

Huawei AirEngine 5760-22W Access Point Datasheet

Product Overview

Huawei AirEngine 5760-22W is a Wi-Fi 6 (802.11ax) wall plate access point (AP). It can simultaneously provide services on 2.4 GHz (2x2 MIMO) and 5 GHz (4x4 MIMO) frequency bands, achieving a device rate of up to 5.37 Gbps. With mounting brackets, AirEngine 5760-22W can be quickly installed on 86 mm, 118 mm, or 120 mm junction boxes and walls. Built-in smart antennas of the AP enable Wi-Fi signals to follow users, significantly enhancing users' wireless experiences. AirEngine 5760- 22W provides uplink optical and electrical ports, allowing customers to select different deployment modes and saving customers' investment. These strengths make AirEngine 5760-22W ideal for scenarios with high-density rooms such as hotel guest rooms, dormitory rooms, and hospital wards.



AirEngine 5760-22W

- Provides services simultaneously on both the 2.4 GHz and 5 GHz bands, at a rate of up to 574 Mbps at 2.4 GHz (2x2), 4.8Gbps at 5 GHz (4x4), and 5.37 Gbps for the device.
- Uplink: 1 x 2.5GE electrical, 1 x 10GE SPF+ ports; downlink: 4 x GE electrical and 2 x RJ45 pass-through.
- USB interface can be used for external power supply, external IoT expansion, and storage.
- Various installation modes for easy deployment, including wall-mounting and plate-mounting.
- Built-in smart antennas to provide precise coverage for STAs, reduce interference, and improve signal quality.
- Supports Bluetooth serial interface-based O&M through built-in Bluetooth and CloudCampus APP, and precise locating of Bluetooth terminals by collaborating with location server.
- PoE OUT supported by GE port, supplying power for STAs such as IP phones.
- Supports the Fat, Fit, and cloud three working modes.

- 2.5GE electrical port can also support 100M/1000M rates.
- The AirEngine 5760-22W cannot be installed on a ceiling.

Feature Descriptions

Wi-Fi 6 (802.11ax) standard

- As the latest generation Wi-Fi standards of IEEE 802.11, 802.11ax improves user experience in high-density access scenarios and supports 2.4 GHz and 5 GHz frequency bands.
- UL/DL MU-MIMO on both the 2.4 GHz and 5 GHz frequency bands, allowing an AP to transmit data to and receive data from multiple STAs simultaneously and multiplying the utilization of radio spectrum resources
- 1024QAM modulation, improving data transmission efficiency by 25% compared with 802.11ac (256QAM).

- UL/DL OFDMA scheduling enables multiple users to receive and send information at the same time, reducing latency and improving network efficiency.
- Spatial reuse (SR) technology uses basic service set (BSS) coloring to enable APs and STAs to distinguish BSSs, minimizing co-channel interference.
- The target wake time (TWT) allows APs and STAs to negotiate the sleep and wake time with each other, thereby improving the battery life of the STAs.

UL/DL MU-MIMO

UL/DL MU-MIMO technology enables an AP to send data to multiple STAs simultaneously, which doubles the radio spectrum resource usage, increases the number of access users and bandwidth, and improves user experience in high-density access scenarios.

Smart antenna array technology

The AP equipped with the dual-band smart antenna array and intelligent switchover algorithm can intelligently detect the application environment and access density, achieving more accurate signal coverage and interference suppression. This design helps provide the optimal signal coverage direction and signal quality for each mobile access STA, bringing seamless and smooth wireless network access experience to the users.

High-speed access

The AP supports 160 MHz frequency bandwidth, which increases the number of available data subcarriers and expands transmission channels. In addition, the APs use 1024QAM modulation and MU-MIMO to achieve a rate of up to 4.8 Gbps on the 5 GHz band and 5.37 Gbps for the device.

High Density Boost technology

Huawei uses the following technologies to address challenges in high-density scenarios, including access problems, data congestion, and poor roaming experience:

SmartRadio for air interface optimization

- Load balancing during smart roaming: The load balancing algorithm can work during smart roaming for load balancing detection among APs on the network after STA roaming to adjust the STA load on each AP, improving networkstability.
- Intelligent DFA technology: The dynamic frequency assignment (DFA) algorithm is used to automatically detect adjacent-channel and co-channel interference, and identify any 2.4 GHz redundant radio. Through automatic inter-AP negotiation, the redundant radio is automatically switched to another mode (dual-5G AP models support 2.4G-to-5G switchover) or is disabled to reduce 2.4 GHz co-channel interference and increase the system capacity.
- Intelligent conflict optimization technology: The dynamic enhanced distributed channel access (EDCA) and airtime scheduling algorithms are used to schedule the channel occupation time and service priority of each user. This ensures that each user is assigned relatively equal time for using channel resources and user services are scheduled in an orderly manner, improving service processing efficiency and user experience.

