HUAWEI eKit

Huawei eKitEngine AP673

Wireless Access Point Datasheet

BE14000 Tri-Band Wi-Fi 7 Settled AP

Make SME Network Easier and Smarter

HUAWEI

Product Overview

Huawei eKitEngine AP673 is a next-generation indoor access point (AP) that complies with the Wi-Fi 7 (802.11be) standard. It supports eight spatial streams on the 2.4 GHz (2x2 MIMO), 5 GHz (2x2 MIMO), and 6 GHz (4x4 MIMO) frequency bands, delivering a data rate of up to 13.66 Gbps.

It has built-in smart antennas, ensuring always-on signals for users. With the all-new Wi-Fi 7 technology, this AP can greatly improve users' wireless network experience. Compact in size, it can be flexibly deployed and saves customer TCO. These strengths make this AP ideal for indoor coverage scenarios such as small and midsize enterprise office, hospitals, and shopping malls and supermarkets.

You can use the EasyWeb or wireless access controller (WAC) to locally deploy and manage APs, or use the HUAWEI eKit App & SNC platform to remotely manage and maintain APs. In this way, network projects can be handed over or managed together, simplifying network O&M.

Feature Description

Wi-Fi 7 (802.11be) Standard

- Wi-Fi 7 (802.11be) — also known as IEEE 802.11be Extremely High Throughput (EHT) — is the latest upcoming Wi-Fi standard. Based on Wi-Fi 6, Wi-Fi 7 introduces technologies such as 320 MHz bandwidth, 4096-quadrature amplitude modulation (4096-QAM), multiple resource unit (MRU), multi-link operation (MLO), enhanced multi-user multiple-input multiple-output (MU-MIMO), and multi-AP coordination. In this way, Wi-Fi 7 delivers a higher data transmission rate and a lower latency than Wi-Fi 6.

High-Speed Tri-Band Access

- The AP supports 320 MHz frequency bandwidth on the 6 GHz frequency band, which increases the number of available data subcarriers and expands transmission channels. In addition, the AP adopts 4096-QAM and MU-MIMO to achieve a rate of up to 0.69 Gbps on the 2.4 GHz band, 1.44 Gbps on the 5 GHz band, and 11.53 Gbps on the 6 GHz band, meaning up to 13.66 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 station (STA), and offer seamless and smooth wireless network experience to users.

Wi-Fi 7 vs. Wi-Fi 6

Based on Wi-Fi 6, Wi-Fi 7 introduces many new technologies.

	Wi-Fi 6	Wi-Fi 7
IEEE standard	802.11ax	802.11be
Maximum transmission rate	9.6 Gbps	23 Gbps
Frequency band	2.4 GHz, 5 GHz, 6 GHz (Wi-Fi 6E)	2.4 GHz, 5 GHz, and 6 GHz
Security protocol	WPA3	WPA3
Channel bandwidth	20 MHz, 40 MHz, 80 MHz, 160 MHz, 80+80 MHz	Up to 320 MHz
Modulation mode	1024-QAM OFDMA	4096-QAM OFDMA

NOTE

- In the figure, the maximum transmission rate refers to the one of a single radio, for example, 5 GHz radio for Wi-Fi 6 and 6 GHz radio for Wi-Fi 7.

New Features of Wi-Fi 7

Wi-Fi 7 aims to further increase the WLAN throughput to more than 30 Gbps and provide low-latency access assurance. To achieve this goal, the standard defines modifications to both the physical layer (PHY) and MAC layer. Compared with Wi-Fi 6, Wi-Fi 7 brings the following technical innovations:

MRU*

- 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 resolve this issue 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 standard specifications impose certain restrictions on RU combination. 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.

NOTE

- Features marked with the asterisk (*) can be implemented through software upgrade.

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 scheme, 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 IEEE 802.11 working group defines technologies related to multi-link aggregation, including the MAC architecture of enhanced multi-link aggregation, multi-link channel access, and multi-link transmission.

