H3C WA6020 New Generation Access Point

802.11ax Indoor Series Access Point

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New H3C Technologies Co., Limited

H3C WA6020 Wi-Fi 6 (802.11ax) Indoor Wireless Access Point

Overview

H3C WA6020 is a Wi-Fi 6 (802.11ax) access point (AP) individually developed by New H3C Technologies Co., Ltd. (H3C). It can be widely applied to scenarios such as enterprises, schools, and healthcare.

The AP adopts a dual-band and four-stream design with a maximum access rate of 1500Mbps. For 5 GHz radio2 spatial streams, the maximum negotiation rate is 1200Mbps. For 2.4 GHz radio2 spatial streams, the maximum negotiation rate is 300Mbps.

The AP features flexible installation methods, including panel mounting, wall mounting, and ceiling mounting.

WA6020 Wi-Fi 6 (802.11ax) wireless access point

Product features

Operating mode

Fit AP mode

The WA6020 supports the Fit AP mode and can be managed by the wireless controller equipped with the Comware system. In this networking mode, the user can locally manage the APs in batches.

Cloud AP mode

WA6020 supports H3C Cloudnet solution that enables wireless networking without hardware AC and authentication server. It can perform authentications via PSK, Portal, SMS, and WeChat. Customized development is implemented for multi-branch scenarios such as hotel chains and supermarkets, enabling features such as easy deployment, hierarchical and decentralized management, smart large screen at headquarters, and customized configuration templates. The Cloudnet smart O&M platform enables users to

grasp the status of wireless devices, networks, and terminal devices, and allows for simple management and O&M. This helps to reduce customer capital investment and O&M labor costs, and increase efficiency.

WA6020 supports QuickNet local automatic networking solution. Automatic discovery and construction of devices to achieve unified management of multiple devices and ensure network experience by relying on AP intelligent native technology.

Smart O&M

The visualized, measurable, and auto-optimized H3C smart O&M system facilitates operation and maintenance and saves labor costs.

Data visualization

The H3C smart O&M system collects and displays rich O&M data via telemetry techniques. On the terminal side, it records the terminal's roaming log, authentication log, signal strength, important packet interaction log, packet loss, latency, etc., and can identify over 150 reasons for terminal failures to go online, over 140 reasons for terminals to go offline, and over 100 reasons for authentication failures. On the AP side, it collects data such as AP association failures, reasons for detaching from the AC, traffic composition of each wired interface, error packet information, radio traffic composition, radio channel utilization, radio interference strength, and WIPS wireless attacks.

Measurability

The H3C smart O&M system has established a perfect evaluation system to measure the user experience, device health status, and network status, enabling the administrators to view and maintain the network easily.

Security protection of wired and wireless networks

Terminal device access and admission security

With the wireless controller, wireless switches, and authentication system self-developed by H3C, WA6020 can support authentication and encryption via 802.1x, PSK, MAC address, and Portal. This ensures network security.

Wireless intrusion prevention system (WIPS)

WA6020 supports WIPS. In combination with the wireless controller/wireless switch, it supports WIPS features such as detection, intrusion detection, as well as blacklist and whitelist of rogue devices at the same time. The WIPS features enable the device to detect, identify, take countermeasures against, and effectively intercept rogue devices.

Wired network security

WA6020 supports wired access and control of APs. The wireless port of APs can be authenticated as an 802.1X client of the wired access network to ensure the legality of the AP. It guarantees the security of the wireless tunnel through encryption methods such as CAPWAP tunnel and DTLS.

Radio resource management (RRM)

RRM monitors in real time the environmental conditions such as the utilization rate of radio channels, channel interference, and signal conflict through systematic intelligent radio management. Moreover, it adjusts in real time the radio parameters such as the working channel, bandwidth, and power to maintain optimal radio resource status. In this way, it enables auto network planning and auto network repair.

Roaming optimization

The wireless AP supports the fast BSS transition feature defined in the 802.11r standard that helps to facilitate the roaming of wireless users, reduce the possibility of network interruptions, and enhance roaming quality.

