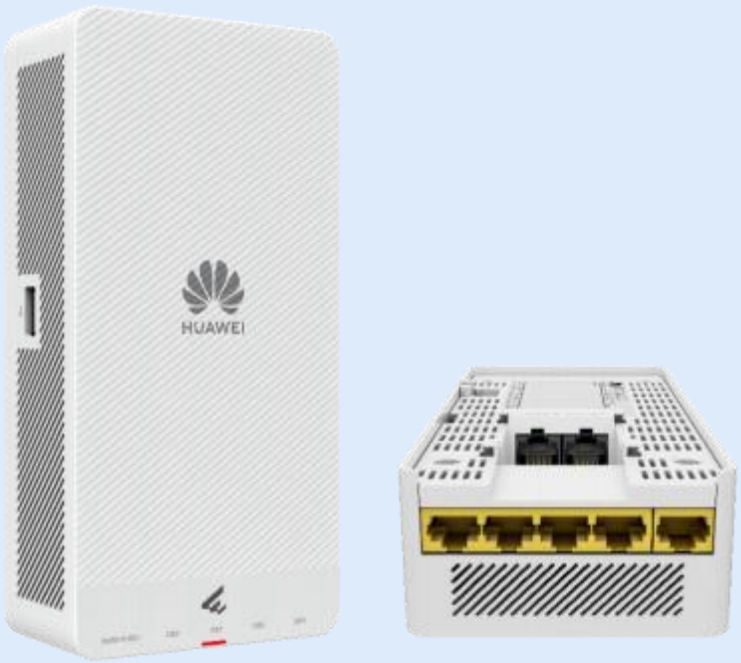
HUAWEI eKit

Huawei eKitEngine AP271E Wireless Access Point Datasheet



BE3600 Dual-Band Wi-Fi 7 Multi-Port Wall Plate AP

Make SME Network Easier and Smarter

HUAWEI

Product Overview

Huawei eKitEngine AP271E is an indoor slim wall plate access point (AP) that complies with the latest Wi-Fi 7 (802.11be) standard. It supports new Wi-Fi 7 technologies, such as multi-link operation (MLO) for link aggregation, multi-user multiple-input multiple-output (MU-MIMO), Wi-Fi 7 160 MHz channel width, and 4096-quadrature amplitude modulation (QAM).

This AP provides access rates of up to 688 Mbps on the 2.4 GHz (2x2 MIMO) frequency band, and 2882 Mbps on the 5 GHz (2x2 MIMO) frequency band, totaling 3570 Mbps for the entire device. This superfast wireless speed eliminates wireless performance bottleneck and greatly improves user experience on wireless networks.

eKitEngine AP271E provides one 2.5GE uplink port, four GE downlink ports, and a pair of pass-through ports. This compact AP can be easily installed on the wall, ceiling, or junction box to meet various connection needs. These features make eKitEngine AP271E ideal for indoor coverage scenarios such as budget hotels, hospitals, commercial stores, and schools.

eKitEngine AP271E can be locally managed using the S380 EasyWeb or wireless access controller (WAC) or remotely managed through the HUAWEI eKit App and SME Network Center (SNC). In this way, network projects can be handed over to and managed by customers themselves or managed jointly by customers and subcontractors, simplifying network operations and maintenance (O&M).

Product Highlights

- Wi-Fi 7 160 MHz channel width and up to 3.57 Gbps device rate ensures smooth 4K video playback.
- 2.5GE uplinks efficiently transmit wireless and wired data of over 1 Gbps.
- Four GE electrical downlink ports support flexible access of multiple stations (STAs).
- A pair of pass-through ports facilitates connection to network cables and telephone lines for transparent transmission.
- An 18-meter optimal experience radius ensures full signal strength in the entire house.
- Flexible installation modes, including junction box (86 mm), wall, or ceiling mounting, best suit various scenarios.
- Smart roaming ensures real-time calculation, and roaming steering in advance eliminates sticky STAs.

Feature Description

Wi-Fi 7 (802.11be) Standard

- Wi-Fi 7 (802.11be) is the next-generation Wi-Fi standard, also known as IEEE 802.11be or Extremely High Throughput (EHT). It is compatible with protocols such as Wi-Fi 6 and Wi-Fi 5.
- Based on Wi-Fi 6, Wi-Fi 7 introduces technologies such as 320 MHz bandwidth, 4096-QAM, multi-resource unit (RU), MLO, enhanced MU-MIMO, and multi-AP coordination. In this way, Wi-Fi 7 provides a higher data transmission rate and lower latency than Wi-Fi 6.

