

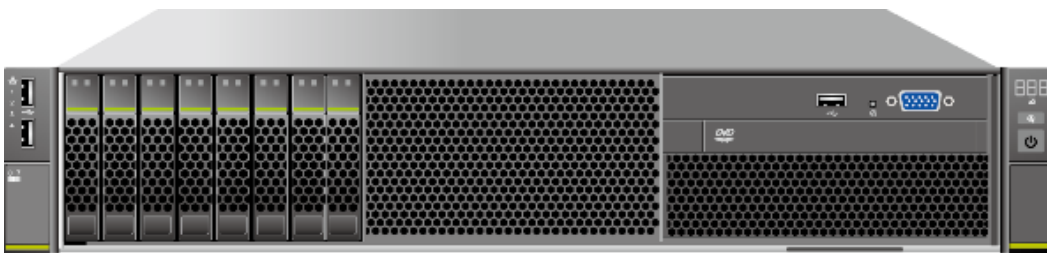


Huawei AC6800V Wireless Access Controller Datasheet

Product Overview

The AC6800V is a high-specification wireless access controller (AC) for large enterprise campuses, enterprise branches, and school campuses. Based on the Huawei-developed server platform, the AC6800V can manage up to 10K access points (APs) and provide 60 Gbit/s forwarding performance. It features high scalability and offers users considerable flexibility in configuring the number of managed APs. When used with Huawei's full series 802.11ax, 802.11ac and 802.11n APs, the AC6800V delivers an adaptable solution for large campus networks, enterprise office networks, wireless Metropolitan Area Network (MAN), and hotspot coverage.

Huawei AC6800V wireless access controller



Product Features

Large-capacity and high-performance design

- The AC6800V is capable of supporting medium and large campuses with up to 10K APs.
- Provides 6x10GE optical interfaces and 6xGE electrical interfaces, supporting up to 60 Gbit/s forwarding performance.

Various roles

- The AC6800V has a built-in Portal/AAA server and can provide Portal/802.1X authentication for users, reducing customer investment.

Flexible networking

- The WLAN AC can be deployed in inline, bypass, bridge, and Mesh network modes, and supports both centralized and local forwarding.
- The WLAN AC and APs can be connected across a Layer 2 or Layer 3 network. In addition, NAT can be deployed when APs are deployed on the private network and the WLAN AC is deployed on the public network.
- The WLAN AC is compatible with Huawei full-series 802.11n, 802.11ac and 802.11ax APs and supports hybrid networking of 802.11n, 802.11ac and 802.11ax APs for simple scalability.

Built-in application identification server

- Supports Layer 4 to Layer 7 application identification and can identify over 6000 applications, including common office applications and P2P download applications, such as Lync, FaceTime, YouTube, and Facebook.
- Supports application-based policy control technologies, including traffic blocking, traffic limit, and priority adjustment policies.
- Supports automatic application expansion in the application signature database.

Comprehensive reliability design

- Supports redundant AC power supplies and hot swappable power supplies.
- Supports AC 1+1 HSB, and N+1 backup, ensuring uninterrupted services.
- Supports port backup based on the Link Aggregation Control Protocol (LACP) or Multiple Spanning Tree Protocol (MSTP)..
- Supports WAN authentication escape between APs and WLAN ACs. In local forwarding mode, this feature retains the online state of existing STAs and allows access of new STAs when APs are disconnected from WLAN ACs, ensuring service continuity.