Air interface performance optimization

• In high-density scenarios where many users access the network, increased number of low-rate STAs consumes more resources on the air interface, reduces the AP capacity, and lowers user experience. Therefore, Huawei APs will check the signal strength of STAs during access and rejects access from weak-signal STAs. At the same time, the APs monitor the rate of online STAs in real time and forcibly disconnect low-rate STAs so that the STAs can reassociate with APs that have stronger signals. The terminal access control technology can increase air interface use efficiency and allow access from more users.

5GHz-prior access (band steering)

• The APs support both 2.4G and 5G frequency bands. The 5GHz-prior access function enables an AP to steer STAs to the 5 GHz frequency band first, which reduces load and interference on the 2.4 GHz frequency band, improving the user experience.

Wired and wireless dual security guarantee

To ensure data security, Huawei APs integrate wired and wireless security measures and provide comprehensive security protection.

Authentication and encryption for wireless access

• The APs support WEP, WPA/WPA2-PSK, WPA3-SAE*, WPA/WPA2-PPSK, WPA/WPA2/WPA3*-802.1x, and WAPI* authentication/encryption modes to ensure security of the wireless network. 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 the data can only be received and parsed by expected users.

 The function and features marked with * can be implemented through software upgrade. The following describes are the same.

Analysis on non-Wi-Fi interference sources*

• Huawei APs can analyze the spectrum of non-Wi-Fi interference sources and identify them, including baby monitors, Bluetooth devices, digital cordless phones (at 2.4 GHz frequency band only), wireless audio transmitters (at both the 2.4 GHz and 5 GHz frequency bands), wireless game controllers, and microwave ovens. Coupled with Huawei NCE-Campus, the precise locations of the interference sources can be detected, and the spectrum of them displayed, enabling the administrator to remove the interference in a timely manner.

Rogue device monitoring

• Huawei APs support WIDS/WIPS, and can monitor, identify, defend, counter, and perform refined management on the rogue devices, to provide security guarantees for air interface environment and wireless data transmission.

Wired access authentication and encryption for the AP

• The AP access control ensures validity of APs. The CAPWAP link protection and DTLS/IPsec encryption provide security assurance, improving data transmission security between the AP and the WLANAC.

Automatic application identification

Huawei APs support smart application control technology and can implement visualized control on Layer 4 to Layer 7 applications.

Traffic identification

• Coupled with Huawei WLAN ACs, the APs can identify over 6000 common applications in various office scenarios. Based on the identification results, policy control can be implemented on user services, including priority adjustment, scheduling, blocking, and rate limiting to ensure efficient bandwidth resource use and improve quality of keyservices.

Traffic statistics collection

• Traffic statistics of each application can be collected globally, by SSID, or by user, enabling the network administrator to know application use status on the network. The network administrator or operator can implement visualized control on service applications on smart terminals to enhance security and ensure effective bandwidth control.

IoT extension

• The AP provides USB and PoE out interfaces that supports BLE5.0/Zigbee/RFID/Thread etc protocol for flexible IoT application extension, implementing short-distance, lower-power consumption IoT applications.

Cloud-based Management

• The AP can be managed via cloud, eliminating the need to deploy a WLAN AC. In cloud-based management mode, abundant authentication functions, such as pre-shared key (PSK) authentication, Portal authentication, SMS authentication, and social media authentication, can be implemented with no authentication server. This mode significantly simplifies the networking and reduces the capital expenditure (CAPEX). In addition, multiple advanced functions, such as online cloud-based network planning, cloud-based deployment, cloud-based inspection, and cloud-based O&M, can be implemented through Huawei cloud management platform. In multi-branch deployment scenarios, cloud APs are pre-configured on the cloud management platform. During onsite network deployment, you only need to power on the cloud APs, connect them to the network ports of switches, and implement plug-and-play (PnP) of the APs by scanning the QR codes. The pre-configurations then are automatically delivered to the APs, significantly shortening the network deployment time. The cloud management platform can monitor the network status, device status, and STA connection status of all sites in a comprehensive and intuitive manner.

