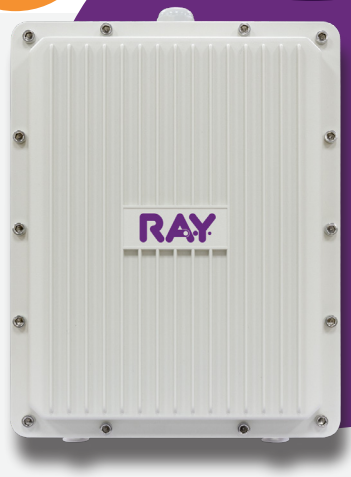
DATASHEET | **R6A-O**

Outdoor Cloud Managed Wi-Fi 6 Access Point



With the increasing bar of Wi-Fi networks, Ray has come up with its Wi-Fi Access Points. The Ray R6A-O is a cloud-managed 2x2:2 Wi-Fi 6 (802.11ax) access point with a maximum of 1.7 Gbps that is built for demanding environments.

The R6A-O is ruggedized and can withstand exposure to extreme high and low temperatures, persistent moisture and is purpose-built to deliver unprecedented user experiences, while providing real-time network insights and other Wi-Fi services. It is a perfect fit to provide exceptional end-user experience within high density public venues such as airports, enterprise campuses, outdoor arenas, public venues, industrial sites, stadiums etc.

With the combination of the Ray Platform & high-performance hardware the R6A-O makes an outstanding platform for data-intensive streaming multimedia applications like 4K video transmissions in high-density deployments, while supporting latency sensitive voice and data applications with stringent quality-of-service requirements. The R6A-O is also easy to manage through physical, virtual and cloud management options.

The R6A-O AP connects more devices simultaneously and improves device performance, with built-in 8 spatial streams (dual-concurrent, 2x2:2 in 5GHz, 2x2:2 in 2.4GHz), MU-MIMO and OFDMA technology while enhancing non-Wi-Fi 6 client performance. It can support for up to 512 clients. Security is quite enhanced with this AP and is reinforced with WPA3, the latest Wi-Fi security standard to receive enhanced protection from man-in-the-middle attacks.

OVERVIEW

Ray has brought true innovation to the networking space with the world's first AI-driven wireless network with an element of extensibility through the Ray Wi-Fi Application store.

Wi-Fi Driven By AI

The Ray Cloud uses AI and data science to analyse large amounts of rich metadata collected from Access Points to provide actionable insight. The AI Platform makes networking predictable, reliable and measurable with unprecedented visibility into the user experience. Time consuming manual IT tasks are replaced with AI-driven proactive automation and self-healing capabilities, lowering networking operational costs and saving substantial time and money.

Ray Cloud

Microservices bring unparalleled agility, scale, resiliency. Ray makes it easy to add or remove new features by leveraging a microservices cloud architecture. New enhancements and bug fixes are delivered almost weekly without network disruption. Services scale up or down elastically when they're needed, eliminating the cost and complexity of monolithic hardware.

Plus, the Ray platform is inherently resilient as the failure of one service does not impact others.

Ray Access Point

The Ray enterprise-grade access point family consists of the Wi-Fi AP ranging from 300 Mbps to 2200 Mbps. These access points are all built on a real-time microservices platform and are managed by the Ray Cloud.

FEATURES AND BENEFITS

Effortless, Cloud-based Setup & Updates

Ray cloud, download its configuration, and joins the network. It self-optimizes, determining the ideal channel, transmit power, and client connection parameters. And it self-heals in the event of a switch or cable failure by meshing with nearby access points, providing continued internet service. Firmware updates are retrieved and installed automatically, ensuring that the network is always up to date with new features, bug fixes, and security updates.

Automatic RF Optimization / Automatic Cloud-based RF Optimization

Ray's sophisticated, automated RF optimization algorithms collect real-time, full-spectrum RF analysis data for threats and interference. This data is continuously fed back to the Ray cloud. The cloud then automatically tunes the Ray's channel selection and transmits power for optimal performance under the most challenging RF conditions. This ensures optimal performance under what could otherwise be challenging RF conditions.

Ray automatically assigns channel, width and power settings based on environment and client density.

It also provides airtime fairness and ensures that APs stay clear of all sources of RF interference to deliver reliable, highperformance WLANs. The Access Points can also be configured to provide dedicated air monitoring for spectrum analysis and wireless intrusion detection and determine the position of wireless stations.