Through the 802.11k mechanism, the AP and the wireless client perform interactive detection and perceive multi-dimensional network topologies. The AC identifies and comprehensively calculates the roaming timing and access location of the wireless client from a full perspective and negotiates switching with the client via the 802.11v and 802.11r mechanisms. During the switching period, the AC will ensure the traffic of the downlink service, to achieve seamless switching and improve user experience.

Only 11ax access

WA6020 supports the only 11ax access feature. The Wi-Fi 6 (802.11ax) is backward-compatible with 802.11a/b/g/n/ac standard, so the users of the 802.11a/b/g/n/ac standard can access a Wi-Fi 6 (802.11ax) wireless access device. However, its compatibility causes a decline in the actual performance of devices with high access capabilities such as Wi-Fi 6 (802.11ax) to some extent. The H3C devices enable the user to set the access mode of a certain radio frequency to only 11ax (only users using Wi-Fi 6 (802.11ax) can access). This ensures bandwidth transmission and device performance.

Orthogonal frequency division multiple access (OFDMA)

WA6020 supports OFDMA technology. An AP can divide wireless bandwidth and transmit data to multiple terminals simultaneously via different subcarriers. This reduces transmission latency caused by multi-user radio resource contention and backoffs and improves the user experience of low-latency applications such as speech output and video in multi-user scenarios.

Spatial reuse (SR)

WA6020 supports spatial reuse technology and basic service set (BSS) coloring technology. With these technologies, it identifies the color of the packets at the link layer to control the terminal device and adjusts transmit power to improve the reuse rate of channels in high-density deployment and avoid co-channel interference in case of simultaneous multi-user operation. This greatly improves the utilization rate of spectrum resources.

Orthogonal frequency division multiple access (TWT)

WA6020 supports the target wake times (TWT) technology. It allows the AP to uniformly schedule the wake-up and sleep time of the terminal, reducing contention and improving power efficiency by decreasing unnecessary wake-up times of the terminal.

Flexible forwarding

When the WA6020 AP is connected via a wide area network (WAN), the wireless access points (AP) are deployed in branch offices, while wireless access controllers (AC) are deployed in headquarters. In the traditional forwarding mode, all packets are sent from APs to ACs, and centrally forwarded by the AC. However, for WA6020, the packets can be converted to wired packets on the wireless access device directly avoiding data packets sent through AC but forwarded locally, which significantly saves wired network bandwidth. Besides, WA6020 supports flexible policy-based forwarding and allows terminal devices of the same wireless service to implement centralized forwarding and local forwarding, so as to release export bandwidth and save costs of network bandwidth.

IPv4 and IPv6 dual stack (Native IPv6)

WA6020 is fully compliant with IPv6 and implements dual IPv4/IPv6 protocol stacks. It can automatically register on the wireless controller and provide wireless services no matter in an IPv4 or IPv6 network via broadcast, multicast, DHCP option 43, or DNS, so that it never runs as an information silo.

Specifications

Hardware specifications

Name	WA6020
Dimensions (excluding antenna connectors and mounting accessories)	32 × 180 × 180 mm (H x W x D)
Fixed port	1 × 10/100/1000M，RJ-45
PoE In	802.3af
Local power supply	54V DC
Console port	1
Built-in antenna	Internal Omni-directional antenna 3dBi antenna gain @2.4GHz 4dBi antenna gain @5GHz