New Features in Wi-Fi 7

Multi-RU mechanism

- In Wi-Fi 6, each user can send or receive frames only on the RUs allocated to them, which greatly limits the flexibility of spectrum resource scheduling. To solve this problem and further improve spectral efficiency, Wi-Fi 7 defines a mechanism for allocating multiple RUs to a single user. To balance the implementation complexity and spectrum utilization, the Wi-Fi 7 standard specifications impose certain restrictions on RU combinations. That is, small RUs (containing fewer than 242 tones) can be combined only with small RUs, and large RUs (containing greater than or equal to 242 tones) can be combined only with large RUs. Small RUs and large RUs cannot be combined together.

Higher-order 4096-QAM

- The highest order modulation supported by Wi-Fi 6 is 1024-QAM, which allows each modulation symbol to carry up to 10 bits. To further improve the rate, Wi-Fi 7 introduces 4096-QAM so that each modulation symbol can carry 12 bits. With the same coding, 4096-QAM in Wi-Fi 7 can achieve a 20% rate increase compared with 1024-QAM in Wi-Fi 6.

Multi-link mechanism

- To efficiently utilize all available spectrum resources, the Wi-Fi 7 standard defines a multi-link aggregation technology — MLO. This technology enables a STA to simultaneously establish links with multiple radios (2.4 GHz, 5 GHz, and 6 GHz) of an AP. Using MAC layer technology, these cross-band links are aggregated into a virtual link to enable parallel communication across multiple links.

Preamble puncturing

- Based on channel bonding technology, multiple adjacent channels can be merged into one for communication. If one of the subchannels is severely interfered with and cannot be used, its neighbors are also unavailable. This leads to a significant decrease in overall wireless bandwidth, degrading the throughput. Preamble puncturing technology allows for skipping heavily interfered subchannels by "puncturing" through them. This enables the utilization of adjacent clear subchannels, preventing the overall wireless bandwidth decrease and thereby improving wireless performance in the case of interference.

High-Speed Access

- The AP supports 160 MHz channel width, which increases the number of available data subcarriers and expands transmission channels. In addition, the AP adopts 4096-QAM and MIMO to achieve a rate of up to 0.69 Gbps on the 2.4 GHz band and 2.88 Gbps on the 5 GHz band, meaning up to 3.57 Gbps for the device.

Smart Antenna

- The dual-band smart antenna array technology and intelligent switchover algorithm enable the AP to intelligently sense the application environment and access density, achieving accurate Wi-Fi coverage and interference suppression. They together provide the optimal coverage direction and signal quality for each access STA, and offer seamless and smooth wireless network experience to users.

Wired and Wireless Security Guarantee

To ensure data security, this AP integrates wired and wireless security functions and provides comprehensive security protection.

Authentication and encryption for wireless access

- The AP supports WEP, WPA/WPA2-PSK, WPA3-SAE, WPA/WPA2-PPSK, and WPA/WPA2/WPA3-802.1X authentication/encryption modes to ensure the security of wireless networks. The authentication mechanism is used to authenticate user identities so that only authorized users can access network resources. The encryption mechanism is used to encrypt data transmitted over wireless links to ensure that data can only be received and parsed by authorized users.

Authentication and encryption for wired access

- The AP access control mechanism ensures that only authorized users can access the AP. Control and provisioning of wireless access point (CAPWAP) link protection and Datagram Transport Layer Security (DTLS) encryption provide security guarantee and improve data transmission security between the AP and WAC.

Automatic Radio Calibration

Automatic radio calibration allows the AP to collect signal strength, channel, and other parameters of surrounding APs and generate an AP topology according to the collected data. Based on interference from

surrounding environments and their loads, the AP automatically adjusts its transmit power and working channel to make the network operate at the optimal performance. In this way, network reliability and user experience are improved.

Cloud Management

The AP supports cloud-based management. It provides various authentication functions, such as PSK and Portal authentication, without the need of a WAC or an authentication server. This greatly simplifies networking and reduces capital expenditure (CAPEX). In addition, the AP can use the Huawei SME Network cloud management platform to implement cloud-based network planning, deployment, inspection, and O&M.

