OT-RG-AP850-I(V2)
Wi-Fi 6 Indoor AP Datasheet

Product Highlights

RG-AP850-I(V2)

- **Max 6.817Gbps (Total 10 Spatial Streams) with Concurrent Dual-Band Design**

- **Max 3G wired access capacity** (with dual 10G port design)

- **Max 1536 Client** connections

- **OFDMA, MU-MIMO and BSS Technology** for minimal wireless signal interference

- **IoT Ready:** Integrated with BLE module and one IoT extension port with PoE Out (passive)

- **AI Wireless Optimization:** one - click optimization powered by O-Tech Cloud technology

- **Hybrid Management:** support standalone AP to over thousands of APs with deployment options of appliances, private cloud or public cloud service

- **Mobility Management:** Free mobile app available for OT-RG-MACC-Base private cloud or O-Tech Public Cloud customers

Product Overview

OT-RG-AP850-I(V2) is our next-generation flagship ultra-high-performance Wi-Fi 6 enterprise AP designed for challenging high density indoor scenarios. With the built-in IoT module, enterprise customers can be ready for future IoT expansion to boost the operational efficiency and customer experience. The O-Tech OT-RG-AP850-I (V2) supports concurrent dual-band tri-radio, up to 10 total spatial streams and a maximum of 6.817Gbps wireless throughput.

Taking the advantage of Wi-Fi 6 OFDMA Modulation, MU-MIMO, and BSS Color Spatial Reuse, the OT-RG-AP850-I (V2) guarantees minimal signal interference and a maximum of 1536 client connections. Additionally, OT-RG-AP850-I (V2) provide three Ethernet ports with totally 3G wired access capacity, including two Gigabit Uplink port, and one LAN port for external IoT sensor connection with PoE out (passive) feature. All O-Tech enterprise Aps support hybrid management mode. Either deployed as standalone AP (Fat mode) or managed AP (Fit mode), the AP will detect the operation mode automatically without extra effort on firmware upgrade. For additional security and operation, we recommend the enterprise customers to choose either one of the below wireless controller options depending on the functionality and capacity:

● Hybrid Cloud: OT-RG-WS6000 Series Wireless Controller (on-premises) Plus Cloud Management (Optional) – targeted for enterprise office and campus with single or multiple sites and high-density AP deployment. The controller appliances are installed at the customer's site with fully integrated wireless management and authentication feature, supporting up to 5000 APs per cluster. Optionally, the cloud management platform allows for value-added features like centralized device configuration and monitoring, AI radio (RF) optimization, reporting, etc. Product Highlights Product Overview.

● Private Cloud: OT-RG-MACC Software Controller – targeted for ISP/MSP, government, or multi-national corporation (MNC) with diverse customer sites and demand on integration of their billing, portal and security systems. The OT-RG-MACC supports unified device management, not only for wireless access points, but also switches and gateway devices

Product Features

High Scalability Design

With the design of 3 Ethernet ports, the OT-RG-AP850-I (V2) provide totally 3G wired access capacity, including two Gigabit Uplink Port and one Gigabit LAN port for external IoT sensor connection with PoE out (passive) feature.

Wi-Fi 6 Technology

1024 QAM High-Speed Access

The OT-RG-AP850-I (V2) adopts the tri-radio dual-band design. With the next-generation 802.11ax, if tri-radio is enabled concurrently, the high-speed Wi-Fi can reach 6.817Gbps, offering the true high-speed experience.

OFDMA High-Density User Access

OT-RG-AP850-I (V2) supports OFDMA of 802.11ax, which divides the WLAN channel into a plurality of narrower sub channels, with each user occupying one or more sub channels. By scheduling multiple users to receive and send packets concurrently via the AP, user competition and back-off can be reduced, thereby reducing network latency and improving network efficiency. In a high-density deployment environment, the average rate per user is increased to four times of 802.11ac.

Spatial Reuse with BSS Color

The OT-RG-AP850-I (V2) supports spatial reuse with basic service set (BSS) color of 802.11ax to identify the BSSs of different WLANs in the network by different coloring (BSS color), and further divide them into internal and external BSS. Different packet receiving and sending thresholds can be maintained. When receiving packets, BSS coloring is used to quickly identify the packet of the external BSS. If the signal strength is lower than the receiving threshold of the external BSS, the packet will be ignored. The transmission of the internal BSS packet will be not affected. This technology can implement channel reuse in a high-density scenario, greatly reducing the impact of co-channel interference for the actual network deployment

TWT (Target Wake Time)

Target wake time (TWT) is used to help minimize contention between clients and reduce the amount of time a client in power save mode to be awake. Energy consumption is reduced by up to 70% of the battery consumption, thereby improving battery life.