Name	WA6020
Working frequencies	802.11ax/ac/n/a: 5.725 GHz - 5.850 GHz; 5.47 GHz - 5.725 GHz; 5.15 GHz - 5.35 GHz 802.11ac/b/g/n: 2.4 GHz - 2.483 GHz
Modulation technology	OFDM: BPSK@6/9Mbps, QPSK@12/18Mbps, 16-QAM@24Mbps, 64-QAM@48/54Mbps DSSS: DBPSK@1Mbps, DQPSK@2Mbps, CCK@5.5/11Mbps MIMO-OFDM(11n): MCS 0-15 MIMO-OFDM(11ac): MCS 0-9 MIMO-OFDM(11ax): MCS 0-11
Modulation mode	11b: DSS: CCK@5.5/11Mbps, DQPSK@2Mbps, DBPSK@1Mbps 11a/g: OFDM:64QAM@48/54Mbps, 16QAM@24Mbps, QPSK@12/18Mbps, BPSK@6/9Mbps 11n: MIMO-OFDM: BPSK, QPSK, 16QAM, 64QAM 11ac/ac wave2: MIMO-OFDM: BPSK, QPSK, 16QAM, 64QAM, 256QAM 11ax: MIMO-OFDM: BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM
Transmit power (combined power)	20 dBm (Varies depending on local laws and regulations)
Adjustable power granularity	1 dBm
Power consumption	≤13W
Reset/restoration to factory default	Supported
State LED	Alternating flashing mode, orange/green/blue for different working states, breathing mode
Operating temperature/storage temperature	-10ºC to +55ºC/-40ºC to +70ºC
Operating humidity/storage humidity	5% - 95% (non-condensing)
Safety compliance	GB 4943, EN/IEC/UL 60950-1, EN/IEC/UL 62368-1
EMC	EN 55024, EN 55032, EN 61000-3-2, EN 61000-3-3, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11, EN 60601-1-2, EN 301 489-1, EN 301 489-17
Environment	GB/T 2423, GB/T 13543, GB 4208

Name	WA6020
Radio frequency certification	FCC Part 15, EN 300 328, EN 301 893, and MIIT SRRC
MTBF	814581H

Software specifications

Name		WA6020
Positioning		Indoor AP (5 GHz 2*2 MIMO + 2.4 GHz 2*2 MIMO)
Operating mode	Fit mode	Controlled by AC
	Cloud mode (Fat mode)	Controlled via Cloudnet or operates independently
	Mode switching	Mode switching via command lines, ACs, Cloudnet, or reset button
11ax supported	Maximum Wi-Fi 6 (802.11ax) transmission speed	1500Mbps (1200Mbps + 300Mbps)
	TWT	Supported
	BSS Color	Supported
	OFDMA	Supported
	Only 11ax	Supported
WLAN basics	Working frequencies	5 GHz + 2.4 GHz
	A-MPDU	Supported
	A-MSDU	Supported
	Maximum likelihood demodulation (MLD)	Supported
	Maximal ratio combining (MRC)	Supported
	Spatial-Time block coding (STBC)	Supported
	Low-density parity check (LDPC)	Supported
	Recommended number of clients	100
	Maximum number of SSID	8 (4 per radio)
	User number limit	Supported

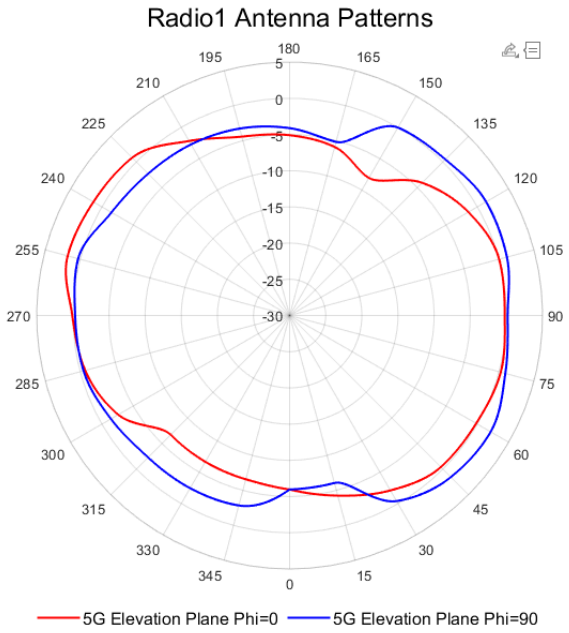
WLAN extended	STA related	STA offline anomaly check, STA aging, statistics and status query
	Link integrity check	Supported
	Broadcast probe acknowledgment control	Supported
	Prohibition of client access with weak signals	Supported
	Hidden SSID	Supported
	WLAN RRM	Supported
	Wireless bridging	Supported
	11k	Supported
	11v	Supported
	11r	Available in Fit mode
Security control policies	Encryption	TKIP, CCMP, WPA3
		Multiple encryption key triggered dynamic unicast/multicast key update
	802.11i	Supported
	Authentication	802.1X authentication, MAC address authentication, PSK authentication, Portal authentication; Open system/shared key authentication; Enhanced open system authentication Mixed access of WPA, WPA2, WPA3, and Pre-RSNA users
	User isolation	Layer 2 user isolation SSID-based user isolation
	Forwarding security	Packet filtering, MAC address filtering, and broadcast storm suppression
	SSID and VLAN binding	Supported
	WIDS/WIPS	Supported
	MFP (802.11w)	Supported
	802.1X Client	Supported
AAA	Radius Client	Supported
	Multiple-domain authentication server	Supported