Deployment and O&M Through HUAWEI eKit App

The HUAWEI eKit App supports Wi-Fi-based deployment and barcode scanning-based deployment. After the deployment is complete, you can perform more maintenance operations on the HUAWEI eKit App.

Wi-Fi-based deployment

- In quick deployment mode, you can connect your mobile phone to the management Wi-Fi network of an AP to deploy a network. This allows the device to automatically go online and be remotely managed on the app.

Barcode scanning-based deployment

- Another method is to use a mobile phone to scan the AP's serial number (SN) and synchronize the device information to HUAWEI eKit platform for device onboarding management.

Product Features

Fit AP Mode

Item	Description
WLAN features	Compliance with IEEE 802.11be and compatibility with IEEE 802.11a/b/g/n/ac/ax on both 2.4 GHz and 5 GHz frequency bands Maximum ratio combining (MRC) Space time block code (STBC) Cyclic delay diversity (CDD)/Cyclic shift diversity (CSD) Beamforming MU-MIMO Orthogonal frequency division multiple access (OFDMA) Compliance with 4096-QAM and compatibility with 1024-QAM/256-QAM/64-QAM/16-QAM/8-QAM/QPSK/BPSK Low-density parity-check (LDPC) Frame aggregation, including aggregate MAC protocol data unit (A-MPDU) (Tx/Rx) and aggregate MAC service data unit (A-MSDU) (Tx/Rx) 802.11 dynamic frequency selection (DFS) Short guard interval (GI) in 20 MHz, 40 MHz, 80 MHz, and 160 MHz modes Wi-Fi Multimedia (WMM) for priority-based data processing and forwarding WLAN channel management and channel rate adjustment Automatic channel scanning and interference avoidance

Item	Description
	NOTE For details about WLAN channel management, see the *Country Codes and Channels Compliance*. Service set identifier (SSID) hiding configuration for each AP, supporting Chinese SSIDs Signal sustain technology (SST) Unscheduled automatic power save delivery (U-APSD) CAPWAP Automatic AP onboarding Extended service set (ESS) Multi-user call admission control (CAC) Advanced cellular coexistence (ACC), minimizing the impact of interference from cellular networks 802.11k and 802.11v smart roaming 802.11r fast roaming (≤ 50 ms)
Network features	Compliance with IEEE 802.3ab Auto-negotiation of the rate and duplex mode, and automatic switchover between the Media Dependent Interface (MDI) and Media Dependent Interface Crossover (MDI-X) Compatibility with IEEE 802.1Q SSID-based VLAN assignment VLAN trunk on uplink Ethernet ports Management channel of the AP's uplink port in tagged or untagged mode DHCP client, obtaining IP addresses through DHCP Tunnel data forwarding and direct data forwarding Mesh backhaul IPv6 STA isolation in the same VLAN IP access control list (ACL) Link layer discovery protocol (LLDP) Uninterrupted service forwarding upon CAPWAP tunnel disconnection Unified authentication on the WAC
QoS features	WMM parameter management for each radio Queue mapping and scheduling User-based bandwidth limiting Adaptive bandwidth management (automatic bandwidth adjustment based on the user quantity and radio environment) for user experience improvement Airtime scheduling
Security features	Open system authentication WEP authentication and encryption using a 64-bit, 128-bit, 152-bit, or 192-bit encryption key WPA2-PSK authentication and encryption WPA2-802.1X authentication and encryption WPA3-SAE authentication and encryption WPA3-802.1X authentication and encryption WPA-WPA2/WPA2-WPA3 hybrid authentication

Item	Description
	WPA2-PPSK authentication and encryption 802.1X authentication, MAC address authentication, Portal authentication, etc. DHCP snooping 802.11w Protected Management Frames (PMF) DTLS encryption Dynamic ARP inspection (DAI) IP Source Guard (IPSG)
Maintenance features	Unified AP management and maintenance on the WAC Automatic AP onboarding, automatic configuration loading, and plug-and-play (PnP) Automatic batch upgrade Telnet and STelnet using SSHv2 SFTP using SSHv2 Real-time configuration monitoring and fast fault locating using the network management system (NMS) System status alarm

