



# Huawei AirEngine 8760R-X1 & AirEngine 8760R-X1E Access Points Datasheet

# Product Overview

AirEngine 8760R-X1 and AirEngine 8760R-X1E are Huawei's next-generation flagship Wi-Fi 6 (802.11ax) outdoor access points (APs). The maximum rate can up to 10.75 Gbps for the device. These outdoor APs stand out with excellent outdoor coverage performance, IP68 waterproof and dustproof design, and strong surge protection capability. AirEngine 8760R-X1 has built-in smart antennas that enable always-on Wi-Fi signals for users. These features significantly enhance users' wireless experiences. AirEngine 8760R-X1 and AirEngine 8760R-X1E provide uplink 10GE optical and electrical ports, allowing customers to select different deployment modes and saving customers' investment. These strengths make Huawei's Wi-Fi 6 outdoor APs ideal for high-density scenarios such as stadiums, squares, pedestrian streets, and amusement parks.



AirEngine 8760R-X1

AirEngine 8760R-X1E

- The AirEngine 8760R-X1 supports long-distance coverage mode: 2.4GHz (8x8:4)+5GHz (8x8:8), dual radios mode: 2.4GHz (4x4:4)+5GHz (12x12:8), dual radios: 2.4GHz (4x4:4)+5GHz (8x8:8)+ independent radio scanning mode. The three modes can be flexibly switched. The maximum rate is up to 1.15 Gbps at 2.4GHz band, 9.6 Gbps at 5GHz band, and 10.75 Gbps for the device.
- The AirEngine 8760R-X1E supports long-distance coverage mode: 2.4GHz (8x8:4)+5GHz (8x8:8), triple radios mode: 2.4GHz (8x8:4)+5GHz (4x4:4)+5GHz (4x4:4), dual radios 2.4GHz (4x4:4)+5GHz (4x4:4)+ independent radio scanning mode. The three modes can be flexibly switched. The maximum rate is up to 1.15 Gbps at 2.4GHz band, 9.6 Gbps at 5GHz band, and 10.75 Gbps for the device.
- 1 x 10 GE electrical, 1 x GE electrical, and 1 x 10 GE SFP+.
- 6 KA/6 KV surge protection for Ethernet ports, IP68 waterproof and dustproof design, and - 40° C to +65° C wide temperature, fully meeting industrial-grade requirements.
- AirEngine 8760R-X1 has flexible built-in smart antennas to provide precise coverage for STAs, reduce interference, and improve signal quality.
- The external antenna port of AirEngine 8760R-X1E supports 5 KA surge protection, no need to install an external surge protector, simplifying installation, and minimizing the overall cost.
- Independent radio scanning, achieving real-time detection of interference and rogue devices in real time and timely network optimization.
- Supports the Fat, Fit, and cloud three working modes.

## NOTE

- *The device rate is the theoretical speed of Wi-Fi and may vary based on different environments or devices.*

# Feature Description

## Wi-Fi 6 (802.11ax) standards

- 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.
- 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).
- 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.

## Extensive Coverage

Exclusive to Huawei, 8T8R (supported on the 2.4 GHz frequency band) significantly improves Wi-Fi signal transmission and reception capabilities, increasing coverage by 40%.

## MU-MIMO

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.

## Flexible Radio Mode Switchover

The AP can flexibly switch among three modes: dual-radio, triple-radio, and dual-radio + independent dual-band scanning.

- The dual-radio mode is recommended in scenarios dominated by high-bandwidth services to provide ultra-large throughput of more than 10 Gbps.
- The triple-radio mode is recommended in high-density access or high-concurrency scenarios to allow more users to get access to the network.
- The dual-radio + independent dual-band scanning mode is recommended in scenarios where the network status and interference need to be monitored in real time. In this mode, the network quality is monitored and optimized in real time through independent dual-band scanning with no sacrifice of the user access performance and user throughput.

### NOTE

The AirEngine 8760R-X1E supports triple-radio mode.