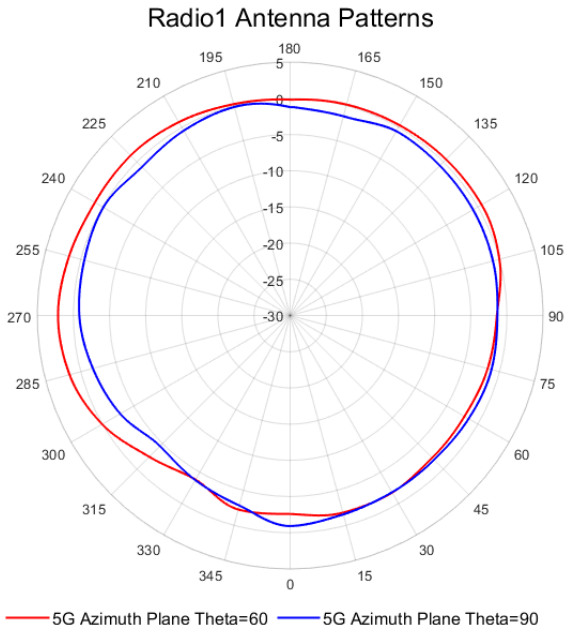
	Backup authentication server	Supported
Layer 2 and layer 3 features	IP address configuration	Static IP or DHCP assigned IP (option 60)
	Native IPv6	Supported
	IPv6 Portal	Supported
	IPv6 SAVI	Supported
	ACL	IPv4/IPv6
	NAT	Available in Cloud mode
	PPPoE Client	Available in Cloud mode
	Local forwarding	Local forwarding based on SSID+VLAN supported in Fit mode
QoS	802.11e	WMM
	Priority	Ethernet port based 802.1p identification and marking priority
		Priority mapping for wired and wireless connection
	Strategic QoS mapping	Distinctive QoS policies based on individual SSID/VLAN
	Layer 2 to Layer 4 packet filtering and traffic classification	Supported
	CAR	Supported
	User bandwidth management	Bandwidth allocation per STA All STAs sharing bandwidth with a common SSID Dynamical adjusting of the available bandwidth of the STAs in terms of service needs
	Load balancing	Traffic-based load balancing User-based load balancing Radio-based load balancing for dual-5G devices
	Spectrum guide	Supported
	CAC (Call Admission Control)	Session-based and channel usage-based CAC
	Application recognition	Supports audio and video optimization (SQA/UCC) in Fit mode
	Airtime fairness (ATF)	Supported
Green features	Green AP mode	Supported
	Dynamic MIMO power saving	Supported