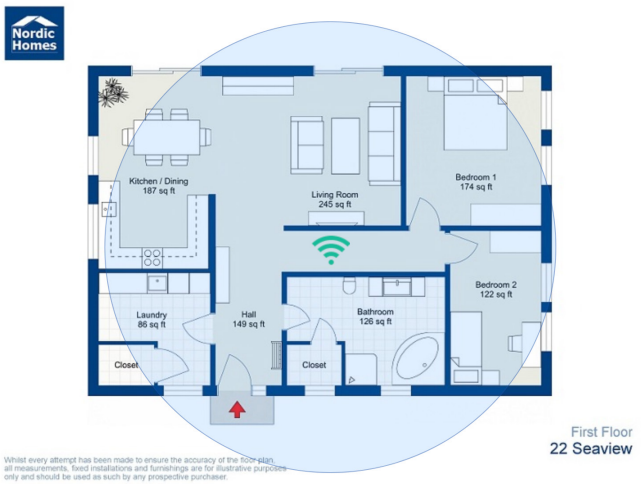
Dynamic Packet Capture

The Ray platform automatically captures packets and streams them to the cloud when major issues are detected. This saves IT time and effort and eliminates the need for truck rolls with sniffers.

Insights

Ray cloud service includes a base analytics capability for analysing up to 15 days of data which enables you to simplify the process of extracting network insights from data and analytics across your enterprise to properly align your support resources or introduce enhanced premium services.

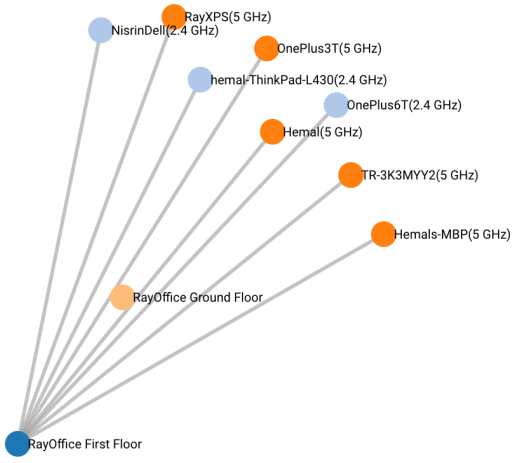
Drill down into the details of your network usage with highly granular traffic analytics. Extend your visibility into the physical world with built-in location analytics that enables you to view visitor numbers, dwell time, repeat visit rates, and track foot traffic trends.



Floor Plan & Wi-Fi RF Coverage

Integrated Enterprise Security And Guest Access

The Ray Platform features integrated, easy-to-use security technologies to provide secure connectivity for employees and guests alike. Advanced security features such as AES hardware-based encryption and WPA2-Enterprise authentication with 802.1X provide wirelike security while still being easy to configure. One-click guest isolation provides secure, Internet-only access for visitors. Our Enterprise policy feature enables group or device based, granular access policy control.



Network Chart

Application-aware Traffic Shaping

collect The Ray platform includes an integrated Layer 7 packet inspection, classification, and control engine, enabling you to set QoS policies based on traffic type and time. Prioritize your mission critical applications, while setting limits on recreational traffic, e.g., peer-to-peer and video streaming. Ray supports 250+ applications natively along with content categorization engines from a variety of industry leading security vendors.

Ready For IoT

Ray cloud is built as an IoT platform to natively support a variety of Internet of Things (IoT) products. The IoT platform can consume data from various IoT devices and manage them centrally reducing the requirement to setup a separate IoT gateway at customer premise.

Voice And Video Optimizations

Industry standard QoS features are easy to configure like Wireless Multi Media (WMM) Access Categories, 802.1p, and DSCP.

Mesh Networking

The Ray platform offers the most innovative Mesh networking which is Self Configuring, Self Healing, Self Managing and Self Defending. The technology dynamically selects the best Wi-Fi link for each device based on application, band and context, giving each one the bandwidth it needs for optimal performance.

Remote Working & Work From Home

Ray native VPN makes it easy to extend the corporate LAN to remote sites, without requiring all clients and devices to have client VPN software along with security.

Open Cloud API

The Ray AI cloud platform is 100% programmable, using open APIs, for full automation and seamless integration with complementary products including our AI for IT partners across LAN, WAN, security, engagement and asset location.

