RA621 WI-FI 6 SMART SERVICE POINT

For Enterprises, Service Providers, SMBs, and Carriers

Powerful Cloud Management

The RA621 is easily managed through the feature-rich Relay2 cloud-management system using an intuitive browser-based interface to enable rapid deployment of both the network and hosted applications. Self-configuring and easily managed through the cloud-based web interface, the RA621 is ideal for distributed locations without on-site IT staff.

All aspects of the service point can be configured and monitored 24/7 from the Relay2 cloud-management interface, which delivers multiple levels of access control and real-time alerts if the network or services encounter problems.

All access-point software—including both firmware and applications—can receive automatic updates from the cloud so new features and enhancements are delivered immediately, eliminating the possibility of missed patches.

Intelligence at the Edge

The RA621 is a high-performance Wi-Fi 6 service point that offers a powerful edge-computing solution and an easy-to-manage wireless LAN/WAN connectivity solution for businesses. The Relay2 edge-computing platform delivers connected business services at the edge, enabling enhanced user experiences.

The RA621 supports Wi-Fi 6 technology and 2x2 MU-MIMO with two spatial streams and delivers aggregated data rates up 1.8 Gbps in 2.4 GHz and 5 GHz bands with 802.11ax (Wi-Fi 6).

Combining high-performance wireless access with a powerful multicore processor, dedicated memory, and solid-state storage, business-critical applications and services are brought to life on the RA621. 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 802.11ax Service Point** offering high-performance, secure Wi-Fi 6 connectivity

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

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

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

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

FEATURES

MANAGED VIRTUAL AP

Each physical RA621 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 SERVICES

Edge-Computing Hardware

Supporting a quad-core ARM processor with extra memory and storage, the RA621 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, a Splash page with Facebook authentication, a 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 RA621 has been architected to directly host a wide variety of applications via containers. The RA621 can host multiple containers, which each provides 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 128GB, RA621 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.

HIGH-PERFORMANCE WIRELESS

Enterprise-Class WLAN Security Features

The RA621 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 RA621 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 RA621 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 RA621 automatically connects to the Relay2 cloud controller, where it downloads its configuration and joins the appropriate network. The RA621 then self-optimizes, determining the ideal channel, transmit power, and client connection parameters.

TECHNICAL SPECIFICATIONS

Radios

- 2.4 GHz 802.11 b/g/n/ax, 5 GHz 802.11 a/n/ac/ax (Wi-Fi 6)
- Dual concurrent operation in 2.4 and 5 GHz bands
- Max rate: 575 Mbps in 2.4 GHz; 1.2 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

802.11ax Capabilities

- 2 x 2 MU-MIMO with two spatial streams
- 20 and 40 MHz (802.11n/ax), 80 Mhz (802.11 ax)
- DL MU-MIMO, DL-OFDMA, UL-OFDMA target wait time

Antennas

- Integrated internal omnidirectional Wi-Fi antennas
- 2 dBi gain at 2.4 GHz; 3 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, WPA3
- 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 multimedia (WMM)
- Unscheduled automatic power-saving delivery
  (U-APSD)
- Rate limiting per VLAN, per WLAN, per client

Edge-Computing Capabilities

- 4-core ARM A53 application processor at 1.7 GHz
- 1 GB DDR memory, up to 128 GB eMMC
  (16 GB factory default)

External Interfaces

- 1x 2.5 Gb Ethernet (RJ45), 802.3at compliant PoE
- 1x USB 2.0–500 mA max
- 1x DC power (5.5 mm x 2.1 mm, center positive)

Power

- Power over Ethernet (802.3at compliant)
- 12V DC 2.0A, Power consumption: 24 W max
- Power over Ethernet and DC adapter sold separately

LED Indicators

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

Physical Characteristics

- Dimensions: 6.3" x 6.3" x 1.3"
  (161 mm x 161 mm x 33 mm),
  not including mounting plate
- Weight: 0.84 Ib (380 g)

Mounting

- Wall and ceiling mountable

Environmental Conditions

- Operating temperature: 32ºF to 104ºF (0ºC to +40ºC)
- Storage temperature: -22ºF to 158ºF (-30ºC to +70ºC)
- Operating humidity: <90% noncondensing

Regulatory and Certification

- FCC (US), TELEC (Japan), CE (Europe), NCC (Taiwan)