Multi-AP coordination*

- In the current 802.11 protocol framework, there is not much coordination between APs. Common WLAN functions, such as automatic radio calibration and smart roaming, are vendor-defined features. Multi-AP coordination aims to optimize channel selection and adjust loads among APs to achieve efficient utilization and balanced allocation of radio resources. Coordinated scheduling between multiple APs in Wi-Fi 7 involves inter-cell coordinated planning in the time and frequency domains, inter-cell interference coordination, and distributed MIMO. This reduces interference between APs and greatly improves the utilization of air interface resources. There are many coordinated scheduling methods between multiple APs, including coordinated orthogonal frequency-division multiple access (C-OFDMA), coordinated spatial reuse (CSR), coordinated beamforming (CBF), and joint transmission (JXT).

Product Features

Fat/Fit AP Mode

Item	Description
WLAN features	Compliance with IEEE 802.11be and compatibility with IEEE 802.11a/b/g/n/ac/ax Maximum ratio combining (MRC) Space time block code (STBC) Cyclic delay diversity (CDD)/Cyclic shift diversity (CSD)

Item	Description
	Beamforming MU-MIMO 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 A-MPDU (Tx/Rx) and 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 **NOTE** For detailed management channels, see *Country Code & Channel Compliance Table*. Separate service set identifier (SSID) hiding configuration for each AP, supporting Chinese SSIDs Unscheduled automatic power save delivery (U-APSD) Control and provisioning of wireless access points (CAPWAP) in Fit AP mode Extended service set (ESS) in Fit AP mode Multi-user CAC 802.11k and 802.11v smart roaming 802.11r fast roaming
Network features	Compliance with IEEE 802.3ab Auto-negotiation of the rate and duplex mode SSID-based VLAN assignment 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 STA isolation in the same VLAN Access control list (ACL) Link layer discovery protocol (LLDP) Uninterrupted service forwarding upon CAPWAP tunnel disconnection in Fit AP mode Unified authentication on the WAC in Fit AP mode Telemetry in Fit AP mode, quickly collecting AP status and application experience parameters
QoS features	WMM power saving Priority mapping for uplink packets; flow-based mapping for downlink packets 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 WPA2-PSK authentication and encryption (WPA2-Personal)

Item	Description
	WPA2-802.1X authentication and encryption (WPA2-Enterprise) WPA3-SAE authentication and encryption (WPA3-Personal) WPA3-802.1X authentication and encryption (WPA3-Enterprise) WPA-WPA2/WPA2-WPA3 hybrid authentication WPA2-PPSK authentication and encryption in Fit AP mode WIDS, including rogue device detection and containment, attack detection and dynamic blacklist, and STA/AP blacklist and whitelist 802.1X authentication, MAC address authentication, Portal authentication, etc. DHCP snooping 802.11w Protected Management Frames (PMF)
Maintenance features	Unified management and maintenance on the WAC in Fit AP mode Automatic login, automatic configuration loading, and plug-and-play (PnP) in Fit AP mode Automatic batch upgrade in Fit AP mode STelnet using SSHv2 SFTP using SSHv2 Remote wireless O&M through Bluetooth serial ports System status alarm

Cloud Management Mode

Item	Description
WLAN features	Compliance with IEEE 802.11be and compatibility with IEEE 802.11a/b/g/n/ac/ax Maximum ratio combining (MRC) Space time block code (STBC) Cyclic delay diversity (CDD)/Cyclic shift diversity (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, 160MHz and 320 MHz modes **NOTE** 320MHz need to support 6GHz. WMM for priority-based data processing and forwarding WLAN channel management and channel rate adjustment **NOTE** For detailed management channels, see *Country Code & Channel Compliance Table*. Automatic channel scanning and interference avoidance

Item	Description
	SSID hiding configuration for each AP, supporting Chinese SSIDs U-APSD 802.11k and 802.11v smart roaming 802.11r fast roaming
Network features	Compliance with IEEE 802.3ab Auto-negotiation of the rate and duplex mode 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 Network address translation (NAT) Telemetry, quickly collecting AP status and application experience parameters
QoS features	WMM power saving Priority mapping for uplink packets; flow-based mapping for downlink packets 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 WPA2-PSK authentication and encryption (WPA2-Personal) WPA2-802.1X authentication and encryption (WPA2-Enterprise) WPA3-SAE authentication and encryption (WPA3-Personal) WPA3-802.1X authentication and encryption (WPA3-Enterprise) WPA-WPA2/WPA2-WPA3 hybrid authentication WPA2-PPSK authentication and encryption 802.1X authentication, MAC address authentication, Portal authentication, etc. DHCP snooping
Maintenance features	Unified management and maintenance on the cloud management platform Automatic AP onboarding and PnP Batch upgrade STelnet using SSHv2 SFTP using SSHv2 Remote wireless O&M through Bluetooth serial ports Real-time configuration monitoring and fast fault locating using the NMS System status alarm