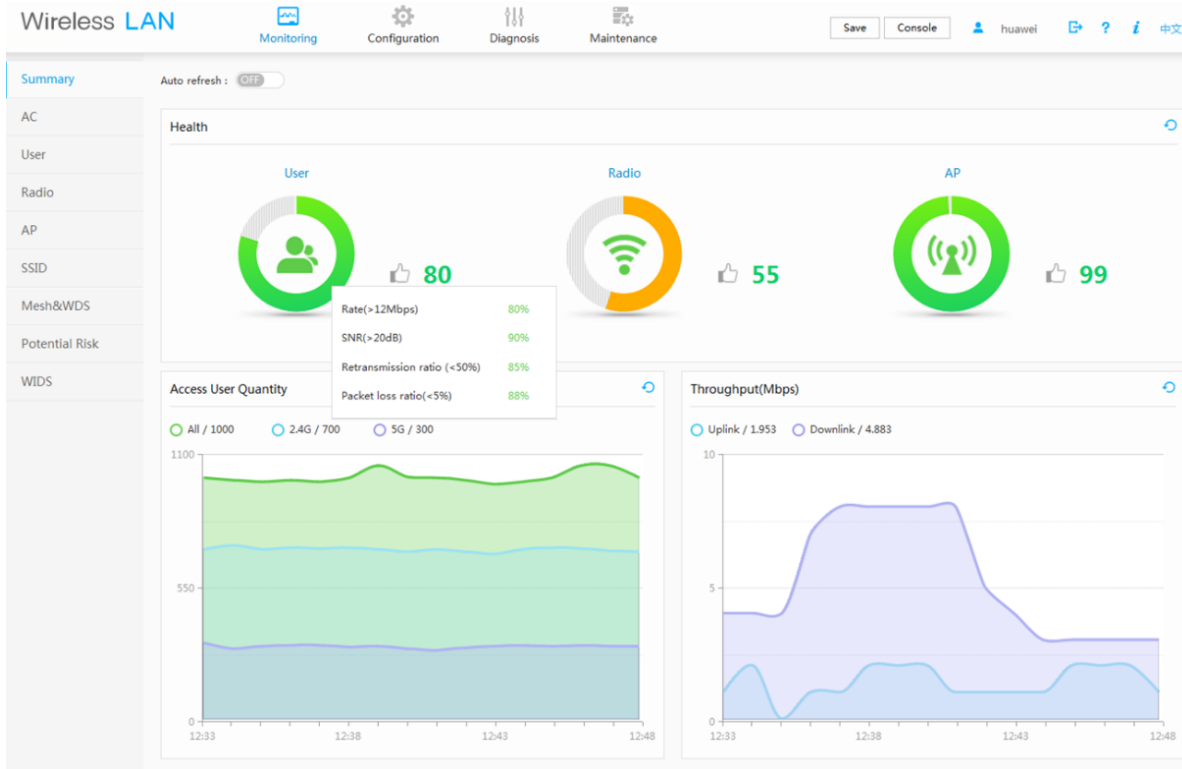
Built-in visualized network management platform

- The AC6800V has a built-in web system that is easy to configure and provides comprehensive monitoring and intelligent diagnosis.

Health-centric one-page monitoring, visualized KPIs

- One page integrates the summary and real-time statistics. KPIs are displayed in graphs, including user performance, radio performance, and AP performance, enabling users to extract useful information from the massive amounts of monitored data, while also knowing the device and network status instantly.

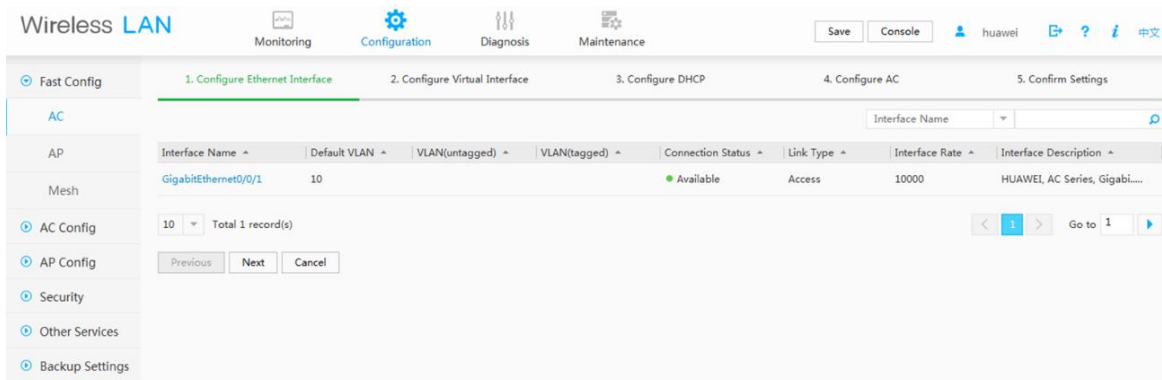
Monitoring interface



Profile-based configuration by AP group simplifies configuration procedure and improves efficiency.

- The web system supports AP group-centric configuration and automatically selects the common parameters for users, meaning that users do not need to pre-configure the common parameters, simplifying the configuration procedure.
- If two AP groups have small configuration differences, users can copy the configurations of one AP group to the other. This improves configuration efficiency because users only need to modify the original configurations, not create entirely new ones each time.

