RG-SAP185-SP-W

Wi-Fi 6 Dual-Radio Advanced Wall Plate Access Point

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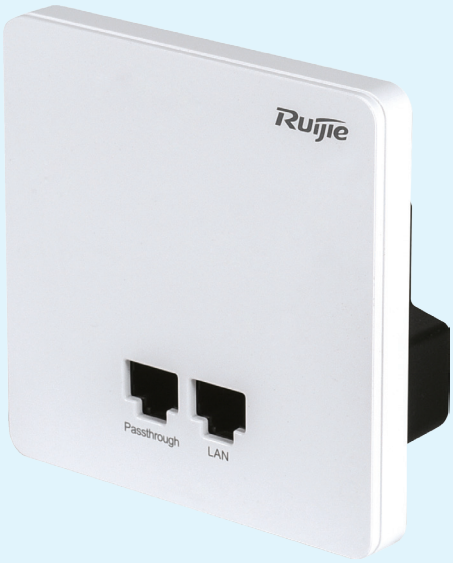
Product Pictures



Product Overview

The RG-SAP185-SP-W is a Wi-Fi 6 wireless access point that delivers dual radios, high performance, and enterprise-grade encryption. Due to the hybrid cloud management mode and high-density access design, it is suitable for flexible deployment in high-quality network scenarios, such as classroom, dormitory, and office scenarios in the education industry, office scenarios of small- and medium-sized enterprises, outpatient clinics and office scenarios in the medical industry, and hotel apartments.

Product Highlights

Cost-effectiveness and High Speed

- Dual-band design (2.4 GHz + 5 GHz), four spatial streams, 1024-Quadrature Amplitude Modulation (QAM) high-speed access, and up to 2.976 Gbps peak data rate, realizing high-speed wireless access experience.
- Orthogonal Frequency Division Multiple Access (OFDMA), Multi-User Multiple-Input Multiple-Output (MU-MIMO), and QoS transmission optimization technologies, improving the average user speed in high-density deployment and access scenarios
- RF power adjustment and intelligent channel allocation to solve the problems such as co-channel interference and adjacent channel interference, thereby improving network transmission efficiency and stability

Intelligent networking

- Local and cloud management modes, and intelligent wireless network optimization, reducing TCO and maximizing ROI
- Radio Resource Management (RRM) technology, avoiding signal interference between APs and between APs and interference devices, and improving user experience
- Intelligent local forwarding technology used to forward data that is sensitive to delay and requires real-time high-performance transmission through a wired network, greatly reducing the traffic pressure on ACs

High Security

- Encrypted authentication to enhance data security, including web authentication, 802.1X authentication, MAC address authentication, and local authentication; free cloud-based authentication; multiple efficient and convenient authentication modes such as MAB authentication, and SMS- and QR code-based authentication when the AP is used with Ruijie's authentication system or multi-service AC
- Network Foundation Protection Policy (NFPP) used to rate-limit or isolate attack flows to restore the network
- Dynamic Frequency Selection (DFS), optimizing the use of available RF spectrum to prevent radar channel interference
- Cyclic Delay/Shift Diversity (CDD/CSD), Maximum Ratio Combining (MRC), Space-Time Block Coding (STBC), and Low-Density Parity Check (LDPC), improving the signal quality, signal receiving, and reliability and performance of data transmission
- Multicast-to-unicast technology to improve network security and reliability

Applicable Scenarios

Higher Education

Independent Office

For independent offices, deploying Wi-Fi can greatly enhance office efficiency by enabling easy access to network resources for the staff.

Student Dormitory

Deploying Wi-Fi in student dormitories enables easy and quick access for students and faculty to online resources such as e-books, academic papers, games, and entertainment. This facilitates their research, studies, and leisure activities.

Healthcare

Outpatient Service

The Wi-Fi network provides a mobile office environment for medical staff. Medical staff can use mobile devices to view patient information in real time, which significantly improves treatment efficiency. Patients can access relevant medical information through smart devices online, resulting in improved satisfaction.