AI Wireless Optimization
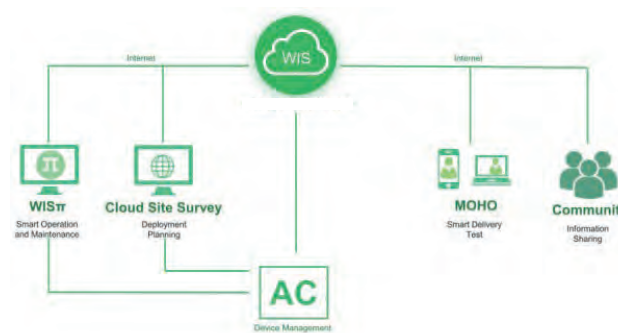
O-Tech WIS is an AI-based intelligent services platform designed for WiFi optimization on the cloud. Seamlessly integrated with O-Tech hardware AC on premise, it helps to streamline WiFi deployment planning, delivery testing as well as operation diagnosis. With WIS you can achieve:

- Cloud site survey for deployment planning

- Smart mobile apps for provisioning

- Visualize the user experience

- One-click WiFi optimization

- and it is FREE!
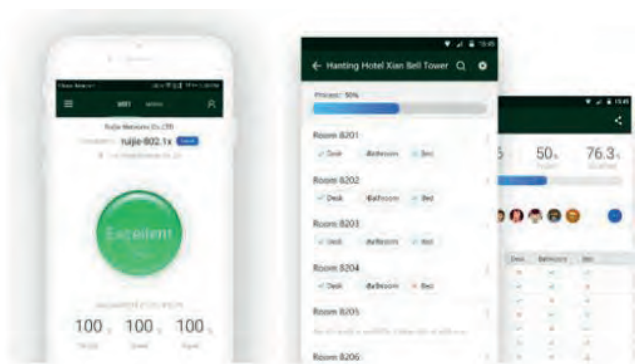
O-Tech MOHO App for WiFi Testing

As part of the O-Tech WIS solution, O-Tech MOHO is a mobile app designed to carry out WiFi testing at your fingertips. Comprehensive testing tools like collaborative test, speed test, multi-point test and etc. are available in the O-Tech MOHO app, which can be freely downloaded from the iOS App Store and Google Play.

WISπ One-click Optimization

Another key feature from O-Tech WIS is that WISπ provides one-click optimization by using the AI-based machine learning automated correlation based on the real-time information gathered from your WiFi network. It truly optimizes the entire WiFi network performance by providing the best suitable configuration fine-tuning by just a click. For more details, please visit O-Tech WIS official website at www.terzian.com.br

Industry-leading Local Forwarding Technology.
Employing an industry-leading local forwarding technology, the OT-RG-AP850-I (V2) breaks through the limitation of traffic bottleneck of wireless controllers. In collaboration with the OT-RG-WS Wireless Controller Series, users can flexibly pre-

configure the data forwarding mode for OT-RG-AP850-I (V2). The AP also controls whether the data will be forwarded via the wireless controller according to the SSID or user VLAN, or directly sent to the wired network for data exchange. The local forwarding technology can classify and forward delay-sensitive data which requires real-time transmission through the wired network to greatly alleviate the traffic pressure on the wireless controllers and better meet the high traffic transmission requirements of the 802.11ax network.

Abundant QoS Features
The OT-RG-AP850-I (V2) supports a wide variety of QoS policies. For example, it provides WLAN/AP/STA-based bandwidth limitations and Wi-Fi multimedia (WMM) which defines different priorities for different service data. The OT-RG-AP850-I (V2) realizes timely and quantitative transmission of audio and video, and guarantees smooth operation of multi-media applications. With the multicast-to-unicast technology, the OT-RG-AP850-I (V2) resolves the video lagging problem due to packet loss or high latency in the wireless network, and highly enhances user experience of the multicast video services of wireless network.

Comprehensive Security Protection

Secure User Access

The OT-RG-AP850-I (V2) supports a wide range of authentication methods such as web, 802.1x, PPSK (one-time dynamic password for staff), voucher/ access code, user account, and social authentication. Complying with the standard network access control, it offers a set of control policies in terms of user access, authorization, equipment compliance check, network behavior monitoring, network attack prevention, etc. All these control features guarantee high network security for authenticated users.

