**Relay2**

*AI enabled by Aprecom*

# RA270
## AI Enabled Access Point

For Enterprises, SMB,
Service Providers,
and Carriers

## INTELLIGENCE AT THE EDGE

The RA270 Access Point combined with Aprecomm's AI Engine serves as the intelligent network node in the Relay2 Edge Computing Platform. The RA270 is an innovative enterprise-class access point designed for edge delivery of business-critical applications over Wi-Fi. It supports dual-radio, 3x3 MIMO with three spatial streams, and delivers data rates up to 1.3Gbps 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 RA270. 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 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 investments.

## PRODUCT AT A GLANCE

- **Enterprise-Class 802.11ac Access Point** – offering high-performance, scalable Wi-Fi connectivity and hotspot services
- **Powerful Edge Computing, Memory, and Storage** – enabling edge applications and content hosting and 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
- **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
- **Plug-n-Play Deployment, Cloud Managed** – fast service roll-out, ease access and low OPEX
- **Multi-Tenancy Management** – supporting managed service practice

# FEATURES

## EDGE SERVICES

### 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 RA270 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 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 providing valuable functionality to the edge of the network where they can provide real-time, relevant, and rich capabilities.

### APPLICATION HOSTING AND MANAGEMENT
The RA270 has been architected to directly host a broad variety of applications via containers. The RA270 can host multiple containers, which each provides 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.

### A.I. INSIGHTS
RA270 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, RA270 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
Equipping with edge storage up to 128GB, RA270 enables businesses to host and cache digital and web content at the edge manner 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, eases IT administration operation support

## HIGH PERFORMANCE WIRELESS

### HIGH DENSITY CAPACITY
The RA270 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 RA270 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 RA270 includes integrated layer 3 and 4 packet inspection and client traffic monitoring, 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 RA270 automatically connects to the Relay2 Cloud Controller where it downloads its configuration and joins the appropriate network. The RA270 then self-optimizes, determining the ideal channel, transmit power, and client connection parameters.

## MANAGED VIRTUAL AP

Each physical RA270 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 W-iFi 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.

# 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: 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

## 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

3dBi gain at 2.4GHz, 4.7dBi 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 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 2.5mm, 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.: 32ºF to 104ºF (0ºC to +40ºC)

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

Operating humidity: 15% to 95% non-condensing

## Regulatory

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

## Warranty

Limited lifetime hardware warranty (except power supply)

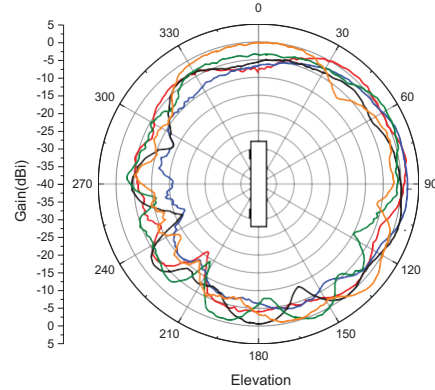## Ordering Information
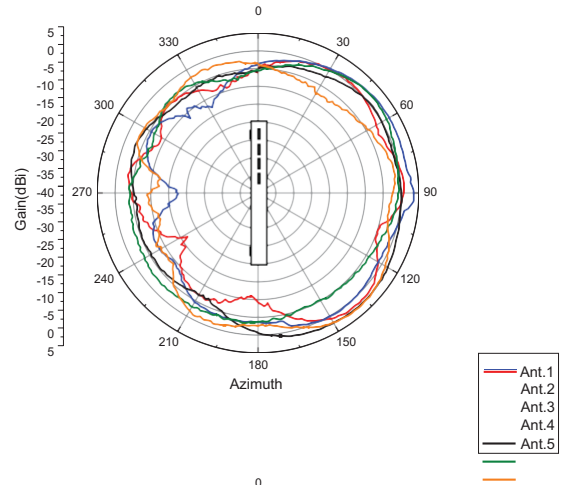
RA270: 3x3 802.11ac SR-AP