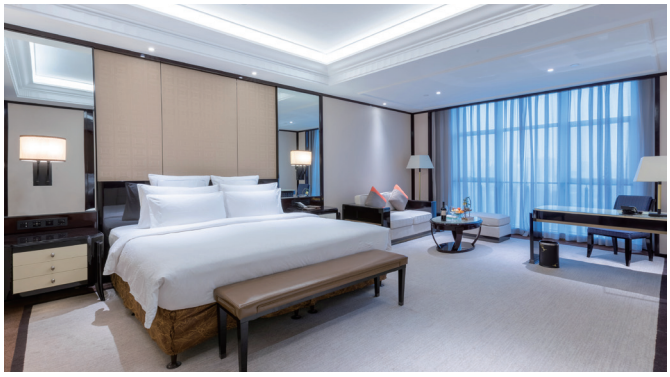
Remote Monitoring and Management of Medical Devices

With Wi-Fi deployment, remote monitoring and management of medical devices become possible. Wireless medical devices such as ECG monitors and blood pressure monitors can transmit patient data in real time, thereby improving information security. Additionally, these wireless medical devices can be easily maintained and upgraded, resulting in cost reductions.

Hotel Apartments

Chain Hotels

By deploying a Wi-Fi network, travelers can enjoy convenient, high-speed Internet access to ensure a fulfilling stay.



Product Features

Multi-scenario Adaptability

The RG-SAP185-SP-W is a dual-band wall-mounted wireless access point designed for higher education, government, general education, finance, business, and other indoor scenarios. It can be deployed in a variety of scenarios to meet various service needs.

Security and Scalability

The RG-SAP150-SP-W excels in wireless network security, RF control, mobile access, QoS assurance, and seamless roaming. With Ruijie wireless controllers, it can realize wireless user data forwarding, security, and access control to further meet service needs.

High-speed Access and Compatibility

The RG-SAP185-SP-W supports a variety of wireless protocols, including 802.11ax, 802.11ac Wave2 and 802.11n. With hardware-independent dual-radio design, the RG-SAP185-SP-W can provide an access rate of up to 2.976 Gbps. It provides high-speed wireless access, and is compatible with various devices, facilitating interworking.

Flexible Deployment and Power Supply

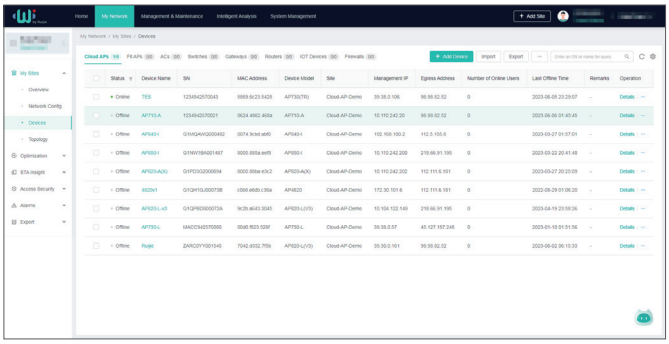
The RG-SAP150-SP-W supports PoE. It can be installed in the 86 mm x 86 mm junction box, and the thickness of the plane projection after installation does not exceed 10 mm considering simple and beautiful appearance. This makes the RG-SAP150-SP-W suitable for office, dormitory, hotel apartment, and other scenarios.

Solution Scalability Capabilities

Ruijie WIS Cloud Management Network Solution (WIS for short) provides full-lifecycle cloud management network services covering network procurement, planning, deployment, acceptance, and O&M. When the AP connects to WIS, it can meet various needs in multiple scenarios including planning, deployment, acceptance, and operation through cloud management, cloud O&M, cloud authentication, and other value-added services provided by WIS.

Network-wide Cloud Management

WIS supports integrated management and control of various types of devices including APs, ACs, switches, gateways, and routers. It supports remote O&M management operations such as adding or batch importing of multi-branch network devices, online status monitoring, configuration delivery, upgrade, restart, configuration backup, and restoration. It supports network-wide topology auto-discovery and topology status monitoring.



Wireless Network Visualization

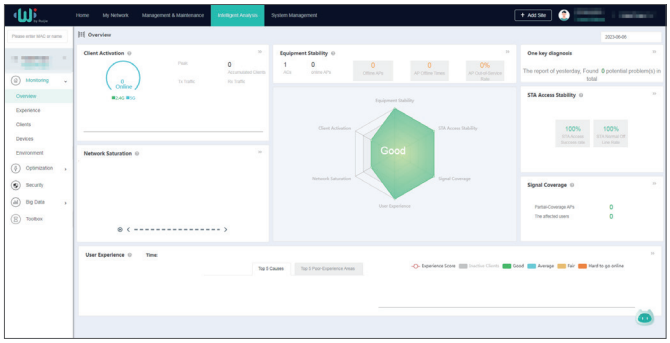
The overview function module of WIS provides a comprehensive view of the network running status from the perspective of overview, experience, users, devices,