Various enterprise authentication options for guests and employees

Personal Pre-shared Keys (PPSK)

Simple and Effective Wireless Security Practice

Traditional Pre-shared Keys (PSK) are shared by all users on a WLAN, giving it potential risk of PSK leak-out. Ruijie Personal PSK (PPSK) is an easy-to-setup wireless authentication method with enterprise-grade security level. Credentials can be created and revoked individually. Each PPSK can also be tied to a unique user/ machine. With PPSK, you can enjoy the benefits of:

● High security by using different passwords for each user and device for individual SSID

● Simple deployment with batch account creation

● Ease of use, offering the same experience as WPA / WPA2-PSK

● Out-of-box feature in AC

● No additional AAA required

Virtual AP Technology

With the virtual AP technology, the OT-RG-AP850-I (V2) supports up to 48 ESSIDs. Network administrator can separately encrypt and isolate VLANs or subnets of the same SSID, thereby enabling specified authentication mode and encryption mechanism for each SSID

Comprehensive Wireless Protection

Coupled with OT-RG-WS6000 Series or OT-RG-MACC Wireless Controllers, the OT-RG-AP850-I (V2) offers a breadth of security features including WIDS (Wireless Intrusion Detection System), RF interference tracking, rogue AP containment, anti-ARP spoofing, DHCP protection and beyond for all-around security protection.

Hybrid Management

Flexible Management Options

All O-Tech enterprise APs support hybrid management mode. Either deployed as standalone AP (Fat mode) or managed AP (Fit and MACC mode), the AP will detect the operation mode automatically without extra effort on firmware upgrade. For additional security and operation, we recommend the enterprise customers to choose either one of below wireless controller options depending on the functionality and capacity:

Web and CLI Management Interface

The OT-RG-AP850-I (V2) provides both web and command-line interface (CLI) for the AP and wireless controller, suitable for application in different scenarios. CLI design allows the networking professionals to perform fast troubleshooting, bulk configuration import or modification. Web GUI management should be perfect for the majority of general scenarios to plan, operate and maintain the wireless network without the need of customization.

Mobile Monitoring and Optimizing

O-Tech is committed to providing more simple networking experience for customers by launching a free mobile app (namely O-Tech Cloud) for unified device lifecycle management, which is not only for O-Tech access points, but also for switches and security gateways, from provisioning,

Technical Specifications

Model	OT-RG-AP850-I (V2)
Hardware	
RF	Tri-radio and dual-band: Radio1: 2.4G 11ax: 4*4 MIMO Radio2: 5G 11ac: 2*2 MIMO Radio3: 5G 11ax: 4*4 MIMO
Transmission Protocol	Tri-radio and dual-band frequency cards support concurrent 802.11ax and 802.11a/b/g/n/ac.
Operating Bands	802.11b/g/n/ax: 2.4GHz to 2.483GHz 802.11a/n/ac/ax: 5.150GHz to 5.350GHz, 5.47GHz to 5.725GHz, 5.725GHz to 5.850GHz (Country-specific)
Spatial Streams	Up to 10 streams 2.4G: 4 streams 5.2G: 4 streams 5.8G: 2 streams
Max Throughput	Up to 6.817Gbps Radio1: 2.4Gbps 1.15Gbps Radio2: 5Gbps 0.867Gbps Radio3: 5Gbps 4.8Gbps
Modulation	OFDM: BPSK@6/9Mbps, QPSK@12/18Mbps, 16-QAM@24Mbps, 64-QAM@48/54Mbps DSSS: DBPSK@1Mbps, DQPSK@2Mbps, and CCK@5.5/11Mbps MIMO-OFDM: BPSK, QPSK, 16QAM , 64QAM, 256QAM and 1024QAM OFDMA
Receive Sensitivity	11b: -96dBm(1Mbps), -93dBm(5Mbps), -89dBm(11Mbps) 11a/g: -91dBm(6Mbps), -85dBm(24Mbps), -80dBm(36Mbps), -74dBm(54Mbps) 11n: -90dBm(MCS0), -70dBm(MCS7), -89dBm(MCS8), -68dBm(MCS15) 11ac: 20MHz: -88dBm(MCS0), -63dBm(MCS9) 11ac: 40MHz: -85dBm(MCS0), -60dBm(MCS9) 11ac: 80MHz: -85dBm(MCS0), -60dBm(MCS9) 11ac: 160MHz: -80dBm(MCS0), -55dBm(MCS9) 11ax: 80MHz: -82dBm(MCS0), -57dBm(MCS9), -52dBm(MCS11) 11ax: 160MHz: -80dBm(MCS0), -49dBm(MCS11)
Transmit Power	≤100mw(20dBm) (Country-specific)
Transmit Power Adjustment	1dBm
Dimensions (W x D x H)	220 mm x 220 mm x 48.85 mm (8.7 in. x 8.7 in. x 1.9 in.)
Antenna	Built-in smart antenna
Weight	Host ≤ 1.3 kg (2.87 lbs)
Service Port	Three 10/100/1000BASE-T Ethernet uplink ports: LAN 1 and LAN 2 ports are PoE/PoE+ capable LAN 3 port supports power supply to Ruijie's IoT modules with a maximum output of 12 V and 1.5 W One USB2.0 port
Management Port	One Console port

