Huawei AP7060DN
Access Point Datasheet

Product Overview

The AP7060DN is a cutting-edge 802.11ax wireless access point (AP) with built-in omnidirectional antennas. On the 2.4 GHz band, the AP7060DN supports 4x4 MIMO and four spatial streams, achieving a rate of 1.15 Gbit/s. On the 5 GHz band, the AP7060DN supports 8x8 MIMO and eight spatial streams, achieving a rate of 4.8 Gbit/s. The device rate can reach up to 5.95 Gbit/s. The AP7060DN supports high-bandwidth services such as VR/AR all-interactive teaching, HD video streaming, multimedia, and desktop cloud, and provides high-quality wireless services for enterprises. In terms of coverage, access density, and stability, the AP7060DN provides better-performance mobile cloud access services, helping users build an optimal wireless network. In compliance with 802.11ax and with its 10GE uplink interface, the AP7060DN can easily eliminate the bottleneck in upstream bandwidth of common APs. The AP7060DN leads the industry in intelligence, security, and usability. These powerful features and the AP's beautiful appearance make the AP7060DN applicable to enterprise office and education scenarios.

AP7060DN

AP7060DN installed with

an external IoT module

- Supports 802.11ax, DL OFDMA*, and DL MU-MIMO*. The AP can provide services simultaneously on both the 2.4 GHz and 5 GHz bands, at a rate of up to 1.15 Gbit/s at 2.4 GHz, 4.8 Gbit/s at 5 GHz, and 5.95 Gbit/s for the device.

- 10GE uplink interface that is compatible with the 100M/1000M/2.5G/5G rate, to improve the service load capability.

- Built-in Bluetooth 5.0, increasing the working distance and working with eSight to accurately locate Bluetooth terminals.

- USB interface used for external power supply and storage.

- Provides an external IoT module, allowing for flexible IoT application extension.

- Supports the Fat, Fit, and cloud modes and enables Huawei cloud-based management platform to manage and operate APs and services on the APs, reducing network O&M costs.

  Note: *UL OFDMA and UL MU-MIMO are not supported currently.

Feature Descriptions

10G uplink

- The AP provides a 10GE uplink interface, supporting the uplink bandwidth of over 5 Gbit/s.

IoT extension

- The AP provides an external IoT module that allows for extension of ZigBee and RFID, implementing short-distance, lower-power consumption IoT applications.

802.11ax standard compliance

- The AP supports 1024QAM modulation and 8x8 MIMO technology, achieving an air interface rate of 4.8 Gbit/s. DL OFDMA modulation enables multiple users to receive and send information at the same time, reducing the delay and improving network efficiency.

MU-MIMO

- The AP supports DL MU-MIMO* to send data to multiple STAs at the same time (currently, most 802.11n or 802.11ac Wave 1 APs can only send data to one STA simultaneously). The 802.11ax standard supports a maximum of 8SU-8MU.

   *Note: *UL OFDMA and UL MU-MIMO are not supported currently.*

Cloud-based management

- Huawei Cloud Managed Network (CMN) Solution consists of the cloud management platform and a full range of cloud managed network devices. The cloud management platform provides various functions including management of APs, tenants, applications, and licenses, network planning and optimization, device monitoring, network service configuration, and value-added services.

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 network stability.

- 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.

5G-prior access (Band steering)

- The APs support both 2.4G and 5G frequency bands. The 5G-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, WPA/WPA2-PPSK, WPA/WPA2-802.1x, 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.

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 eSight, 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.

AP access authentication and encryption

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

Automatic radio calibration

- Automatic radio calibration allows an AP to collect signal strength and channel parameters of surrounding APs and generate AP topology according to the collected data. Based on interference from authorized APs, rogue APs, and non-Wi-Fi interference sources, each 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.

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 ACs, the APs can identify over 1600 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 key services.

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.