Configuration interface



One-click diagnosis solves 80% of common network problems.

- The web system supports real-time and periodic one-click intelligent diagnosis from the dimensions of users, APs, and WLAN ACs, and provides feasible suggestions for troubleshooting the faults.

The screenshot displays the 'Intelligent Diagnosis' tool in the Huawei Wireless LAN management interface. At the top, navigation tabs include Monitoring, Configuration, Diagnosis, and Maintenance. The main area shows a network diagram with three nodes: User (74ea-3a7e-a0c6), AP, and AC. The User node is marked with a red 'X' and '3 Potential issue'. Below the diagram, the 'Diagnosis process' section is expanded, showing a list of checks: 'User online fails' (all green), 'User offline' (red X), 'User offline record' (red X), 'The AP is faulty.' (blue suggestion), 'CPU check of associated AP' (green), and 'Memory check of associated AP' (green). A yellow highlight suggests checking subscenario diagnosis results. The 'Real-time connection info' section on the right provides a detailed view of the user's connection, including IP Address (192.168.1.251), Channel (1), Radio ID (0), SSID (misaka), BSSID (00e0-fc03-0200), RSSI (-83 dBm), SNR (20 dB), Channel usage (41%), Interference ratio (9%), Uplink rate (168 bps/s), Downlink rate (2784 bps/s), Number of sent packets (58), Number of received packets (557), Retransmission ratio (91.0%), and Packet loss ratio (0%).

AC6800V features

Switching and forwarding features

Feature		Description
Ethernet features	Ethernet	Operating modes of full duplex, half duplex, and auto-negotiation Rates of an Ethernet interface: 10 Mbit/s, 100 Mbit/s, 1000 Mbit/s, and auto-negotiation <ul style="list-style-type: none"> • Flow control on interfaces • Jumbo frames • Link aggregation • Load balancing among links of a trunk • Interface isolation and forwarding restriction • Broadcast storm suppression
	VLAN	Access modes of access, trunk, and hybrid Default VLAN VLAN pool
	MAC	Automatic learning and aging of MAC addresses Static, dynamic, and blackhole MAC address entries Packet filtering based on source MAC addresses Interface-based MAC learning limiting
	ARP	Static and dynamic ARP entries ARP in a VLAN Aging of ARP entries
	LLDP	LLDP
Ethernet loop	MSTP	STP

Feature		Description
protection		RSTP MSTP BPDU protection, root protection, and loop protection Partitioned STP
IPv4 forwarding	IPv4 features	ARP and RARP ARP proxy Auto-detection NAT Bonjour protocol
	Unicast routing features	Static route RIP-1 and RIP-2 OSPF BGP IS-IS Routing policies and policy-based routing URPF check DHCP server and relay DHCP snooping
	Multicast routing features	IGMPv1, IGMPv2, and IGMPv3 PIM-SM Multicast routing policies RPF
IPv6 forwarding	IPv6 features	ND protocol
	Unicast routing features	Static route RIPng OSPFv3 BGP4+ IS-IS IPv6 DHCPv6 DHCPv6 snooping
	Multicast routing features	MLD MLD snooping
Device reliability	BFD	BFD
Layer 2 multicast features	Layer 2 multicast	IGMP snooping Prompt leave Multicast traffic control Inter-VLAN multicast replication
Ethernet OAM	EFM OAM	Neighbor discovery Link monitoring Fault notification Remote loopback
QoS features	Traffic classification	Traffic classification based on the combination of the L2 protocol header, IP 5-

Feature	Description
	tuple, and 802.1p priority
	Action Access control after traffic classification Traffic policing based on traffic classification Re-marking packets based on traffic classifiers Class-based packet queuing Associating traffic classifiers with traffic behaviors
	Queue scheduling PQ scheduling DRR scheduling PQ+DRR scheduling WRR scheduling PQ+WRR scheduling
	Congestion avoidance SRED WRED
	Application control Smart Application Control (SAC)
Configuration and maintenance	Terminal service Configurations using command lines Error message and help information in English Login through console and Telnet terminals Send function and data communications between terminal users
	File system File systems Directory and file management File uploading and downloading using FTP and TFTP
	Debugging and maintenance Unified management over logs, alarms, and debugging information Electronic labels User operation logs Detailed debugging information for network fault diagnosis Network test tools such as traceroute and ping commands Intelligent diagnosis Interface mirroring and flow mirroring
	Version upgrade Device software loading and online software loading BIOS online upgrade In-service patching
Security and management	Network management ICMP-based ping and traceroute SNMPv1, SNMPv2c, and SNMPv3 Standard MIB RMON NetStream
	System security Different user levels for commands, preventing unauthorized users from accessing device SSHv2.0 RADIUS and HWTACACS authentication for login users ACL filtering DHCP packet filtering (with the Option 82 field)