| USB Port	Support USB2.0	
Reset Button	Support	
Anti-Theft Lock	Support	
LED Indicator	One LED (red, green, blue and orange light for solid mode or blinking mode)	
Power Supply	Adapter: DC 48 V/0.6 A (optional) PoE: IEEE 802.3af/802.3at-compliant (compatible). When receiving 802.3af PoE power supply, the AP comes up normally, and its operation in Radio 1 and iBeacon is not affected. But LAN3 and the USB port cannot provide power to other devices.	
Power Consumption	＜25.5W	
Bluetooth	5.0； Bluetooth 5.0 (BLE) and Apple iBeacon protocol are supported. Support can also be expanded to Bluetooth applications, such as Shake. Zigbee and RFID can be supported by software upgrade.	
Environment	Operating: –10°C to 50°C (14°F to 122°F)	
	Storage: –40°C to 70°C (–40°F to 158°F)	
	Operating: 5% to 95% RH (Non-condensing)	
	Operating: 5% to 95% RH (Non-condensing)	
Installation	Wall mounting and celling mounting	
IP Rating	IP41	
Safety Standards	GB4943 EN/IEC 60950-1	
EMC Standards	GB9254 EN301 489	
Health	EN 62311	
Radio	EN300 328、EN301 893 China Radio Transmission Equipment Type Approval Certificate EN300 328 EN301 893	
Software		
WLAN	Max. No. of STA	1,536
	Recommended No. of STA	120
	Virtual AP	Up to 48 virtual APs/Up to 16 virtual APs per radio
	SSID Hiding	Support
	SSID-based Authentication and Encryption Mechanisms and VLAN Attributes	Support
	Remote Intelligent Perception Technology (RIPT)	Support
	Terminal Recognition Technology	Support
	Smart Load Balancing based on STA No. or Traffic	Support
	Limit on STA No.	Support SSID-based limit on STA no.
		Support F card-based limit on STA no.
	Bandwidth Limit	Support speed limit based on STA/SSID/AP
Security	PSK and Web Authentication	Support

	Data Encryption	Support WPA(TKIP), WPA-PSK, WPA2(AES), WPA3, WEP (64/128 bit)
	Authentication Via WeChat	Support
	Visitor Authentication Via QR Code	Support
	Authentication via SMS	Support
	Seamless Authentication	Support
	Frame Filtering	Support whitelist, blacklist, and dynamic blacklist
	User Isolation	Support
	Rogue AP Detection and Countermeasure	Support
	Dynamic ACL Assignment	Support
	RADIUS Protocol	Support
	CPU Protection Policy (CPP)	Support
	Network Foundation Protection Policy (NFPP)	Support
Routing and Switching	IPv4 Address	Support Static IP Address or DHCP distribution
	Multicast	Support multicast-to-unicast conversion
Management and Maintenance	Supported wireless LAN controllers	O-Tech WS Series Wireless Controller O-Tech MACC-Base Software Controller O-Tech Cloud (Public Cloud)
	Management protocol	Telnet, SSH, TFTP, Web
	Wireless Intelligent AI Optimization Service (WIS)	Support
	SNMP	SNMPV1, V2c, V3
	Syslog/Debug	Support
	FAT/FIT/MACC mode switching	Factory default firmware supports FAT (standalone) or FIT mode (WS controller) or MACC mode (Ruijie MACC-Base or Ruijie Cloud) management

Application Scenarios

Private Cloud for ISP/MSP & Government

For enterprises with high demand on security, billing and portal system integration, along with diverse customer sites, the O-Tech OT-RG-MACC private cloud solution is recommended, especially for ISP/MSP and government sector.