Basic Specifications

Fat/Fit AP mode

Item	Description
WLAN features	Compliance with IEEE 802.11a/b/g/n/ac/ac Wave 2/ax
	Maximum rate of up to 5.95 Gbit/s
	Maximum ratio combining (MRC)
	Space time block code (STBC)
	Cyclic Delay Diversity (CDD)/Cyclic Shift Diversity (CSD)
	Beamforming
	DL MU-MIMO*, DL OFDMA*
	*Note: *UL OFDMA and UL MU-MIMO are not supported currently.*
	Low-density parity-check (LDPC)
	Maximum-likelihood detection (MLD)
	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 and 80 MHz modes
	Priority mapping and packet scheduling based on a Wi-Fi Multimedia (WMM) profile to implement priority-based data processing and forwarding
	Automatic and manual rate adjustment
	WLAN channel management and channel rate adjustment
	Automatic channel scanning and interference avoidance
	Service set identifier (SSID) hiding
	Signal sustain technology (SST)
	Unscheduled automatic power save delivery (U-APSD)

Item	Description
	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
	Hotspot2.0
	802.11k and 802.11v smart roaming
	802.11r fast roaming (≤ 50 ms)
	WAN authentication escape. In local forwarding mode, this function retains the online state of existing STAs and allows access of new STAs when APs are disconnected from an AC, ensuring service continuity.
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
	Access control lists (ACLs)
	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
	Network Address Translation (NAT) in Fat AP mode
	IPv6 in Fit AP mode
	Soft Generic Routing Encapsulation (GRE)
	IPv6 Source Address Validation Improvements (SAVI)
	Multicast Domain Name Service (mDNS) gateway protocol: supports AirPlay and AirPrint service sharing between users of different VLANs
QoS features	Priority mapping and packet scheduling based on a Wi-Fi Multimedia (WMM) profile to implement priority-based data processing and forwarding
	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
	Smart Application Control (SAC) in Fit AP mode
	Airtime scheduling
	Support for Microsoft Lync APIs and high voice call quality through Lync API identification and scheduling
Security features	Open system authentication

Item	Description
	WEP authentication/encryption using a 64-bit, 128-bit, or 152-bit encryption key
	WPA/WPA2-PSK authentication and encryption (WPA/WPA2 personal edition)
	WPA/WPA2-802.1x authentication and encryption (WPA/WPA2 enterprise edition)
	WPA-WPA2 hybrid authentication
	WPA/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)
	Application identification
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
	Local AP management through the serial interface
	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.
	Locates tags in compliance with proprietary protocols of AeroScout and Ekahau.
	Locates Wi-Fi terminals.
	Works with eSight to locate rogue devices.

Cloud-based management mode

Item	Description

Item	Description
WLAN features	Compliance with IEEE 802.11a/b/g/n/ac/ac Wave 2/ax
	Maximum rate of up to 5.95 Gbit/s
	Maximum ratio combining (MRC)
	Space time block code (STBC)
	Beamforming
	Low-density parity-check (LDPC)
	Maximum-likelihood detection (MLD)
	Frame aggregation, including A-MPDU (Tx/Rx) and A-MSDU (Rx only)
	802.11 dynamic frequency selection (DFS)
	Priority mapping and packet scheduling based on a Wi-Fi Multimedia (WMM) profile to implement priority-based data processing and forwarding
	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)
	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	Priority mapping and packet scheduling based on a Wi-Fi Multimedia (WMM) profile to implement priority-based data processing and forwarding
	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
Security features	Open system authentication
	WEP authentication/encryption using a 64-bit, 128-bit, or 152-bit encryption key
	WPA/WPA2-PSK authentication and encryption (WPA/WPA2 personal edition)
	WPA/WPA2-802.1x authentication and encryption (WPA/WPA2 enterprise edition)
	WPA-WPA2 hybrid authentication
	WPA/WPA2-PPSK authentication and encryption
	802.1x authentication, MAC address authentication, and Portal authentication