Feature		Description
		<p>Local attack defense function that can protect the CPU and ensure that the CPU can process services</p> <p>Defense against control packet attacks</p> <p>Defenses against attacks such as source address spoofing, Land, SYN flood (TCP SYN), Smurf, ping flood (ICMP echo), Teardrop, broadcast flood, and Ping of Death attacks</p> <p>URL filtering</p> <p>Antivirus</p> <p>Intrusion prevention</p>

Wireless networking capabilities

Feature		Description
Networking between APs and WLAN ACs		<p>APs and WLAN ACs can be connected through a Layer 2 or Layer 3 network. APs can be directly connected to an AC.</p> <p>APs are deployed on a private network, while WLAN ACs are deployed on the public network to implement NAT traversal.</p> <p>WLAN ACs can be used for Layer 2 bridge forwarding or Layer 3 routing.</p> <p>WAN authentication escape is supported between APs and WLAN ACs. In local forwarding mode, this feature retains the online state of existing STAs and allows access of new STAs when APs are disconnected from WLAN ACs, ensuring service continuity.</p>
Forwarding mode		<p>Direct forwarding (distributed forwarding or local forwarding)</p> <p>Tunnel forwarding (centralized forwarding)</p> <p>Centralized authentication and distributed forwarding</p> <p>In direct forwarding mode, user authentication packets support tunnel forwarding.</p> <p>Soft GRE forwarding.</p> <p>Tunnel forwarding + EoGRE tunnel</p>
WLAN AC discovery		<p>An AP can obtain the device's IP address in any of the following ways:</p> <ul style="list-style-type: none"> • Static configuration • DHCP • DNS <p>The WLAN AC uses DHCP or DHCPv6 to allocate IP addresses to APs. DHCP or DHCPv6 relay is supported.</p> <p>On a Layer 2 network, APs can discover the WLAN AC by sending broadcast CAPWAP packets.</p>
Wireless networking mode		<p>WDS bridging:</p> <ul style="list-style-type: none"> • Point-to-point (P2P) wireless bridging • Point-to-multipoint (P2MP) wireless bridging • Automatic topology detection and loop prevention (STP) <p>Wireless mesh network</p> <ul style="list-style-type: none"> • Access authentication for mesh devices • Mesh routing algorithm • Go-online without configuration

Feature	Description
	<ul style="list-style-type: none"> Mesh network with multiple MPPs Vehicle-ground fast link handover Mesh client mode
CAPWAP tunnel	<p>Centralized CAPWAP</p> <p>CAPWAP control tunnel and data tunnel (optional)</p> <p>CAPWAP tunnel forwarding and direct forwarding in an extended service set (ESS)</p> <p>Heartbeat detection and tunnel reconnection</p>
Active and standby WLAN ACs	<p>Enables and disables the switchback function.</p> <p>Supports load balancing.</p> <p>Supports 1+1 hot backup.</p> <p>NOTE</p> <p><i>In 1+1 VRRP HSB mode, WLAN ACs share one virtual IP address, simplifying the network topology.</i></p> <p>Supports N+1 backup.</p> <p>Supports wireless configuration synchronization between WLAN ACs.</p>