Basic Specifications

Fat/Fit AP mode

Item	Description
WLAN features	Compliance with IEEE 802.11ax and compatibility with IEEE 802.11a/b/g/n/ac/ac Wave 2 Providing 6 spatial streams, achieving up to 5.37 Gbps for the device Maximum ratio combining (MRC) Space time block code (STBC) Cyclic Delay Diversity (CDD)/Cyclic Shift Diversity (CSD) Beamforming DL/UL MU-MIMO DL/UL OFDMA Target wake time (TWT) Compliance with 1024-QAM and compatibility with 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 Priority mapping and scheduling that are compliant with Wi-Fi multimedia (WMM) to implement priority-based data processing and forwarding. Automatic and manual rate adjustment (the rate is adjusted automatically by default)
	WLAN channel management and channel rate adjustment NOTE For detailed management channels, see the Country Code & Channel Compliance Table. Automatic channel scanning and interference avoidance Service set identifier (SSID) hiding Signal sustain technology (SST) Unscheduled automatic power save delivery (U-APSD) Control and Provisioning of Wireless Access Points (CAPWAP) in Fit AP mode Automatic login in Fit AP mode Extended Service Set (ESS) in Fit AP mode Multi-user CAC 802.11k and 802.11v smart roaming
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) Compliance with IEEE 802.1q SSID-based VLAN assignment VLAN trunk on uplink Ethernet ports Management channel of the AP uplink port in tagged and untagged mode DHCP client, obtaining IP addresses through DHCP Tunnel data forwarding and direct data forwarding STA isolation in the same VLAN IPv4/IPv6Access control lists (ACLs)

Item	Description			
	Link Layer Discovery Protocol (LLDP)			
	Uninterrupted service forwarding upon CAPWAP channel disconnection in Fit AP mode			
	Unified authentication on the AC in Fit AP mode			
	AC dual-link backup in Fit AP mode			
	In-service software upgrade (ISSU) in Fit AP mode			
	Network Address Translation (NAT) in Fat AP mode			
	IPv6 in Fit AP mode			
	Soft Generic Routing Encapsulation (GRE)			
	IPv6 Source Address Validation Improvements (SAVI)			
QoS features	WMM parameter management for each radio			
	WMM power saving			
	Priority mapping for upstream packets and flow-based mapping for downstream packets			
	Queue mapping and scheduling			
	User-based bandwidth limiting			
	Adaptive bandwidth management (automatic bandwidth adjustment based on the user quantity and			
	radio environment) to improve user experience			
	Airtime scheduling			
	Application acceleration for VR and mobile gaming			
	Air interface HQoS scheduling			
Security features	Open system authentication			
	WEP authentication/encryption using a 64-bit, 128-bit, 152-bit or 192-bit* encryption key			
	WPA2-PSK authentication and encryption (WPA2 personal edition)			
	WPA2-802.1X authentication and encryption (WPA2 enterprise edition)			
	WPA3-SAE authentication and encryption (WPA3 personal edition)*			
	WPA3-802.1X authentication and encryption (WPA3 enterprise edition)*			
	WPA-WPA2 hybrid authentication			
	WPA2-WPA3 hybrid authentication*			
	WPA2-PPSK authentication and encryption in Fit AP mode			
	WAPI authentication and encryption			
	Wireless intrusion detection system (WIDS) and wireless intrusion prevention system (WIPS), including rogue device detection and countermeasure, attack detection and dynamic blacklist, and STA/AP blacklist and whitelist			
	802.1x authentication, MAC address authentication, and Portal authentication			
	DHCP snooping			
	Dynamic ARP Inspection (DAI)			
	IP Source Guard (IPSG)			
	802.11w Protected Management Frames (PMFs)			
Maintenance features	Unified management and maintenance on the AC in Fit AP mode			
	Automatic login and configuration loading, and plug-and-play (PnP) in Fit AP mode			
	Batch upgrade in Fit AP mode			
	Telnet			
	STelnet using SSH v2			
	SFTP using SSH v2			
	Remote wireless O&M through the Bluetooth console port			

Item	Description		
	Web local AP management through HTTP or HTTPS in Fat AP mode		
	Real-time configuration monitoring and fast fault location using the NMS		
	SNMP v1/v2/v3 in Fat AP mode		
	System status alarm		
	Network Time Protocol (NTP) in Fat AP mode		
BYOD	NOTE		
	The AP supports bring your own device (BYOD) only in Fit AP mode.		
	Identifies the device type according to the organizationally unique identifier (OUI) in the MAC address.		
	Identifies the device type according to the user agent (UA) information in an HTTP packet.		
	Identifies the device type according to DHCP options.		
	The RADIUS server delivers packet forwarding, security, and QoS policies according to the device type carried in the RADIUS authentication and accounting packets.		
Location service	NOTE		
	The AP supports the locating service only in Fit AP mode.		
	STA location		
	Working with the location server to locate rogue devices		
	Bluetooth location		
Spectrum analysis*	NOTE		
	The AP supports spectrum analysis only in Fit AP mode.		
	Identification of more than eight interference sources including bluetooth devices, microwave ovens, cordless phones, ZigBee devices, game controllers, 2.4 GHz/5 GHz wireless video and audio devices, and baby monitors		
	Working with the location server to locate interference sources and perform spectrum analysis on them		