Item	Description	
	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	
	Local AP management through the serial interface	
	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)	57 mm x 220 mm x 220 mm
	Weight	1.8 kg
	Interface type	1 x 10/100/1000M self-adaptive Ethernet interface (RJ45) 1 x 100/1000M/2.5G/5G/10G self-adaptive Ethernet interface (RJ45) 1 x Management console port (RJ45) 1 x USB interface
	External IoT module	1 x External IoT module (supporting ZigBee and RFID)
	Built-in Bluetooth	BLE5.0
	LED indicator	Indicates the power-on, startup, running, alarm, and fault states of the system.
Power specifications	Power input	• DC: 42.5 V to 57 V • PoE power supply: In compliance with 802.3 bt.
	Maximum power consumption	30 W (excluding output power consumption of the USB interface and IoT) **NOTE** *The actual maximum power consumption depends on local laws and regulations.*
Environmental specifications	Operating temperature	–10°C to +50°C
	Storage temperature	–40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	Dustproof and waterproof grade	IP41
	Altitude	–60 m to +5000 m

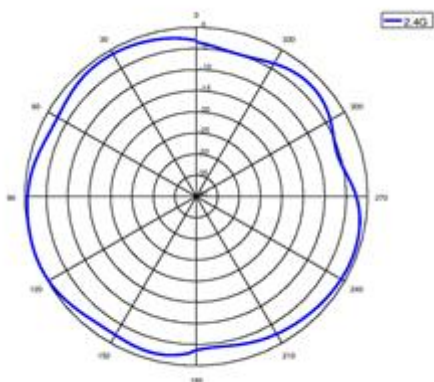| Item		Description
	Atmospheric pressure	53 kPa to 106 kPa
Radio specifications	Antenna type	Built-in dual-band omnidirectional antennas
	Antenna gain	2.4G: 4 dBi 5G: 2 dBi
	Maximum number of SSIDs for each radio	≤ 16
	Maximum number of users	≤ 1024 **NOTE** *The actual number of users varies according to the environment.*
	Maximum transmit power	2.4G: 24 dBm (combined power) 5G: 27 dBm (combined power) **NOTE** *The actual transmit power depends on local laws and regulations.*
	Power increment	1 dBm

	Maximum number of non-overlapping channels	2.4 GHz（2.412GHz～2.472GHz）
		
		• 802.11b/g
		  − 20MHz：3
		• 802.11n
		  − 20MHz：3
		  − 40MHz：1
		• 802.11ax
		  − 20MHz：3
		  − 40MHz：1
		
		5 GHz（5.18GHz～5.825GHz）
		
		• 802.11a
		  − 20MHz：13
		• 802.11n
		  − 20MHz：13
		  − 40MHz：6
		• 802.11ac
		  − 20MHz：13
		  − 40MHz：6
		  − 80MHz：3
		• 802.11ax
		  − 20MHz：13
		  − 40MHz：6
		  − 80MHz：3
		
		NOTE
		The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the Country Codes & Channels Compliance