AP management

Feature	Description
AP access control	<p>Displays MAC addresses or SNs of APs in the whitelist.</p> <p>Adds a single AP or multiple APs (by specifying a range of MAC addresses or SNs) to the whitelist.</p> <p>Automatically discovering and manually confirming APs.</p> <p>Automatically discovering APs without manually confirming them.</p>
AP profile management	Specifies the default AP profile that is applied to automatically discovered APs.
AP group management	The AP group function is used to configure multiple APs in batches. When multiple APs managed by a WLAN AC require the same configurations, you can add these APs to one AP group and configure the AP group to complete AP configuration.
AP region management	<p>Supports three AP region deployment modes:</p> <ul style="list-style-type: none"> Distributed deployment: APs are deployed independently. An AP is equivalent to a region and does not interfere with other APs. APs work at the maximum power and do not perform radio calibration. Common deployment: APs are loosely deployed. The transmit power of each radio is less than 50% of the maximum transmit power. Centralized deployment: APs are densely deployed. The transmit power of each radio is less than 25% of the maximum transmit power. <p>Specifies the default region to which automatically discovered APs are added.</p>
AP type management	<p>Manages AP attributes including the number of interfaces, AP types, number of radios, radio types, maximum number of virtual access points (VAPs), maximum number of associated users, and radio gain (for APs deployed indoors).</p> <p>Provides default AP types.</p>
Network topology management	Supports LLDP topology detection.
AP working mode management	Supports AP working mode switchover. The AP working mode can be switched to the Fat or cloud mode on the AC.

Radio management

Feature	Description
Radio profile management	<p>The following parameters can be configured in a radio profile:</p> <ul style="list-style-type: none"> Radio working mode and rate Automatic or manual channel and power adjustment mode Radio calibration interval The radio type can be set to 802.11b, 802.11b/g, 802.11b/g/n, 802.11g, 802.11n, 802.11g/n, 802.11a, 802.11a/n, 802.11ac, or 802.11ax. <p>You can bind a radio to a specified radio profile.</p> <p>Supports MU-MIMO.</p>
Unified static configuration of parameters	Radio parameters such as the channel and power of each radio are configured on the WLAN AC and then delivered to APs.
Dynamic management	<p>APs can automatically select working channels and power when they go online.</p> <p>In an AP region, APs automatically adjust working channels and power in the event of signal interference:</p> <ul style="list-style-type: none"> Partial calibration: The optimal working channel and power of a specified AP can be adjusted. Global calibration: The optimal working channels and power of all the APs in a specified region can be adjusted. <p>When an AP is removed or goes offline, the WLAN AC increases the power of neighboring APs to compensate for the coverage hole.</p> <p>Automatic selection and calibration of radio parameters in AP regions are supported.</p>
Enhanced service capabilities	<p>Band steering: Enables terminals to preferentially access the 5G frequency band, achieving load balancing between the 2.4G and 5G frequency bands.</p> <p>Smart roaming: Enables sticky terminals to roam to APs with better signals.</p> <ul style="list-style-type: none"> 802.11k and 802.11v smart roaming 802.11r fast roaming (≤ 50 ms)

WLAN service management

Feature	Description
ESS management	<p>Allows you to enable SSID broadcast, set the maximum number of access users, and set the association aging time in an ESS.</p> <p>Isolates APs at Layer 2 in an ESS.</p> <p>Maps an ESS to a service VLAN.</p> <p>Associates an ESS with a security profile or a QoS profile.</p> <p>Enables IGMP for APs in an ESS.</p> <p>Supports Chinese SSIDs.</p>
VAP-based service management	<p>Adds multiple VAPs at a time by binding radios to ESSs.</p> <p>Displays information about a single VAP, VAPs with a specified ESS, or all VAPs.</p> <p>Supports configuration of offline APs.</p> <p>Creates VAPs according to batch delivered service provisioning rules in automatic AP discovery mode.</p>
Service provisioning	Supports service provisioning rules configured for a specified radio of a specified AP type.

Feature	Description
management	Adds automatically discovered APs to the default AP region. The default AP region is configurable. Applies a service provisioning rule to a region to enable APs in the region to go online.
Multicast service management	Supports IGMP snooping. Supports IGMP proxy.
Load balancing	Performs load balancing among radios in a load balancing group. <ul style="list-style-type: none"> Supports two load balancing modes: <ul style="list-style-type: none"> Based on the number of STAs connected to each radio Based on the traffic volume on each radio
Bring Your Own Device (BYOD)	<ul style="list-style-type: none"> Identifies device types according to the OUI in the MAC address. Identifies device types according to the user agent (UA) field in an HTTP packet. Identifies device types according to DHCP Option information. Carries device type information in RADIUS authentication and accounting packets.
Location services	Locates AeroScout and Ekahau tags. Locates Wi-Fi terminals. Locates Bluetooth terminals. Locates Bluetooth tags.
Spectrum analysis	Identifies the following interference sources: Bluetooth, microwave ovens, cordless phones, ZigBee, game controller, 2.4 GHz/5 GHz wireless audio and video devices, and baby monitors. Works with the eSight to display spectrums of interference sources.
Hotspot2.0	Supports a Hotspot2.0 network.
Internet of Things (IoT)	Supports IoT cards on the AP to converge the WLAN and IoT.
Navi WLAN AC	Supports remote STA access on the Navi WLAN AC.
Centralized license control	Supports a license server as the centralized AP license control point. Allows a license server to manage license clients. Supports license synchronization between a license server and clients.