Cloud-Managed/FAT AP Mode

Item	Description
WLAN features	Compliance with IEEE 802.11be and compatibility with IEEE 802.11a/b/g/n/ac/ax on both 2.4 GHz and 5 GHz frequency bands MRC STBC CDD/CSD Beamforming MU-MIMO OFDMA Compliance with 4096-QAM and compatibility with 1024-QAM/256-QAM/64-QAM/16-QAM/8-QAM/QPSK/BPSK LDPC Frame aggregation, including A-MPDU (Tx/Rx) and A-MSDU (Tx/Rx) 802.11 DFS Short GI in 20 MHz, 40 MHz, 80 MHz, and 160 MHz modes Priority mapping and scheduling in compliance with WMM WLAN channel management and channel rate adjustment NOTE For details about WLAN channel management, see the *Country Codes and Channels Compliance*. Automatic channel scanning and interference avoidance SSID hiding configuration for each AP, supporting Chinese SSIDs U-APSD Automatic AP onboarding 802.11k and 802.11v smart roaming 802.11r fast roaming (≤ 50 ms)

Item	Description
Network features	Compliance with IEEE 802.3ab Auto-negotiation of the rate and duplex mode and automatic switchover between the MDI and MDI-X Compatibility with IEEE 802.1Q SSID-based VLAN assignment DHCP client, obtaining IP addresses through DHCP STA isolation in the same VLAN ACL Unified authentication on the cloud management platform Mesh backhaul IPv6
QoS features	Priority mapping and scheduling in compliance with WMM WMM parameter management for each radio Queue mapping and scheduling User-based bandwidth limiting Airtime scheduling
Security features	Open system authentication WPA2-PSK authentication and encryption WPA2-802.1X authentication and encryption WPA3-SAE authentication and encryption WPA3-802.1X authentication and encryption WPA-WPA2/WPA2-WPA3 hybrid authentication 802.1X authentication, MAC address authentication, Portal authentication, etc. DHCP snooping DAI IPSG
Maintenance features	Unified management and maintenance on the cloud management platform Batch upgrade Telnet and STelnet using SSHv2 SFTP using SSHv2 Real-time configuration monitoring and fast fault locating using the NMS System status alarm Network Time Protocol (NTP)

Product Specifications

Item		Description
Technical specifications	Dimensions (H x W x D)	175 mmx 86 mmx 45 mm
	Weight	0.405 kg
	Port	Uplink: 1 x 100M/1000M/2.5GE electrical port

Item		Description
		Downlink: 4 x 10M/100M/GE electrical ports 2 x RJ45 pass-through ports 1 x USB port NOTE • The 2.5GE electrical port supports PoE input.
	LED indicator	Indicates the power-on, startup, running, alarm, and fault states of the system.
Power specifications	Power input	• DC: 12 V ± 10% • PoE power supply: in compliance with IEEE 802.3at/af NOTE When working in 802.3af power supply mode, the AP is restricted in functions. For example, the USB port is unavailable. For details, see theInfo-Finder.
	Maximum power consumption	• 13.2 W (excluding USB) NOTE The actual maximum power consumption depends on local laws and regulations.
Environmental specifications	Operating temperature	0。C to +40。C (If the altitude is in the range of 1800 m to 5000 m, the temperature decreases by 1。C every time the altitude increases by 300 m.) NOTE Some part of the AP shell may have a higher temperature than the upper limit of the operating temperature range. In this case, the AP's performance will not be affected as long as the shell temperature complies with the safety standards.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	Altitude	-60 m to +5000 m
	Atmospheric pressure	53 kPa to 106 kPa
Radio specifications	Antenna type	Built-in smart antennas
	Antenna gain	2.4 GHz: 5 dBi 5 GHz: 5 dBi NOTE 1. The preceding gains are the peak gains of a single antenna. 2. When all 2.4 GHz or 5 GHz antennas are combined, the equivalent antenna gain is 2 dBi for 2.4 GHz radios or 3 dBi for 5 GHz radios.
	Maximum quantity of SSIDs on each radio	10
	Maximum number of access STAs	256 NOTE The actual number of users varies according to the environment.

