbps	16 dBm	-75 dBm
802.11n (HT20)	MCS 0/8	20 dBm	-89 dBm
	MCS 1/9	19 dBm	-86 dBm
	MCS 2/10	18 dBm	-83 dBm
	MCS 3/11	17 dBm	-80 dBm
	MCS 4/12	16 dBm	-77 dBm
	MCS 5/13	15 dBm	-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	18 dBm	-93 dBm
	54 Mbps	14 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	-69 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	-70 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
MCS 9	10 dBm	-63 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
MCS 9	10 dBm	-60 dBm	

5 GHz

2.4 GHz ANTENNA COVERAGE



5 GHz ANTENNA COVERAGE