Cloud-based management mode

Item	Description
WLAN features	Compliance with IEEE 802.11ax and compatibility with IEEE 802.11a/b/g/n/ac/ac Wave 2
	Providing 6 spatial streams, achieving up to 5.37 Gbps for the device
	Maximum ratio combining (MRC)
	Space time block code (STBC)
	Cyclic Delay Diversity (CDD)/Cyclic Shift Diversity (CSD)
	Beamforming
	DL/UL MU-MIMO
	DL/UL OFDMA
	Compliance with 1024-QAM and compatibility with 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)
	Priority mapping and scheduling that are compliant with Wi-Fi multimedia (WMM) to implement priority-based data processing and forwarding. Automatic and manual rate adjustment (the rate is adjusted automatically by default)
	WLAN channel management and channel rate adjustment

Item	Description	
	For detailed management channels, see the Country Code & Channel Compliance Table. Automatic channel scanning and interference avoidance Service set identifier (SSID) hiding Signal sustain technology (SST) Unscheduled automatic power save delivery (U-APSD) Automatic login	
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) Compliance with IEEE 802.1q SSID-based VLAN assignment DHCP client, obtaining IP addresses through DHCP STA isolation in the same VLAN Access control lists (ACLs) Unified authentication on the Agile Controller Network Address Translation (NAT)	
QoS features	WMM parameter management for each radio WMM power saving Priority mapping for upstream packets and flow-based mapping for downstream packets Queue mapping and scheduling User-based bandwidth limiting Airtime scheduling Application acceleration for VR and mobile gaming Air interface HQoS scheduling	
Security features	Open system authentication WEP authentication/encryption using a 64-bit, 128-bit, 152-bit or 192-bit* encryption key WPA2-PSK authentication and encryption (WPA2 personal edition) WPA2-802.1X authentication and encryption (WPA2 enterprise edition) WPA3-SAE authentication and encryption (WPA3 personal edition)* WPA3-802.1X authentication and encryption (WPA3 enterprise edition)* WPA-WPA2 hybrid authentication WPA2-WPA3 hybrid authentication* 802.1x authentication, MAC address authentication, and Portal authentication DHCP snooping Dynamic ARP Inspection (DAI) IP Source Guard (IPSG)	
Maintenance features	Unified management and maintenance on the Agile Controller Automatic login and configuration loading, and plug-and-play (PnP) Batch upgrade Telnet STelnet using SSH v2 SFTP using SSH v2 Remote wireless O&M through the Bluetooth console port	

Item	Description
Web local AP management through HTTP or HTTPS	
Real-time configuration monitoring and fast fault location using the NMS	
System status alarm	
	Network Time Protocol (NTP)

Technical Specifications

Item		Description	
Technical specifications	Dimensions (H x W x D)	170x86x74mm	
	Weight	0.7 kg	
	Interface type	Up link: 1 x 2.5GE + 1 x 10GE SFP+ Down link: 4 x GE Pass through: 2 x RJ45 1 x USB interface NOTE • 2.5GE electrical port can also support 100M/1000M rates. • 10G optical ports can support GE/10GE optical modules. • GE3/PoE_Out: Supports PoE output. • Pass Through: Connects to a network cable or phone cable for transparent transmission.	
	IoT expansion	External IoT module extension by USB and PoE out	
	Bluetooth	Build in BLE5.0	
	LED indicator	Indicates the power-on, startup, running, alarm, and fault states of the system.	
Power specifications	Power input	DC: 48V±10%PoE power supply: In compliance with 802.3at/bt.	
	PoE out	Support PoE out	
	Maximum power consumption	802.3bt power supply: 28.9 W (excluding USB and PoE_OUT) 802.3at power supply: 25.5 W (excluding USB and PoE_OUT) NOTE For details about the working status of the Ethernet port, PoE out and USB in different power supply modes, see the Specification Query Tool. The actual maximum power consumption depends on local laws and regulations.	
Environmental specifications	Operating temperature	0°C to +40°C NOTE The temperature of the shell may be higher than the operating temperature of the device, but is within the scope of safety standards; thererfore, the normal running of the device will not be affected.	
	Storage temperature	-40°C to +70°C	
	Operating humidity	5% to 95% (non-condensing)	
	Altitude	–60 m to +5000 m	