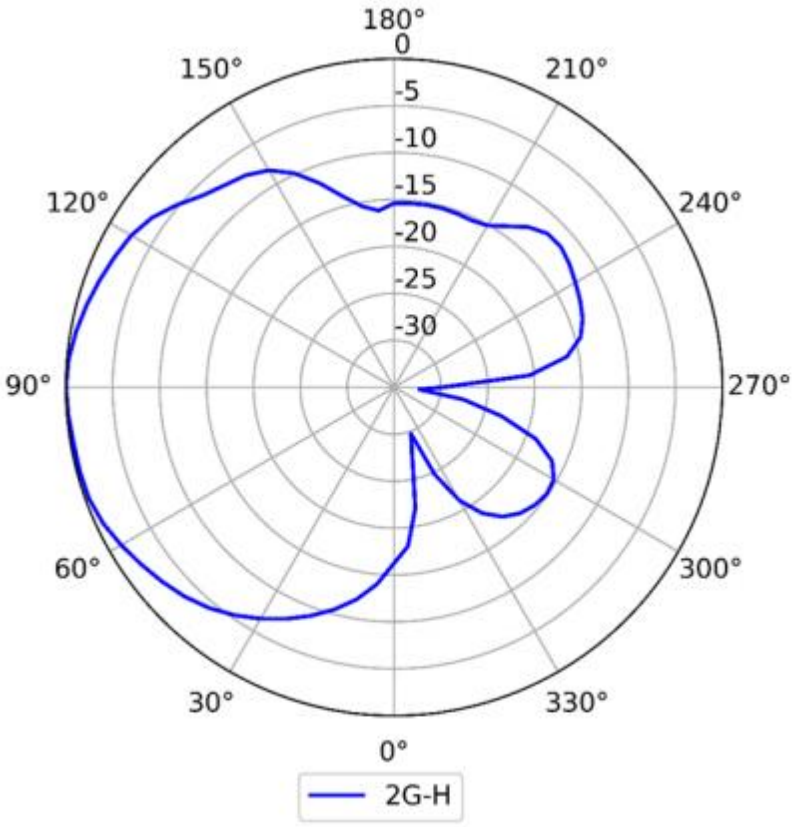
Item		Description
	Maximum transmit power	2.4 GHz: 23 dBm (combined power) 5 GHz: 23 dBm (combined power) NOTE The actual transmit power varies according to local laws and regulations.
	Power adjustment increment	1 dBm
	Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) 802.11b/g - 20 MHz: 3 802.11n - 20 MHz: 3 - 40 MHz: 1 802.11ax - 20 MHz: 3 - 40 MHz: 1 5 GHz (5.18 GHz to 5.825 GHz) 802.11a - 20 MHz: 13 802.11n - 20 MHz: 13 - 40 MHz: 6 802.11ac - 20 MHz: 13 - 40 MHz: 6 - 80 MHz: 3 802.11ax - 20 MHz: 13 - 40 MHz: 6 - 80 MHz: 3 NOTE In this table, the number of non-overlapping channels supported in China is used as an example. The number of non-overlapping channels varies with countries. For details, see Country Codes & Channels Compliance.