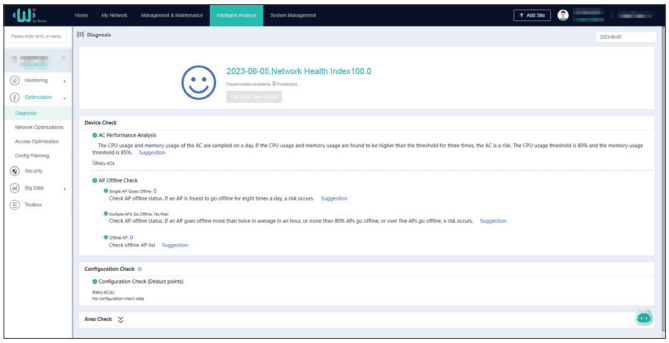
and environment. The network running information includes the following items:

- Network basic information: device stability, device health, user stability, network signal coverage, and network association.
- User usage: user activity (network dependency), and user online experience and analysis.
- Network saturation: network capacity usage and channel usage.

Intelligent Network Diagnosis

With WIS, wireless network diagnosis and health index assessment can be completed in just one click, providing test results for each item. The health index provided by WIS enables you to rapidly assess the state of your live network. WIS can locate faulty areas, APs, and STAs, and provides potential risks and corresponding optimization suggestions.





Specifications

Hardware Specifications

Hardware Specifications	RG-SAP185-SP-W
802.11n	Four spatial streams • Radio 1 – 2.4 GHz: 2x2 MIMO, two spatial streams • Radio 2 – 5 GHz: 2x2 MIMO, two spatial streams Channels: • Radio 1 – 2.4 GHz: 20 MHz and 40 MHz • Radio 2 – 5 GHz: 20 MHz and 40 MHz Combined peak data rate: 600 Mbps • Radio 1 – 2.4 GHz: 6.5 Mbps to 300 Mbps (MCS0 to MCS15) • Radio 2 – 5 GHz: 6.5 Mbps to 300 Mbps (MCS0 to MCS15) • Radio technologies: Orthogonal Frequency-Division Multiplexing (OFDM) Modulation types: BPSK, QPSK, 16-QAM, 64-QAM Packet aggregation: • Aggregate MAC Protocol Data Unit (A-MPDU) • Aggregate MAC Service Data Unit (A-MSDU) Dynamic Frequency Selection (DFS) Cyclic Delay/Shift Diversity (CDD/CSD) Maximum Ratio Combining (MRC) Space-Time Block Coding (STBC) Low-Density Parity Check (LDPC) Transmit beam-forming (TxBF)

Hardware Specifications	RG-SAP185-SP-W
802.11ac	Two spatial streams • Radio 2 – 5 GHz: 2x2 MIMO, two spatial streams Channels: • Radio 2 – 5 GHz: 20 MHz, 40 MHz, and 80 MHz Combined peak data rate: 1.733 Gbps • Radio 2 – 5 GHz: 6.5 Mbps to 1.733 Gbps (MCS0 to MCS9) • Radio technologies: Orthogonal Frequency-Division Multiplexing (OFDM) Modulation types: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM Packet aggregation: • Aggregate MAC Protocol Data Unit (A-MPDU) • Aggregate MAC Service Data Unit (A-MSDU) Dynamic Frequency Selection (DFS) Cyclic Delay/Shift Diversity (CDD/CSD) Maximum Ratio Combining (MRC) Space-Time Block Coding (STBC) Low-Density Parity Check (LDPC) Transmit beam-forming (TxBF)
802.11ax	Four spatial streams • Radio 1 – 2.4 GHz: 2x2 uplink/downlink MU-MIMO, two spatial streams • Radio 2 – 5 GHz: 2x2 uplink/downlink MU-MIMO, two spatial streams Channels: • Radio 1 – 2.4 GHz: 20 MHz and 40 MHz • Radio 2 – 5 GHz: 20 MHz, 40 MHz, 80 MHz and 160 MHz Combined peak data rate: 2.976 Gbps: • Radio 1 – 2.4 GHz: 8.6 Mbps to 574 Mbps (MCS0 to MCS11) • Radio 2 – 5 GHz: 8.6 Mbps to 2.402 Gbps (MCS0 to MCS11) • Radio technologies: uplink/downlink Orthogonal Frequency-Division Multiple Access (OFDMA) Modulation types: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM Packet aggregation: • Aggregate MAC Protocol Data Unit (A-MPDU) • Aggregate MAC Service Data Unit (A-MSDU) Dynamic Frequency Selection (DFS) Cyclic Delay/Shift Diversity (CDD/CSD) Maximum Ratio Combining (MRC) Space-Time Block Coding (STBC) Low-Density Parity Check (LDPC) Transmit beam-forming (TxBF) WPA3
Antenna	Wi-Fi • 2.4 GHz: two built-in smart antennas with the peak gain of 3 dBi • 5 GHz: two built-in smart antennas with the peak gain of 3 dBi
Port	Uplink: 1 x 10/100/1000Base-T auto-negotiation RJ45 Ethernet port, 802.3af/at-compliant PoE One pass-through port Downlink: 1 x 10/100/1000Base-T auto-negotiation RJ45 Ethernet ports One pass-through port