SPECIFICATIONS

AP	
Wi-Fi Standards	802.11 ax/ac/b/g/n
WI-FI	
AP Type	Indoor, dual radio, 5GHz and 2.4GHz 802.11ax 2x2 MIMO
Wi-Fi 6 (802.11ax) Features	› UL/DL-OFDMA › Target Wake Time (TWT) › Spatial Frequency Reuse (BSS Coloring)
Radio	› 2.4 GHz 802.11 ax/ac/b/g/n client access radio › 5 GHz 802.11 ax/ac/b/g/n client access radio
Max aggregate frame rate	› Max aggregate frame rate: 1.8 Gbps › 2.4GHz: 574 Mbps › 5GHz: 1201 Mbps
Supported data rates (Mbps)	› 802.11b: 1, 2, 5.5, 11 › 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 › 802.11n: 6.5 to 300 (MCS0 to MCS15, HT20 to HT40), 400 with 256-QAM › 802.11ac: 6.5 to 867 (MCS0 to MCS9, NSS = 1 to 2, VHT20 to VHT80), 1,083 with 1024-QAM › 802.11ax (2.4GHz): 3.6 to 574 (MCS0 to MCS11, NSS = 1 to 2, HE20 to HE40) › 802.11ax (5GHz): 3.6 to 1,201 (MCS0 to MCS11, NSS = 1 to 2, HE20 to HE80)
Supported frequency bands (country-specific restrictions apply)	› Supported frequency bands (country-specific restrictions apply): › 2.412-2.484 GHz › 5.150-5.250 GHz (UNII-1) › 5.250-5.350 GHZ (UNII-2) › 5.470-5.600, 5.660-5.725 GHz (UNII-2e) › 5.725-5.850 GHz (UNII-3)
Supported Channels	› Available channels dependent on configured regulatory domain › 2.4GHz: 1-13 › 5GHz: 36-64, 100-144, 149-165
MIMO	› 2x2 SU-MIMO › 2x2 MU-MIMO
Radio Chains and Spatial Streams	› 2x2:2 streams SU/MU MIMO 5GHz › 2x2:2 streams SU/MU MIMO 2.4GHz
Channelization	› 802.11n high-throughput (HT) support: HT20/40 › 802.11ac very high throughput (VHT) support: VHT20/40/80 › 802.11ax high efficiency (HE) support: HE20/40/80

Security	WEP, WPA, WPA2-PSK, WPA2-Enterprise with 802.1X, WPA3 - Personal, WPA3 - Enterprise, WPA3 - Enhanced Open (OWE) Personal PSK EAP-TLS, EAP-TTLS, EAP-MSCHAPv2, EAP-SIM
Wireless Security	Real-time WIDS/WIPS with instant alerting
Supported radio technologies	› 802.11b: Direct-sequence spread-spectrum (DSSS) › 802.11a/g/n/ac: Orthogonal frequency-division multiplexing (OFDM) › 802.11ax: Orthogonal frequency-division multiple access (OFDMA) with up to 8 resource units
Supported modulation types	› 802.11b: BPSK, QPSK, CCK › 802.11a/g/n: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM (proprietary extension) › 802.11ac: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM (proprietary extension)
Beamforming	Transmit Beamforming and Maximal Ratio Combining
Mesh	SON based Mesh
RADIO MANAGEMENT	
Antenna Optimization	Polarization Diversity with Maximal Ratio Combining (PDMRC)
Wi-Fi Channel Management	Intelligent Radio Resource Management (iRRM)
Client Density Management	› Adaptive Band Balancing › Client Load Balancing › Airtime Fairness › Airtime-based WLAN Prioritization
RF PERFORMANCE	
Antenna	› 2.4GHz omni-directional antennas with 3 dBi peak gain › 5GHz omni-directional antennas with 6 dBi peak gain
Peak Transmit Power (Tx port/chain + Combining gain)	› Maximum (aggregate, conducted total) transmit power (limited by local regulatory requirements) › 2.4 GHz band: 26 dBm › 5 GHz band: 25 dBm
Transmit power	› Configurable in increments of 0.5 dBm

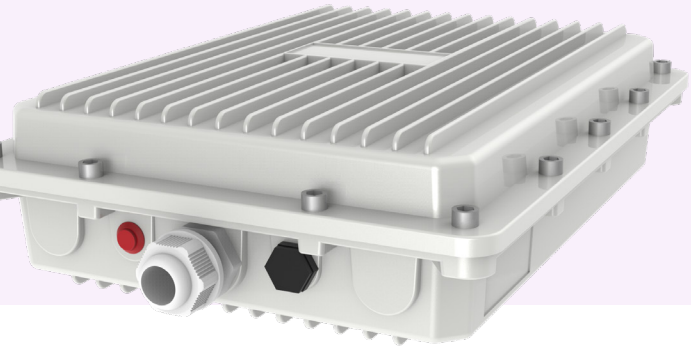
SPECIFICATIONS

2.4GHZ RECEIVE SENSITIVITY (dBm)							
HT20		HT40		VHT20		VHT40	
MCS0	MCS7	MCS0	MCS7	MCS0	MCS11	MCS0	MCS11
-92	-72dBm	-90dBm	-71dBm	-93dBm	-63dBm	-91dBm	-60dBm