Standards Compliance

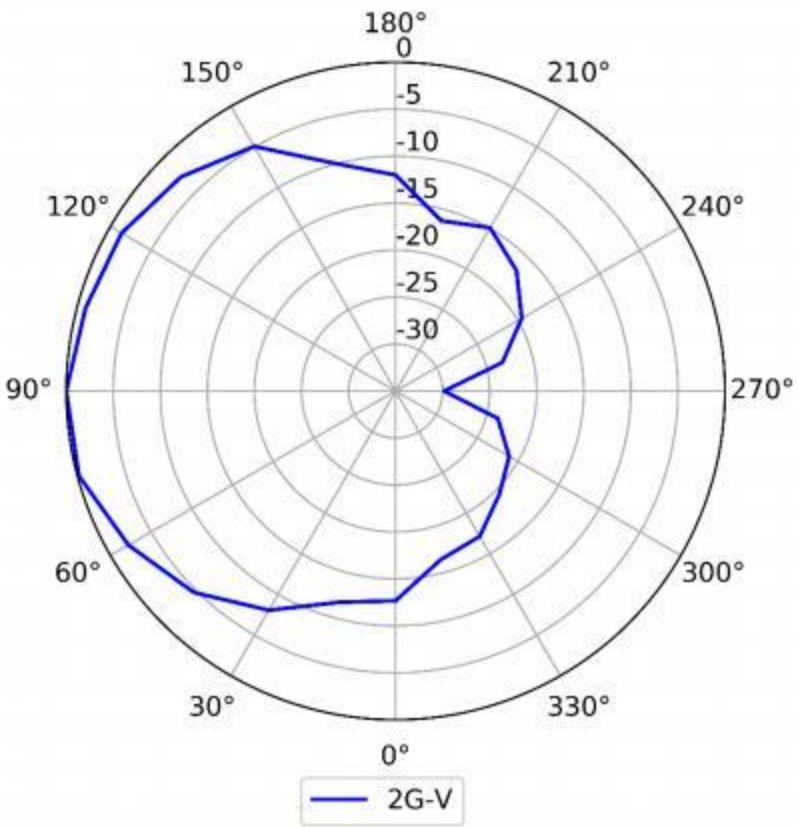
Item	Description		
Safety standards		• UL 62368-1 • EN 62368-1 • IEC 62368-1 • CSA 62368-1	• GB 4943.1
Radio standards	• ETSI EN 300 328	• ETSI EN 301 893	
EMC standards	• EN 301 489-1 • EN 301 489-17 • EN 60601-1-2 • EN 55024 • EN 55032 • EN 55035	• GB 9254 • GB 17625.1 • GB 17625.2 • CISPR 24 • CISPR 32 • CISPR 35	• IEC/EN 61000-4-2 • IEC/EN 61000-4-3 • IEC/EN 61000-4-4 • IEC/EN 61000-4-5 • IEC/EN 61000-4-6 • ICES-003
IEEE standards	• IEEE 802.11a/b/g • IEEE 802.11n • IEEE 802.11ac • IEEE 802.11ax • IEEE 802.11be	• IEEE 802.11h • IEEE 802.11d • IEEE 802.11e • IEEE 802.11k	• IEEE 802.11v • IEEE 802.11w • IEEE 802.11r
Security standards	• 802.11i, Wi-Fi Protected Access (WPA), WPA2, WPA2-Enterprise, WPA2-PSK, WPA3 • 802.1X • Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TKIP), WEP, Open • EAP Type(s)		
EMF standards	• EN 62311	• EN 50385	
RoHS	• Directive 2002/95/EC & 2011/65/EU	• (EU)2015/863	
Reach	• Regulation 1907/2006/EC		
WEEE	• Directive 2002/96/EC & 2012/19/EU		

Antenna Patterns

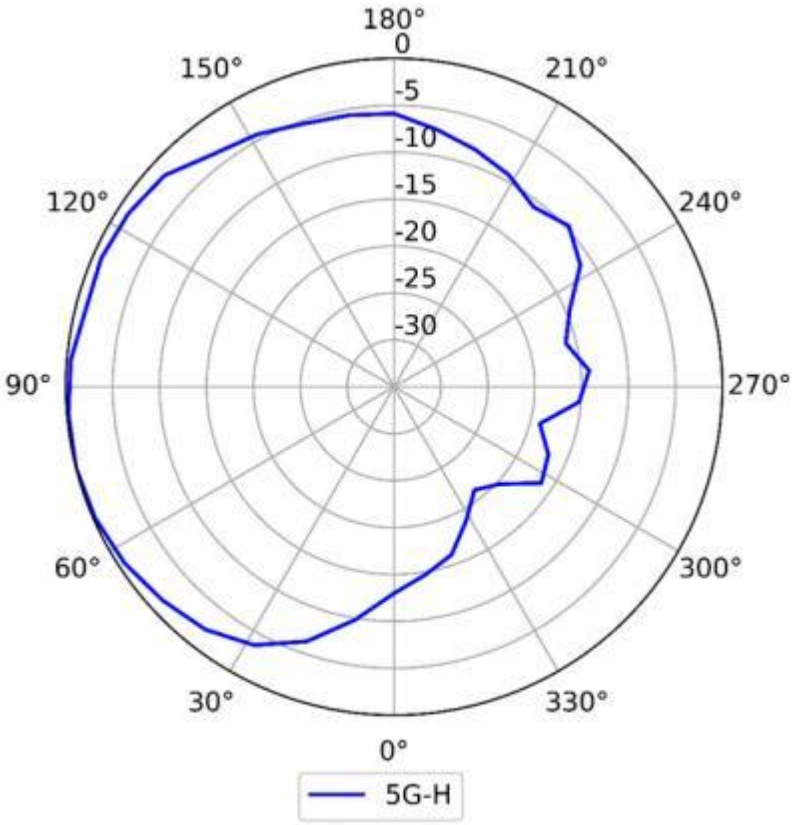
2.4 GHz (horizontal)