Hardware Specifications	RG-SAP185-SP-W
Status LED	1 x multi-color system status LED • AP power-on status • Software initialization status and upgrade status • CAPWAP tunnel timeout
Button	1 x Reset button Press the button for shorter than 2 seconds. Then the device restarts. Press the button for longer than 5 seconds. Then the device restores to factory settings.
Dimensions (W x D x H)	Main unit: 86 mm × 86 mm × 40 mm (3.39 in ×3.39 in × 1.58 in) Shipping: 125 mm × 115 mm × 60 mm (4.93 in × 4.53 in × 2.37 in)
Weight	Main unit: 0.21 kg (0.47 lbs) Shipping: 0.24 kg (0.53 lbs)
Mounting	Mounting in 86 mm x 86 mm junction box
Input power supply	PoE input over the WAN port: compliance with 802.3 af/at (PoE)
Power consumption	8 W
Environment	Storage temperature: –40°C to +70°C (–40°F to +158°F) Storage humidity: 5% RH to 95% RH (non-condensing) Storage altitude: < 5,000 m (16,404.20 ft.) at 25°C (77°F) Operating temperature: 0°C to 40°C (32°F to 104°F) Operating humidity: 5% RH to 95% RH (non-condensing) Operating altitude: < 3,000 m (9,842.52 ft.) at 40°C (104°F) At an altitude between 3,000 m (9,842.52 ft.) and 5,000 m (16,404.20 ft.), every time the altitude increases by 166 m (546 ft.), the maximum temperature decreases by 1°C (1.8°F).
Mean Time Between Failure (MTBF)	200,000 hours (22 years) at the operating temperature of 25°C (77°F)
System memory	256 MB DRAM, 128 MB flash
Transmit power	2.4 GHz: Max. transmit power: 20 dBm (100 mW) 5 GHz: Max. transmit power: 20 dBm (100 mW) Note: The transmit power adjusted in percentage. The transmit power is limited by local regulatory requirements.

The following table lists the radio frequency performance of Wi-Fi including different frequency bands, protocols, and date rates. It is country-specific, and Ruijie Networks reserves the right of interpretation.

Radio Frequency Performance	RG-SAP185-SP-W		
Frequency Band and Protocol	Data Rate	Max. Transmit Power per Transmit Chain	Max. Receive Sensitivity per Receive Chain
2.4GHz 802.11b	1 Mbps	18 dBm	–91 dBm
	2 Mbps	17 dBm	–91 dBm
	5.5 Mbps	16 dBm	–90 dBm
	11 Mbps	15 dBm	–87 dBm
2.4GHz 802.11g	6 Mbps	18 dBm	–89 dBm
	24 Mbps	16 dBm	–82 dBm
	36 Mbps	16 dBm	–78 dBm
	54 Mbps	15 dBm	–72 dBm
2.4GHz 802.11n (HT20)	MCS0	18 dBm	–85 dBm
	MCS7	15 dBm	–67 dBm
2.4GHz 802.11n (HT40)	MCS0	18 dBm	–82 dBm
	MCS7	15 dBm	–64 dBm
2.4GHz 802.11ax (HE20)	MCS0	18 dBm	–85 dBm
	MCS11	12 dBm	–58 dBm
2.4GHz 802.11ax (HE40)	MCS0	18 dBm	–82 dBm
	MCS11	12 dBm	–54 dBm
5GHz 802.11a	6 Mbps	18 dBm	–89 dBm
	24 Mbps	16 dBm	–82 dBm
	36 Mbps	16 dBm	–78 dBm
	54 Mbps	15 dBm	–72 dBm
5GHz 802.11n (HT20)	MCS0	18 dBm	–85 dBm
	MCS7	15 dBm	–67 dBm