WLAN user management

Feature	Description
Address allocation of wireless users	Functions as a DHCP server to assign IP addresses to wireless users.
WLAN user management	<p>Supports user blacklist and whitelist.</p> <p>Controls the number of access users:</p> <ul style="list-style-type: none"> Based on APs Based on SSIDs <p>Logs out users in any of the following ways:</p> <ul style="list-style-type: none"> Using RADIUS DM messages Using commands <p>Supports various methods to view information:</p> <ul style="list-style-type: none"> Allows you to view the user status by specifying the user MAC address, AP ID, radio

Feature	Description
	<p>ID, or WLAN ID.</p> <ul style="list-style-type: none"> Displays the number of online users in an ESS, AP, or radio. Collects packet statistics on air interface based on user.
WLAN user roaming	<p>Supports intra-AC Layer 2 roaming.</p> <p>NOTE</p> <p><i>Users can roam between APs connected to different physical ports on an AC.</i></p> <p>Supports inter-VLAN Layer 3 roaming on an AC.</p> <p>Supports roaming between WLAN ACs.</p> <p>Supports fast key negotiation in 802.1X authentication.</p> <p>Authenticates users who request to reassociate with the WLAN AC and rejects the requests of unauthorized users.</p> <p>Delays clearing user information after a user goes offline so that the user can rapidly go online again.</p>
User group management	<p>Supports ACLs.</p> <p>Supports user isolation:</p> <ul style="list-style-type: none"> Inter-group isolation Intra-group isolation

WLAN security

Feature	Description
WLAN security profile management	Manages authentication and encryption modes using WLAN security profiles.
Authentication modes	<p>Open system authentication with no encryption</p> <p>WEP authentication/encryption</p> <p>WPA/WPA2 authentication and encryption:</p> <ul style="list-style-type: none"> WPA/WPA2-PSK+TKIP WPA/WPA2-PSK+CCMP WPA/WPA2-802.1X+TKIP WPA/WPA2-802.1X+CCMP WPA/WPA2-PSK+TKIP-CCMP WPA/WPA2-802.1X+TKIP-CCMP <p>WPA/WPA2-PPSK authentication and encryption</p> <p>WAPI authentication and encryption:</p> <ul style="list-style-type: none"> Supports centralized WAPI authentication. Supports three-certificate WAPI authentication, which is compatible with traditional two-certificate authentication. Issues a certificate file together with a private key. <p>Allows users to use MAC addresses as accounts for authentication by the RADIUS server.</p> <p>Portal authentication:</p> <ul style="list-style-type: none"> Authentication through an external Portal server Built-in Portal authentication and authentication page customization <p>802.1X authentication:</p>

Feature	Description
	<ul style="list-style-type: none"> • Authentication through an external 802.1X server • Built-in 802.1X authentication
Combined authentication	Combined MAC authentication: <ul style="list-style-type: none"> • PSK+MAC authentication MAC+portal authentication: <ul style="list-style-type: none"> • MAC authentication is used first. When MAC authentication fails, portal authentication is used.
AAA	Local authentication/local accounts (MAC addresses and accounts) RADIUS authentication Multiple authentication servers: <ul style="list-style-type: none"> • Supports backup authentication servers. • Specifies authentication servers based on the account. • Configures authentication servers based on the account. • Binds user accounts to SSIDs.
Security isolation	Port-based isolation User group-based isolation
Security standards	802.11i, Wi-Fi Protected Access 2 (WPA2), WPA,802.1X Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TKIP), and Extensible Authentication <ul style="list-style-type: none"> • Protocol (EAP) types: <ul style="list-style-type: none"> • EAP-Transport Layer Security (TLS) • EAP-Tunneled TLS (TTLS) or Microsoft Challenge Handshake Authentication Protocol Version 2 (MSCHAPv2) • Protected EAP (PEAP) v0 or EAP-MSCHAPv2 • EAP-Flexible Authentication via Secure Tunneling (FAST) • PEAP v1 or EAP-Generic Token Card (GTC) • EAP-Subscriber Identity Module (SIM)
WIDS	<ul style="list-style-type: none"> • Rogue device scan, identification, defense, and countermeasures, which includes dynamic blacklist configuration and detection of rogue APs, STAs, and network attacks.
Authority control	<ul style="list-style-type: none"> • ACL limit based on the following: <ul style="list-style-type: none"> • Port • User group • User
Other security features	<ul style="list-style-type: none"> • SSID hiding • IP source guard: <ul style="list-style-type: none"> • Configures IP and MAC binding entries statically. • Generates IP and MAC binding entries dynamically.