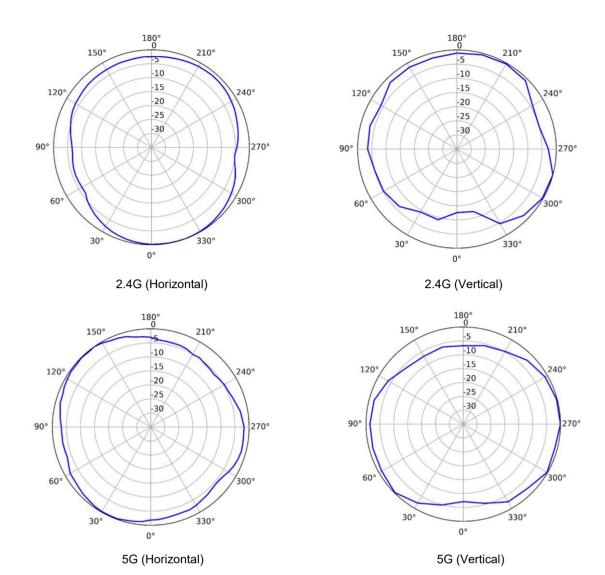
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	Atmospheric pressure	53 kPa to 106 kPa	
Radio specifications	Antenna type	Built-in smart antennas	
	Antenna gain	2.4 GHz: 3.5dBi	
		5GHz: 5dBi	
		NOTE	
		1. The gains above are the single-antenna peak gains.	
		2. The equivalent antenna gain after all 2.4 GHz or 5 GHz antennas are combined is 1.6 dBi in 2.4 GHz or 1.5 dBi in 5 GHz.	
	Maximum number of SSIDs for each radio	≤ 16	
	Maximum number of users	≤ 1024	
		NOTE	
		The actual number of users varies according to the environment.	
	Maximum transmit power	2.4GHz: 23dBm (combined power)	
		5GHz: 26dBm (combined power)	
		NOTE	
		The actual transmit power depends on local laws and regulations.	
	Power increment	1 dBm	

Item		Description	
	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 - 160 MHz: 1 • 802.11ax - 20 MHz: 13 - 40 MHz: 6 - 80 MHz: 3 - 160 MHz: 1 • 802.11ax - 20 MHz: 13 - 40 MHz: 1	
		supported by China as an example. The number of non- overlapping channels varies in different countries. For details, see the Country Codes & Channels Compliance	

Standards Compliance

Item	Description		
Safety standards	UL 62368-1 EN 62368-1 IEC 62368-1	GB 4943 EN 60950–1 UL 60950–1	CAN/CSA 22.2 No.60950-1 IEC 60950-1
Radio standards	ETSI EN 300 328 ETSI EN 301 893	RSS-210	AS/NZS 4268
EMC standards	EN 301 489–1 EN 301 489–17 ETSI EN 60601-1-2 FCC Part 15 ICES-003 YD/T 1312.2-2004	ITU k.20 GB 9254 GB 17625.1 AS/NZS CISPR22 EN 55022	EN 55024 CISPR 22 CISPR 24 IEC61000-4-6 IEC61000-4-2
IEEE standards	IEEE 802.11a/b/g IEEE 802.11n IEEE 802.11ac IEEE 802.11ax	IEEE 802.11h IEEE 802.11d IEEE 802.11e IEEE 802.11k	IEEE 802.11u IEEE 802.11v IEEE 802.11w IEEE 802.11r
Security standards	802.11i, Wi-Fi Protected Access 2(WPA2), WPA, WPA3* NOTE This function can be implemented through software upgrades. 802.1X Advanced Encryption Standards(AES), Temporal Key Integrity Protocol(TKIP) EAP Type(s)		
EMF	CENELEC EN 62311 CENELEC EN 50385	OET65 RSS-102	FCC Part1&2 FCC KDB Series
RoHS	Directive 2002/95/EC & 2011/65/EU		
Reach	Regulation 1907/2006/EC		
WEEE	Directive 2002/96/EC & 2012/19/EU		

Antennas Pattern



More Information

For more information about Huawei WLAN products, visit http://e.huawei.com or contact us in the following ways:

- Global service hotline: http://e.huawei.com/en/service-hotline
- Logging in to the Huawei Enterprise technical support web: http://support.huawei.com/enterprise/
- Sending an email to the customer service mailbox: support_e@huawei.com

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