Radio Frequency Performance	RG-SAP185-SP-W		
Frequency Band and Protocol	Data Rate	Max. Transmit Power per Transmit Chain	Max. Receive Sensitivity per Receive Chain
5GHz 802.11n (HT40)	MCS0	18 dBm	–82 dBm
	MCS7	15 dBm	–64 dBm
5GHz 802.11ac (VHT20)	MCS0	18 dBm	–85 dBm
	MCS9	15 dBm	–60 dBm
5GHz 802.11ac (VHT40)	MCS0	18 dBm	–82 dBm
	MCS9	15 dBm	–57 dBm
5GHz 802.11ac (VHT80)	MCS0	18 dBm	–79 dBm
	MCS9	13 dBm	–53 dBm
5GHz 802.11ax (HE20)	MCS0	18 dBm	–85 dBm
	MCS11	12 dBm	–58 dBm
5GHz 802.11ax (HE40)	MCS0	18 dBm	–82 dBm
	MCS11	12 dBm	–54 dBm
5GHz 802.11ax (HE80)	MCS0	18 dBm	–79 dBm
	MCS11	12 dBm	–52 dBm

Software Specifications

Basic Functions

Basic Function	RG-SAP185-SP-W
Applicable software version	RGOS 11.9(6)W3B7 or later
WLAN	
Max. number of associated STAs	512 (up to 256 STAs per radio)
Max. number of BSSIDs	16 (up to 8 BSSIDs per radio)
Max. number of WLAN IDs	8

Basic Function	RG-SAP185-SP-W
STA management	SSID hiding Each SSID can be configured with the authentication mode, encryption mechanism, and VLAN attributes independently. Remote Intelligent Perception Technology (RIPT) Intelligent STA identification technology Intelligent load balancing based on the STA quantity or traffic Rate set settings
STA limiting	SSID-based STA limiting Radio-based STA limiting
Bandwidth limiting	STA/SSID/AP-based rate limiting
Max. number of WLAN IDs	8
STA management	SSID hiding Each SSID can be configured with the authentication mode, encryption mechanism, and VLAN attributes independently. Remote Intelligent Perception Technology (RIPT) Intelligent STA identification technology Intelligent load balancing based on the STA quantity or traffic Rate set settings
STA limiting	SSID-based STA limiting Radio-based STA limiting
Bandwidth limiting	STA/SSID/AP-based rate limiting
CAPWAP	IPv4/IPv6 CAPWAP Layer 2 and Layer 3 topology between an AP and an AC An AP can automatically discover the accessible AC. An AP can be automatically upgraded through the AC. An AP can automatically download the configuration file from the AC. CAPWAP through NAT
Data forwarding	Centralized and local forwarding
Wireless roaming	Layer 2 and Layer 3 roaming
Wireless locating	MU and TAG device locating
Security and Authentication	
Authentication and encryption	Remote Authentication Dial-In User Service (RADIUS) PSK and web authentication QR code-based guest authentication, SMS authentication, and MAC address bypass (MAB) authentication Data encryption: WEP (64/128 bits), WPA (TKIP), WPA-PSK, WPA2 (AES), WPA3-Enterprise, WPA3-Individual