# RADIO & ANTENNA

## 2.4GHz

| RF PERFORMANCE | | | |
| --- | --- | --- | --- |
| **Mode** | **Data Rate** | **TX Power** | **RX Sensitivity** |
| 802.11b | 1 Mbps<br>11 Mbps | 20 dBm<br>20 dBm | -91 dBm<br>-88 dBm |
| 802.11g | 6 Mbps<br>54 Mbps | 20 dBm<br>16 dBm | -91 dBm<br>-75 dBm |
| 802.11n (HT20) | MCS 0/8<br>MCS 1/9<br>MCS 2/10<br>MCS 3/11<br>MCS 4/12<br>MCS 5/13<br>MCS 6/14<br>MCS 7/15 | 20 dBm<br>19 dBm<br>18 dBm<br>17 dBm<br>16 dBm<br>15 dBm<br>15 dBm<br>15 dBm | -89 dBm<br>-86 dBm<br>-83 dBm<br>-80 dBm<br>-77 dBm<br>-72 dBm<br>-71 dBm<br>-69 dBm |
| 802.11n (HT40) | MCS 0/8/16<br>MCS 1/9/17<br>MCS 2/10/18<br>MCS 3/11/19<br>MCS 4/12/20<br>MCS 5/13/21<br>MCS 6/14/22<br>MCS 7/15/23 | 20 dBm<br>19 dBm<br>18 dBm<br>17 dBm<br>16 dBm<br>15 dBm<br>15 dBm<br>15 dBm | -86 dBm<br>-83 dBm<br>-80 dBm<br>-77 dBm<br>-74 dBm<br>-70 dBm<br>-69 dBm<br>-68 dBm |

## 5 GHz

| RF PERFORMANCE | | | |
| --- | --- | --- | --- |
| **Mode** | **Data Rate** | **TX Power** | **RX Sensitivity** |
| 802.11a | 6 Mbps<br>54 Mbps | 18 dBm<br>14 dBm | -93 dBm<br>-75 dBm |
| 802.11n (HT20) | MCS 0/8/16<br>MCS 1/9/17<br>MCS 2/10/18<br>MCS 3/11/19<br>MCS 4/12/20<br>MCS 5/13/21<br>MCS 6/14/22<br>MCS 7/15/23 | 18 dBm<br>17 dBm<br>16 dBm<br>15 dBm<br>14 dBm<br>13 dBm<br>13 dBm<br>13 dBm | -88 dBm<br>-86 dBm<br>-83 dBm<br>-80 dBm<br>-77 dBm<br>-72 dBm<br>-71 dBm<br>-69 dBm |
| 802.11n (HT40) | MCS 0/8/16<br>MCS 1/9/17<br>MCS 2/10/18<br>MCS 3/11/19<br>MCS 4/12/20<br>MCS 5/13/21<br>MCS 6/14/22<br>MCS 7/15/23 | 18 dBm<br>17 dBm<br>16 dBm<br>15 dBm<br>14 dBm<br>13 dBm<br>13 dBm<br>13 dBm | -85 dBm<br>-83 dBm<br>-80 dBm<br>-77 dBm<br>-74 dBm<br>-72 dBm<br>-71 dBm<br>-70 dBm |
| 802.11ac (HT20) | MCS 0<br>MCS 1<br>MCS 2<br>MCS 3<br>MCS 4<br>MCS 5<br>MCS 6<br>MCS 7<br>MCS 8 | 18 dBm<br>17 dBm<br>16 dBm<br>15 dBm<br>14 dBm<br>13 dBm<br>12 dBm<br>12 dBm<br>12 dBm | -88 dBm<br>-86 dBm<br>-83 dBm<br>-80 dBm<br>-76 dBm<br>-72 dBm<br>-71 dBm<br>-69 dBm<br>-68 dBm |
| 802.11ac (HT40) | MCS 0<br>MCS 1<br>MCS 2<br>MCS 3<br>MCS 4<br>MCS 5<br>MCS 6<br>MCS 7<br>MCS 8<br>MCS 9 | 18 dBm<br>17 dBm<br>16 dBm<br>15 dBm<br>14 dBm<br>13 dBm<br>12 dBm<br>11 dBm<br>10 dBm<br>10 dBm | -89 dBm<br>-83 dBm<br>-80 dBm<br>-77 dBm<br>-74 dBm<br>-71 dBm<br>-70 dBm<br>-69 dBm<br>-64 dBm<br>-63 dBm |
| 802.11ac (HT80) | MCS 0<br>MCS 1<br>MCS 2<br>MCS 3<br>MCS 4<br>MCS 5<br>MCS 6<br>MCS 7<br>MCS 8<br>MCS 9 | 18 dBm<br>17 dBm<br>16 dBm<br>15 dBm<br>14 dBm<br>13 dBm<br>12 dBm<br>11 dBm<br>10 dBm<br>10 dBm | -86 dBm<br>-79 dBm<br>-77 dBm<br>-74 dBm<br>-70 dBm<br>-68 dBm<br>-67 dBm<br>-66 dBm<br>-61 dBm<br>-60 dBm |

## 2.4 GHz ANTENNA COVERAGE



Azimuth



Elevation

Legend: Ant.1, Ant.2, Ant.3, Ant.4, Ant.5

## 5 GHz ANTENNA COVERAGE



Azimuth



Elevation

Legend: Ant.5, Ant.6, Ant.7, Ant.8