WLANQoS

Feature	Description
WMM profile management	Enables or disables Wi-Fi Multimedia (WMM).

Feature	Description
	Allows a WMM profile to be applied to radios of multiple APs.
Traffic profile management	Manages traffic from APs and maps packet priorities according to traffic profiles. Applies a QoS policy to each ESS by binding a traffic profile to each ESS.
AC traffic control	Manages QoS profiles. Uses ACLs to perform traffic classification. Limits incoming and outgoing traffic rates for each user based on inbound and outbound CAR parameters. Limits the traffic rate based on ESSs or VAPs.
AP traffic control	Controls traffic of multiple users and allows users to share bandwidth. Limits the rate of a specified VAP.
Packet priority configuration	Sets the QoS priority (IP precedence or DSCP priority) for CAPWAP control channels. Sets the QoS priority for CAPWAP data channels: <ul style="list-style-type: none"> Allows you to specify the CAPWAP header priority. Maps 802.1p priorities of user packets to ToS priorities of tunnel packets.
Airtime fair scheduling	Allocates equal time to users for occupying the channel, which improves users' Internet access experience.

Physical Specifications

Feature	Description	
Dimensions (height x width x depth)	86.1 mm x 447 mm x 708 mm NOTE <i>The AC6800V should be installed in a standard IEC cabinet (19-inch).</i>	
Interface type	6 x 10GE(SFP+) + 6 x GE	
Maximum power consumption	350 W	
Weight	Net weight: 21 kg	
Operating temperature and altitude	-60 m to +1800 m: 0°C to 45°C 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.	
Relative humidity	5% RH to 95% RH, noncondensing	
Power modules	550W Dual Power Supply, 1+1 Redundant Backup	
AC input voltage	Rated voltage range	100V AC ~ 240V AC, 50/60Hz
	Maximum voltage range	90 V AC to 264 V AC, 47 Hz to 63 Hz

Performance Specifications

Feature	Description
Number of managed APs	Central APs: 1280

Feature	Description
	Common APs and RUs: 10240 NOTE <i>The RUs managed by the WLAN AC do not occupy the AC's license resources. However, the total number of managed common APs and RUs cannot exceed the upper limit allowed by the AC.</i>
Number of access users	Entire device: 100K NOTE <i>The maximum number of access users varies depending on the authentication mode.</i>
Number of MAC address entries	160K
Forwarding capability	60Gbit/s NOTE <i>Packet length: 512 bytes</i>
Number of VLANs	4K
Number of routing entries	IPv4: 16K IPv6: 4K
Number of ARP entries	160K
Number of multicast forwarding entries	2K
Number of DHCP IP address pools	256 IP address pools, each of which contains a maximum of 64K IP addresses
Number of local accounts	10K
Number of ACLs	32K
User group management	128 user groups Each user group can reference a maximum of 8 ACLs. A maximum number of ACL rules that can be associated with each user group: 512

 **NOTE**

This content is applicable only to regions outside mainland China. Huawei reserves the right to interpret this content.

Ordering Information

Part Number	Module	Description
02312DUF	AC6800V-HOST	Hardware Host for the AC6800V (6*GE RJ45,6*10GE SFP+,Dual Slots of power,With Power Module)
81401094	LAC6800VBS	Basic Software License for the AC6800V
88034UVY	L-ACSSAP-1AP	Access Controller AP Resource License(1 AP)
88034UWF	L-ACSSAP-512AP	Access Controller AP Resource License(512 AP)
88034UWG	L-ACSSAP-1024AP	Access Controller AP Resource License(1024 AP)
88034UWJ	L-ACSSAP-4096AP	Access Controller AP Resource License(4096 AP)
88034UWK	L-ACSSAP-6144AP	Access Controller AP Resource License(6144 AP)

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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