Basic Function	RG-SAP185-SP-W
Data frame filtering	Allowlist, static blocklist, and dynamic blocklist
WIDS	Wireless Intrusion Detection System(WIDS) User isolation Rogue AP detection and containment
ACL	IP standard ACL, MAC extended ACL, IP extended ACL, and expert-level ACL Time range-based ACL ACL based on a Layer 2 interface ACL based on a Layer 3 interface Ingress ACL based on a wireless interface Dynamic ACL assignment based on 802.1X authentication (used with the AC)
CPP	CPU Protect Policy (CPP)
NFPP	Network Foundation Protection Policy (NFPP)
Routing and Switching	
MAC	Static and filtered MAC addresses MAC address table size: 1,024 Max. number of static MAC addresses: 1,024 Max. number of filtered MAC addresses: 1,024
Ethernet	Jumbo frame length: 1,518 Full-duplex and half-duplex modes of interfaces IEEE802.1p and IEEE802.1Q
VLAN	Interface-based VLAN assignment Max. number of SVIs: 100 Max. number of VLANs: 4,094 VLAN ID range: 1–4,094
ARP	ARP entry aging and proxy ARP Max. number of ARP entries: 1,024 IP address conflict detection between downlink users
IPv4 services	Static and DHCP-assigned IPv4 addresses NAT, FTP ALG and DNS ALG
IPv6 services	IPv6 addressing, Neighbor Discovery (ND), ICMPv6, IPv6 ping IPv6 DHCP client
IP routing	IPv4/IPv6 static route Max. number of static IPv4 routes: 1,024 Max. number of static IPv6 routes: 1,000

Basic Function	RG-SAP185-SP-W
Multicast	Multicast-to-unicast conversion
VPN	PPPoE client IPsec VPN
Network Management and Monitoring	
Network management	NTP server and NTP client SNMPv1/v2c/v3 Fault detection and alarm Information statistics and logging
Network management platform	Web management (Eweb)
User access management	Telnet and TFTP management
Switchover among Fat, Fit, and cloud modes	When the AP works in Fit mode, it can be switched to Fat mode through an AC. When the AP works in Fat mode, it can be switched to Fit mode through the console port or Telnet mode. When the AP works in cloud mode, it can be managed through Ruijie Cloud.

Value-added Software

The following value-added software functions can be achieved with the WIS solution (used with RG-iData-WIS and wireless controller).

Value-added Software	RG-SAP185-SP-W
Intelligent O&M	
Experience	Network operation analysis, such as device stability and signal coverage Measuring users' network experience based on indicators such as the latency, packet loss, signal strength, and channel utilization, and visualizing results of the network experience Statistics on the number of online and offline failures of STAs associated with different APs, average signal strength, and other parameters VIP monitoring and alarm, and custom alarm thresholds STA global experience map and experience coverage evaluation based on the time range STA access protocol replay and fine-grained STA fault diagnosis Note: To support the preceding functions, ensure that the AP works in Fit mode.
Network optimization	Network performance optimization, including one-click network optimization and scenario-based optimization Client steering to cope with roaming stickiness, and experience indicator comparison Client steering to cope with remote association, and experience indicator comparison One-click diagnosis – analyzing problems and providing suggestions

Value-added Software	RG-SAP185-SP-W
Big data	Baseline analysis – recording the configuration, version, and other changes, and tracking network KPI changes Time capsule – analyzing the device version and configuration change history
Regional analysis	Batch generation of building floor information – uploading floor plans, and dragging and dropping AP positions
One-click report	One-click health report – generating a report on the overall operation of a network
Security radar	Unauthorized Wi-Fi signal location, presentation by category, and containment
Cloud Management	
Management and maintenance	Uniformly connecting, managing, and maintaining APs, ACs, and other devices, batch device configuration and upgrade, and other functions Deployment through Zero Touch Provisioning (ZTP) – creating configuration templates and automatically applying configured templates One-click discovery of the wired and wireless network topology and topology generation
Cloud Authentication	
Authentication mode	SMS authentication, fixed account authentication, one-click authentication, Facebook authentication, Instagram authentication, voucher authentication, and other authentication modes Authentication implemented in the cloud, without the need to deploy the local authentication server
Customized portal	Customized Portal authentication page for mobile phones and PCs
SMS gateway	Interconnection with SMS gateways of GUODULINK and Alibaba Cloud
Platform Capabilities	
Hierarchy and decentralization	Authorizing different applications for different users to meet service needs of different departments Granting operation permissions to administrators in different scenarios
System management	Account operation, authorization configuration, email configuration, configuration backup, exception alarms, and other system management functions

Note: For details, refer to the latest hybrid cloud management solution.