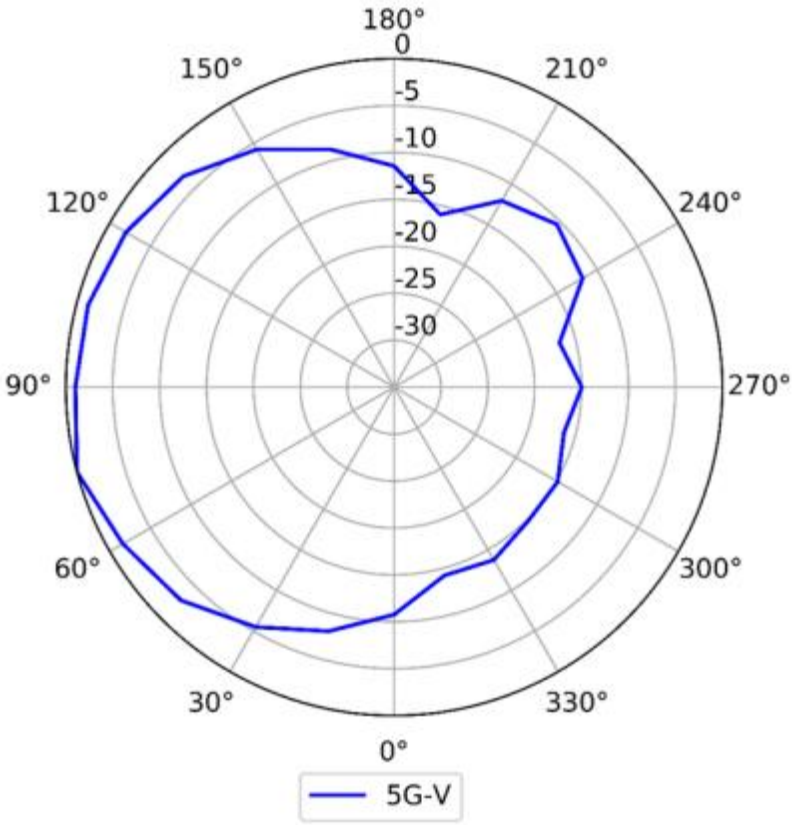
2.4 GHz (vertical)



5 GHz (horizontal)

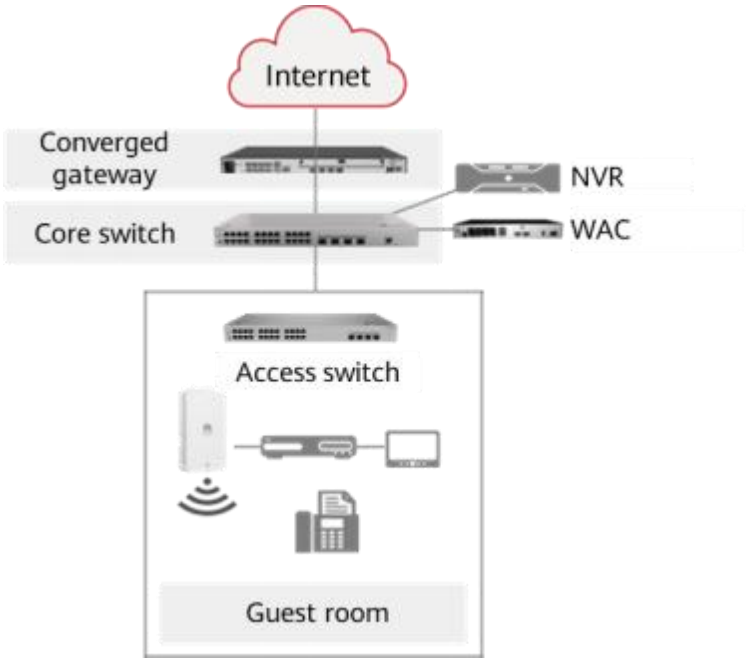


5 GHz (vertical)



Typical Networking

Budget hotel scenario



More Information

For more information about Huawei eKitEngine WLAN products, visithttp://ekit.huawei.comor contact Huawei's local sales office.

Alternatively, you can contact us through one of the following methods:

1. Global service hotline:http://e.huawei.com/en/service-hotline
2. Enterprise technical support website:http://support.huawei.com/enterprise/
3. Service email address for enterprise users: support_e@huawei.com

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