5GHZ RECEIVE SENSITIVITY (dBm)							
HT20		HT40					
MCS0	MCS7	MCS0	MCS7				
-93dBm	-75dBm	-91dBm	-72dBm				
VHT20		VHT40		VHT80			
MCS0	MCS11	MCS0	MCS11	MCS0	MCS9		
-93dBm	-74dBm	-91dBm	-72dBm	-88dBm	-62dBm		
HE20		HE40		HE80			
MCS0	MCS11	MCS0	MCS11	MCS0	MCS11		
-93dBm	-63dBm	-90dBm	-60dBm	-87dBm	-56dBm		

2.4 GHZ RF Power		
MCS0	HT20	23±1dBm
MCS7	HT20	22±1dBm
MCS0	HT40	22±1dBm
MCS7	HT40	21±1dBm
MCS0	HE20	21±1dBm
MCS11	HE20	20±1dBm
MCS0	HE40	20±1dBm
MCS11	HE40	19±1dBm

5 GHZ RF Power		
MCS0	HT20	23±1dBm
MCS7	HT20	22±1dBm
MCS0	HT40	22±1dBm
MCS7	HT40	21±1dBm
MCS0	VHT20	22±1dBm
MCS9	VHT20	21±1dBm
MCS0	VHT40	22±1dBm
MCS9	VHT40	20±1dBm
MCS0	VHT80	20±1dBm
MCS9	VHT80	19±1dBm
MCS0	HE20	21±1dBm
MCS11	HE20	20±1dBm
MCS0	HE40	20±1dBm
MCS11	HE40	19±1dBm
MCS0	HE80	19±1dBm
MCS11	HE80	18±1dBm



SPECIFICATIONS

PERFORMANCE	
Maximum number of associated client devices	› Up to 256 associated client devices per radio › Up to 512 clients per AP
Maximum number of BSSIDs	› 16 BSSIDs per radio › Up to 31 per AP
NETWORKING	
IP	IPv4, IPv6, dual stack
VLAN	› 802.1Q (1 per BSSID or dynamic per user based on RADIUS) › VLAN Pooling › Port-based
802.1x	Authenticator & Supplicant
Tunnel	› L2TP › GRE/EoGRE › Openvpn › L2TP/IPSEC
Policy Management Tools	› Application Recognition and Control › Access Control Lists › Device Fingerprinting › Rate Limiting › Integrated Layer 7 firewall with mobile device policy management › Flexible guest access with device isolation
Quality of Service	› WMM Access Categories with DSCP and 802.1p support › QoS-based scheduling › Directed Multicast › L2/L3/L4 ACLs
Mobility	› 802.11r for fast Layer 2 roaming › Centralized Layer 3 roaming
PHYSICAL INTERFACES	
Ethernet (WAN)	1x 10/100/1000 BASE-T Ethernet (RJ45) Power over Ethernet (802.3af/at) with Category 5/5e/6 cable PD. · LLDP
Reset Button	Reset to the factory default settings
Indicators	One multi-color status LED

PHYSICAL	
Physical Size	› 45.5 cm (L) › 28. 5 cm (W) › 12.5 cm (H)
Weight	3.78 kg
Mounting	Mounts to walls and horizontal, vertical, and angled poles
ENVIRONMENT	
Operating temperature	-20~45 °C
Humidity	5%~95% non-condensing
Storage Temperature	-0~70 °C
Storage Humidity	5%~95% non-condensing
POWER	
DC Adaptor (12V, 2.0A, 24W)	16.58W
802.3at PoE+	18.71W
WARRANTY	
Limited Lifetime Warranty	
BOX CONTENTS	
	› Wall/Ceiling plate bracket › Ethernet Cable › Mounting Screws › Quick Start Guide
ORDERING INFORMATION	
	› RWHCC0N070: Ray RCA-C Cloud Managed 802.11ax AP › RAPCC0N078: Ray 802.3at Power over Ethernet Injector (XX = US/EU/UK/AU)

Ray Pte. Ltd.
ray.life | sales@ray.life
Suite #09-01, 20 Collyer Quay, Singapore 049319