Regulatory Compliance

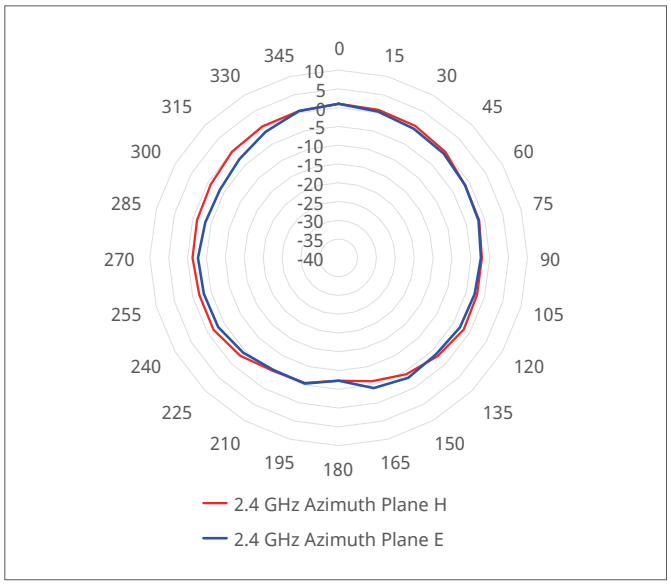
Regulatory Compliance	RG-SAP185-SP-W
Regulatory compliance	EN 55032, EN 55035, EN 61000-3-3, EN IEC 61000-3-2, IEC 62368-1, EN 62368-1, EN 301 489-1, EN 301 489-3, EN 301 489-17, EN 300 328, EN 301 893, EN 300 440, FCC Part 15, and EN IEC 62311

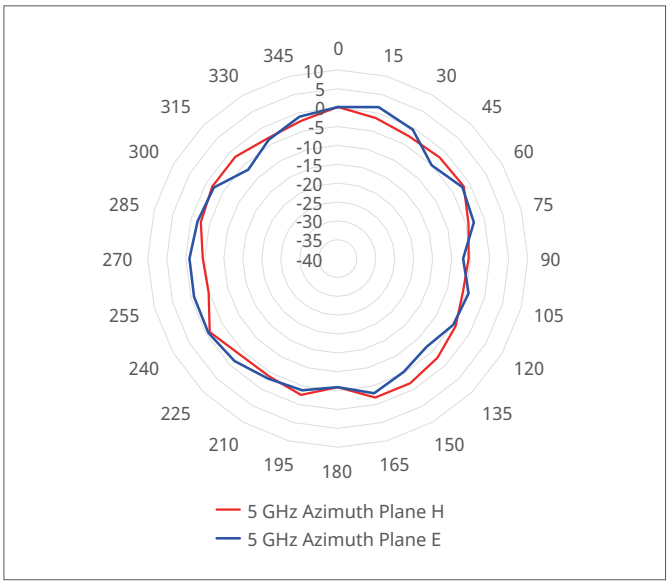
* For more country-specific regulatory information and approvals, contact your local sales agency.

Antenna Pattern Plots

Vertical Planes (Side View)

The following figures shows the elevation antenna pattern at 2.4 GHz and 5 GHz radios.





Note: Operating frequency bands are country-specific.

Ordering Information

Model	Description
RG-SAP185-SP-W	Wi-Fi 6 ultra-thin wall plate wireless access point Dual radios, four spatial streams, peak data rate of 2.976 Gbps • Radio 1: 2.4 GHz: two spatial streams, 2x2 MU-MIMO, peak data rate of 574 Mbps • Radio 2: 5 GHz: two spatial streams, 2x2 MU-MIMO, peak data rate of 2.402 Gbps It can be installed on an 86-type panel, and complies with IEEE 802.11a/b/g/n/ac and IEEE 802.11ax. It can switch between Fat, Fit, and cloud modes, and provides IEEE 802.3 af/at power supply.

Package Contents

Item	Quantity
Main unit	1
4 mm x 25 mm Phillips pan head self-tapping screw	2
Product warranty	1

Warranty

For more information about warranty terms and period, contact your local sales agency:

- Warranty terms: https://www.ruijienetworks.com/support/servicepolicy
- Warranty period: https://www.ruijienetworks.com/support/servicepolicy/Service-Support-Summany/

Note: The warranty terms are subject to the terms of different countries and distributors.

More Information

For more information about Ruijie Networks, visit the official Ruijie website or contact your local sales agency:

- Ruijie Networks official website: https://www.ruijienetworks.com/
- Online support: https://www.ruijienetworks.com/support
- Hotline support: https://www.ruijienetworks.com/support/hotline
- Email support: service_rj@ruijienetworks.com

Ruijie Networks Co., Ltd.

For more information, visit www.ruijienetworks.com or call 86-400-620-8818.