Warranty

- Limited lifetime hardware warranty
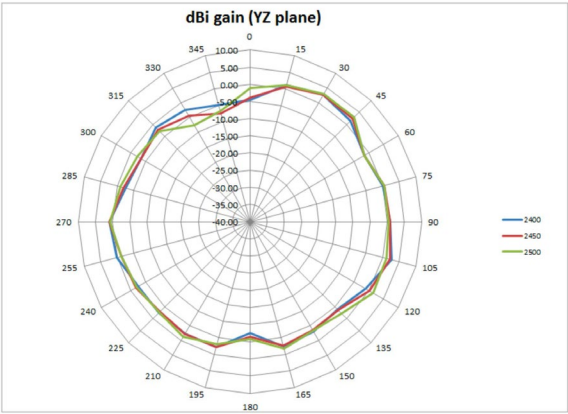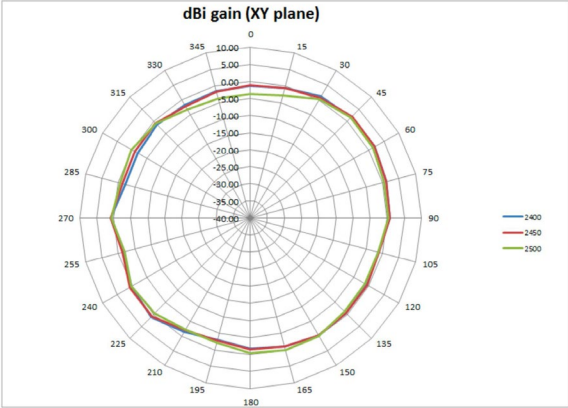 (except power supply)

Ordering Information

- Product ID: RA621

2.4 GHz

Mode	Data rate	TX Power	RX Sensitivity
802.11b	1 Mbps 11 Mbps	20 dBm 20 dBm	−97 dBm −88 dBm
802.11g	6 Mbps 54 Mbps	20 dBm 15 dBm	−93 dBm −75 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	19 dBm 17 dBm 17 dBm 16 dBm 16 dBm 15 dBm 15 dBm 14 dBm	−92 dBm −87 dBm −84 dBm −81 dBm −78 dBm −75 dBm −73 dBm −72 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 16 dBm 16 dBm 15 dBm 15 dBm 14 dBm 14 dBm 13 dBm	−92 dBm −83 dBm −80 dBm −77 dBm −74 dBm −70 dBm −67 dBm −63 dBm
802.11gac (VHT20)	MCS 0 MCS 1 MCS 2 MCS 3 MCS 4 MCS 5 MCS 6 MCS 7 MCS 8 MCS 9	19 dBm 17 dBm 17 dBm 16 dBm 16 dBm 15 dBm 15 dBm 14 dBm 12 dBm 12 dBm	−91 dBm −85 dBm −83 dBm −80 dBm −76 dBm −72 dBm −71 dBm −70 dBm −70 dBm −69 dBm
802.11gac (VHT40)	MCS 0 MCS 1 MCS 2 MCS 3 MCS 4 MCS 5 MCS 6 MCS 7 MCS 8 MCS 9	17 dBm 17 dBm 17 dBm 17 dBm 17 dBm 16 dBm 16 dBm 15 dBm 15 dBm 14 dBm	−90 dBm −85 dBm −83 dBm −80 dBm −76 dBm −72 dBm −71 dBm −70 dBm −69 dBm −67 dBm
802.11gax (HE20)	MCS 10 MCS 11	11 dBm 11 dBm	−91 dBm −63 dBm
802.11gax (HE40)	MCS 10 MCS 11	11 dBm 11 dBm	−89 dBm −60 dBm

dBi gain (XY plane)

dBi gain (YZ plane)

RF PERFORMANCE

5 GHz

Mode	Data rate	TX Power	RX Sensitivity
802.11a	6 Mbps 54 Mbps	19 dBm 17 dBm	−90 dBm −70 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 17 dBm 17 dBm 17 dBm	−89 dBm −87 dBm −85 dBm −82 dBm −78 dBm −74 dBm −73 dBm −70 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 18 dBm 17 dBm 17 dBm 17 dBm	−86 dBm −84 dBm −82 dBm −79 dBm −75 dBm −71 dBm −70 dBm −67 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 18 dBm 17 dBm 17 dBm 16 dBm 16 dBm	−89 dBm −86 dBm −84 dBm −81 dBm −77 dBm −73 dBm −72 dBm −71 dBm −65 dBm
802.11ac (HT40)	MCS 0 MCS 1 MCS 2 MCS 3 MCS 4 MCS 5 MCS 6 MCS 7 MCS 8 MCS 9	17 dBm 17 dBm 17 dBm 17 dBm 17 dBm 16 dBm 16 dBm 16 dBm 16 dBm 16 dBm	−86 dBm −85 dBm −83 dBm −80 dBm −76 dBm −72 dBm −71 dBm −70 dBm −66 dBm −60 dBm
802.11ac (HT80)	MCS 0 MCS 1 MCS 2 MCS 3 MCS 4 MCS 5 MCS 6 MCS 7 MCS 8 MCS 9	17 dBm 17 dBm 17 dBm 17 dBm 17 dBm 16 dBm 16 dBm 16 dBm 16 dBm 16 dBm	−83 dBm −81 dBm −79 dBm −76 dBm −72 dBm −68 dBm −67 dBm −66 dBm −62 dBm −57 dBm
802.11ax (HE20)	MCS 10 MCS 11	10 dBm 10 dBm	−90 dBm −61 dBm
802.11ax (HE40)	MCS 10 MCS 11	10 dBm 10 dBm	−88 dBm −60 dBm
802.11ax (HE80)	MCS 10 MCS 11	10 dBm 10 dBm	−85 dBm −58 dBm

5 GHz ANTENNA COVERAGE

dBi gain (XY plane)

dBi gain (YZ plane)