Product Specifications

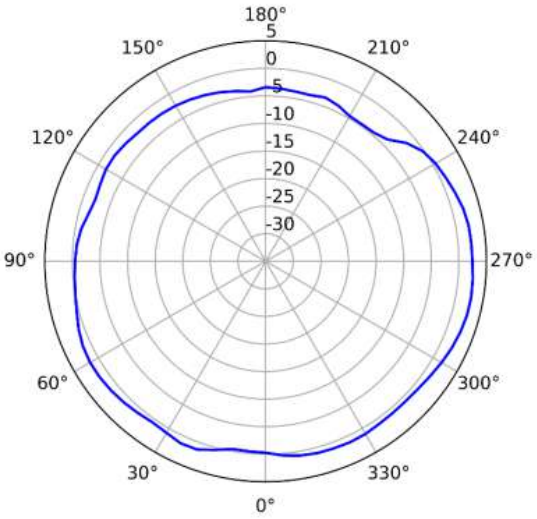
Item		Description
Technical specifications	Dimensions (diameter x height)	Φ220 mm x 45 mm
	Port	1 x 100M/GE/2.5GE/5GE electrical port 1 x 10M/100M/GE electrical port 1 x USB port **NOTE** The 5GE electrical port supports PoE IN.
	LED indicator	Indicate the power-on, startup, running, alarm, and fault 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 the Quick Information Check website.
	Maximum power consumption	• 21.1 W (excluding USB) **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environmental specifications	Operating temperature	–10°C to +50°C **NOTE** The temperature on part of the AP shell may be higher than its operating temperature upper limit. 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: 4 dBi 5 GHz: 5 dBi 6 GHz: 5 dBi **NOTE** The preceding gains are the peak gains of a single antenna.
	Maximum quantity of SSIDs	30
	Maximum number of access STAs	1024
	Maximum transmit power	2.4 GHz: 23 dBm (combined power) 5 GHz: 23 dBm (combined power)

Item		Description
		6 GHz: 26 dBm (combined power) **NOTE** The actual transmit power varies according to local laws and regulations.

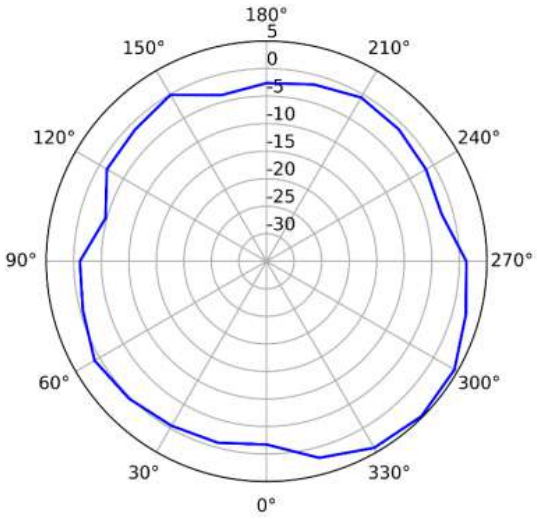
Standards Compliance

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	• AS/NZS 4268
EMC standards	• EN 301 489-1 • EN 301 489-17 • EN 60601-1-1 • EN 60601-1-2 • EN 55024 • EN 55032 • EN 55035	• GB 9254 • GB 17625.1 • GB 17625.2 • AS/NZS CISPR 32 • 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, WAPI • 802.1X • Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TKIP), WEP, Open • EAP Type(s)		
EMF standards	• EN 62311	• EN 50385	
RoHS standards	• Directive 2002/95/EC & 2011/65/EU • (EU) 2015/863		
Reach standards	• Regulation 1907/2006/EC		
WEEE standards	• Directive 2002/96/EC & 2012/19/EU		