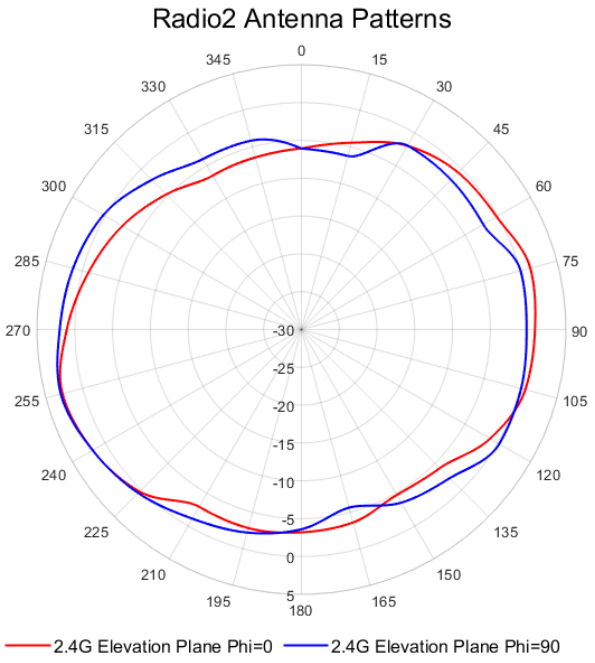
	Enhanced automatic power save delivery (E-APSD)	Supported
	SM Power Save	Supported
Management and maintenance	Centralized AC management	Fit mode: supports centralized management Cloud mode: supports version upgrade and mode switching
	Cloudnet management	Available in Cloud mode
	Local Web	Available in Cloud mode
	Telnet	Available in Cloud mode
	SSH	Available in Cloud mode
	Debug serial port	Supported
	Smart O&M	Available in Fit/Cloud mode

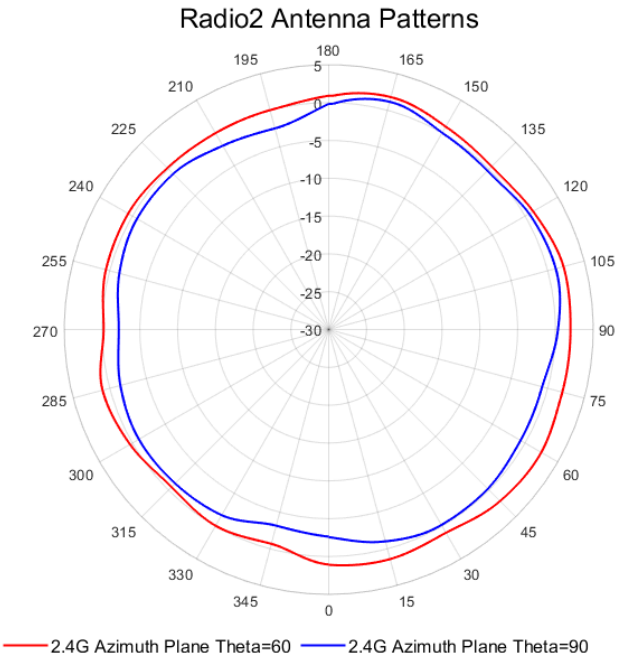
Antenna patterns

The following shows the antenna patterns of the AP when mounted on a ceiling with the faceplate facing downwards.






Radio2 Antenna Patterns
0
15
30
45
60
75
90
105
120
135
150
165
180
195
210
225
240
255
270
285
300
315
330
345
-30
-25
-20
-15
-10
-5
0
5
2.4G Elevation Plane Phi=0
2.4G Elevation Plane Phi=90


Radio2 Antenna Patterns
180
165
150
135
120
105
90
75
60
45
30
15
0
345
330
315
300
285
270
255
240
225
210
195
5
0
-5
-10
-15
-20
-25
-30
2.4G Azimuth Plane Theta=60
2.4G Azimuth Plane Theta=90

Ordering Information:

Product ID	Product Description
EWP-WA6020	H3C WA6020 Internal Antennas 4 Streams Dual Radio 802.11ax/ac/n Access Point
EWPAM1HPOE-GL	EWPAM1HPOE 55V/30W Single port POE Injector, Overseas Version
ADP040-54B	H3C 54V 40W Power Adapter with Phoenix Connector
ADP040-54V-PoE-GL	H3C 54V 40W High Power Adapter Power Supply (including PoE Injector)

The Leader in Digital Solutions

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