The O-Tech OT-RG-MACC (Managed @ Cloud Center) is a revolutionary cloud management platform which supports unified management and configuration of APs, switches and gateway devices, as well as value-added marketing features and survey, etc. The OT-RG-MACC is designed for education, retail chain stores, shopping malls, hotels, transportation, small and medium-sized enterprises, network operators and settings alike. The OT-RG-MACC is consisted of various feature modules, such as management, marketing, AAA (authentication, authorization and accounting) and diagnostic tools, etc. The platform supports multi-tenancy feature, which is an ideal choice for ISP to deliver cost-effective managed service solution for massive SME customers. OT-RG-MACC Private Cloud typical solution architecture:
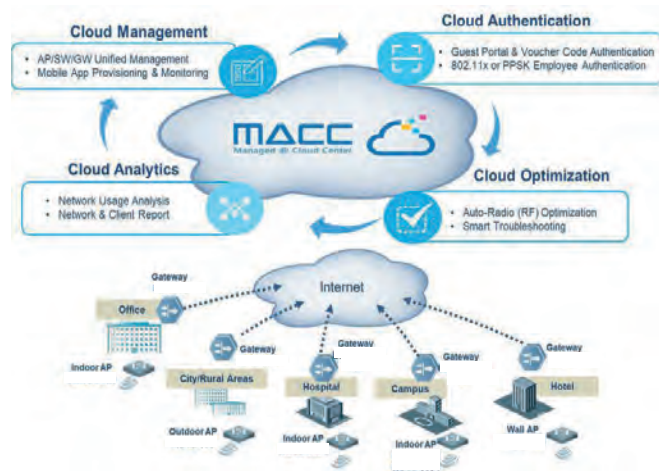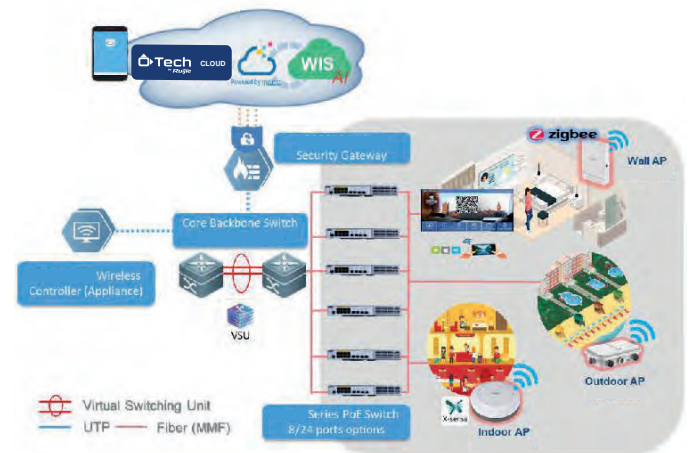

Solution Benefits:

- Support multi-tenant management

- Support cloud computing virtualization deployment

- Support unified networking device management, including access points, switches and gateway devices

- Support mobile app management

- Open API available for 3rd party integration

Hybrid Cloud for Enterprise & Campus

For enterprise office and campus with single or multiple sites and high-density AP deployment, O-Tech OT-RG-WS6000 Series Wireless Controllers (on-premises) plus cloud management (optional) is recommended. The wireless controller appliances are installed at the customer's site with fully integrated wireless management and authentication feature, supporting up to 5000 APs per cluster. Optionally, the cloud management platform allows for value-added features like centralized device configuration and monitoring, AI radio (RF) optimization, reporting, etc.

Solution Benefits:

- Support centralized device management and reporting service by O-Tech Cloud (optional)

- Support ultra-seamless roaming management

- Support one-click AI radio (RF) optimization powered by WIS engine

- High performance and security with all user authentication and traffic forwarding handled locally

- Support flexible authentication options, such as 802.1x, PPSK employee authentication, guest hotspot and voucher access code, etc.

- Support all series of O-Tech wireless access points

Ordering Information

	Description	Remarks
OT-RG-AP850-I(V2)	Tri-radio and dual-band AP supporting 802.11ax as well as 802.11a/b/g/n/ac; up to 10 spatial streams supported with max throughput of 6.817Gbps; Fat/Fit mode switchover available; 802.3at and local power supply supported (adapters need to be purchased separately)	Mandatory

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