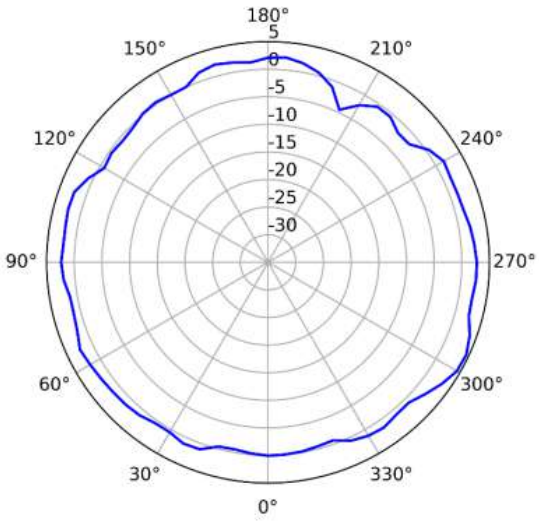
Antennas Pattern



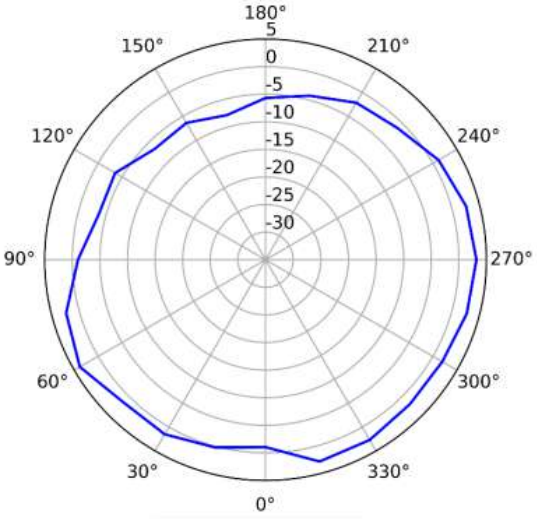
2.4GHz (Horizontal)



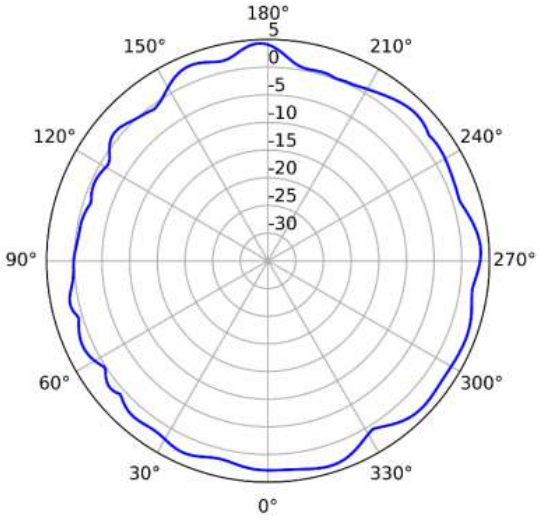
2.4GHz (Vertical)



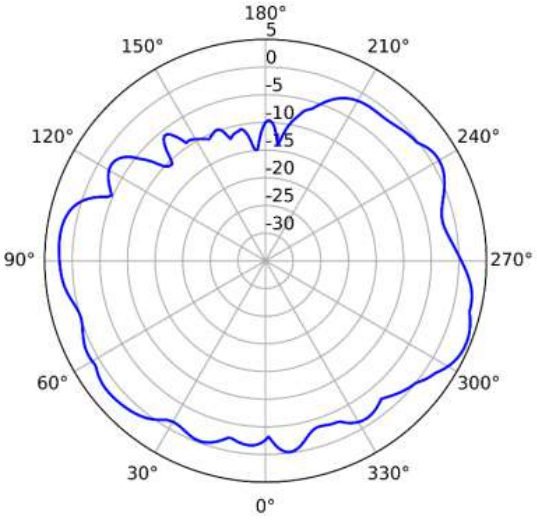
5GHz (Horizontal)



5GHz (Vertical)



6GHz (Horizontal)



6GHz (Vertical)

More Information

For more information about Huawei WLAN products, visit http://e.huawei.com or 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: https://support.huawei.com/enterprise/en/index.html
3. Service email address for enterprise users: support_e@huawei.com

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