	Channel rate supported	802.11b: 1, 2, 5.5, and 11 Mbit/s

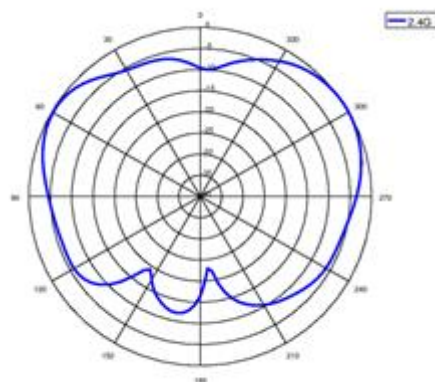| Item		Description
		802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s
		802.11n: 6.5 to 800 Mbit/s
		802.11ac wave2: 6.5 to 1733.3 Mbit/s
		802.11ax: 9 to 4800 Mbit/s
	Receiver sensitivity (Typical values)	• 2.4 GHz 802.11b : -104 dBm @ 1 Mbit/s； -95 dBm @ 11 Mbit/s
		• 2.4 GHz 802.11g : -97 dBm @ 6 Mbit/s； -81 dBm @ 54 Mbit/s
		• 2.4 GHz 802.11n (HT20): 97 dBm @ MCS0； -78 dBm @ MCS31
		• 2.4 GHz 802.11n(HT40): -94 dBm @ MCS0； -75 dBm @ MCS31
		• 2.4 GHz (HE20): -97 dBm @ MCS0NSS1; -68 dBm @ MCS11NSS4
		• 2.4 GHz (HE40): -94 dBm @ MCS0NSS1; -65 dBm @ MCS11NSS4
		• 5 GHz 802.11a : -99 dBm @ 6 Mbit/s; -83 dBm @ 54 Mbit/s
		• 5 GHz 802.11n (HT20): -99 dBm @ MCS0; -78 dBm @ MCS31
		• 5 GHz 802.11n (HT40): -97 dBm @ MCS0; -75 dBm @ MCS31
		• 5 GHz 802.11ac (VHT20): -99 dBm @ MCS0NSS1; -73 dBm @ MCS8NSS8
		• 5 GHz 802.11ac (VHT40): -96 dBm @ MCS0NSS1; -66 dBm @ MCS9NSS8
		• 5 GHz 802.11ac (VHT80): -92 dBm @ MCS0NSS1; -63 dBm @ MCS9NSS8
		• 5 GHz 802.11ax (HE20): -99 dBm @ MCS0NSS1; -66 dBm @ MCS11NSS8
		• 5 GHz 802.11ax (HE40): -96 dBm @ MCS0NSS1; -63 dBm @ MCS11NSS8
		• 5 GHz 802.11ax (HE80): -93 dBm @ MCS0NSS1; -60 dBm @ MCS11NSS8

Standards compliance

Item	Description
Safety standards	UL 60950–1
	CAN/CSA 22.2 No.60950-1
	IEC 60950–1
	EN 60950–1
	GB 4943
	IEC 62368–1
	EN 62368–1
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

Item	Description
	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
	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

2.4G (Horizontal)

2.4G (Vertical)
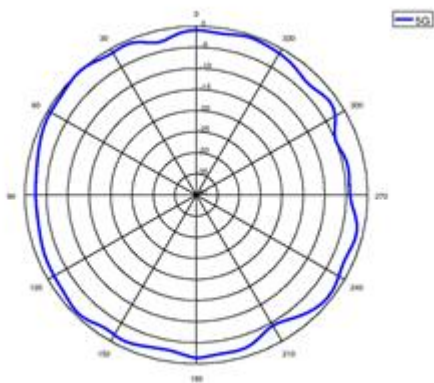
5G (Horizontal)
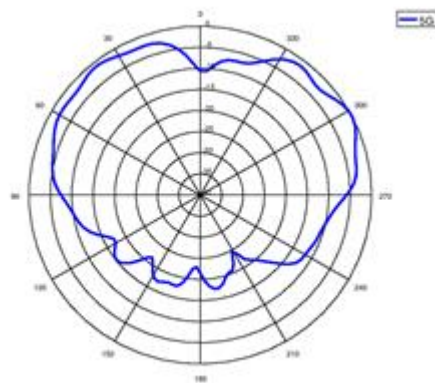
5G (Vertical)

Ordering Information

Part Number	Description
02351TYR	AP7060DN mainframe (11ax, indoor, 2.4G 4x4 + 5G 8x8 dual bands, built-in antenna, 10GE+GE, USB, IoT slot, BLE)
02220369	PoE Power Adapter(802.3at/PoE+): Adapter,-40degC,50degC,90V,264V,54V/0.65A,C8/RJ45-GE
02220154	PoE Power Adapter(PoE++): Adapter,-25degC,60degC,90V,264V,56V/1.52A,C8/RI45
02220935	AC/DC Power Adapter: Adapter,-25degC,50degC,90V,290V,56V1.07A
50083593	MT600-ESL(2400~2483.5MHz frequency, ESL, built-in antenna)
50083595	MT600-AM(2400~2483.5MHz frequency, asset management, built-in antenna)

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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