## Wired & Wireless Signal Transmission @ 10GE

- The AP provides 160 MHz bandwidth, signifying many more available data subcarriers and extending the signal transmission channel. In addition, the AP adopts 1024-QAM and MU-MIMO technologies, increasing the rate of 5 GHz radios up to 9.6 Gbps. The AP rate can reach 10.75 Gbps for the device.
- The AP provides both 10GE port and 10GE SFP+ uplink ports, which frees users from the optical/electrical port selection issue and helps implement flexible networking in scenarios requiring internal/external network isolation and hybrid networking of optical/electrical ports.

## 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.

## 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.

## 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.

## High-level protection

- AirEngine 8760R-X1 & AirEngine 8760R-X1E use a metal shell, waterproof connectors, and an overall heat dissipation design, 6 kA/6 kV surge protection for Ethernet ports, IP68 waterproof and dustproof design, and -40° C to +65° C wide temperature, fully meeting industrial-grade requirements.
- AirEngine 8760R-X1E has built-in 5 kA feeder surge protectors and require no external surge protective devices, which simplifies installation and lowers costs.

### NOTE

The AirEngine 8760R-X1 has built-in antennas and does not involve surge protection.

## 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-SA, WPA/WPA2-PPSK, WPA/WPA2-802.1x, 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.

### 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, DTLS/IPsec encryption and hardware 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 an AP topology according to the collected data. Based on interference from and loads of 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 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 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.

## 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 Maximum ratio combining (MRC) Space time block code (STBC) Cyclic Delay Diversity (CDD)/Cyclic Shift Diversity (CSD) Beamforming MU-MIMO OFDMA

Item	Description
	<p>Preamble puncturing</p> <p>Per-packet power control</p> <p>BSS Color</p> <p>TxBF</p> <p>Compliance with 1024-QAM and compatibility with 256-QAM/64-QAM/16-QAM/8-QAM/QPSK/BPSK</p> <p>Target wake time (TWT)</p> <p>Low-density parity-check (LDPC)</p> <p>Frame aggregation, including A-MPDU (Tx/Rx) and A-MSDU (Tx/Rx)</p> <p>802.11 dynamic frequency selection (DFS)</p> <p>Short guard interval (GI) in 20 MHz, 40 MHz, 80 MHz, and 160 MHz modes</p> <p>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)</p> <p>WLAN channel management and channel rate adjustment</p> <p><b>NOTE</b></p> <p><i>For detailed management channels, see the Country Code &amp; Channel Compliance Table.</i></p> <p>Automatic channel scanning and interference avoidance</p> <p>Separate service set identifier (SSID) hiding configuration for each AP, supporting Chinese SSIDs</p> <p>Signal sustain technology (SST)</p> <p>Unscheduled automatic power save delivery (U-APSD)</p> <p>Control and Provisioning of Wireless Access Points (APs) in Fit AP mode</p> <p>Automatic login in Fit AP mode</p> <p>Extended Service Set (ESS) in Fit AP mode</p> <p>Multi-user CAC</p> <p>Advanced cellular coexistence (ACC), minimizing the impact of interference from cellular networks</p> <p>802.11k and 802.11v smart roaming</p> <p>802.11r fast roaming (<math>\leq 50</math> ms)</p> <p>Hotspot2.0</p>
Network features	<p>Compliance with IEEE 802.3ab</p> <p>Auto-negotiation of the rate and duplex mode and automatic switchover between the Media Dependent Interface (MDI) and Media Dependent Interface Crossover (MDI-X)</p> <p>Compliance with IEEE 802.1q</p> <p>SSID-based VLAN assignment</p> <p>Uplink VLAN trunks on Ethernet ports</p> <p>Management channel of the AP's uplink port in tagged and untagged mode</p> <p>DHCP client, obtaining IP addresses through DHCP</p> <p>Tunnel data forwarding and direct data forwarding</p> <p>Application identification and QoS classification when AP local forwarding (also called direct forwarding), which can significantly improve voice quality for applications such as Skype, QQ, and WeChat</p> <p>STA isolation in the same VLAN</p> <p>IPv4/IPv6 access control lists (ACLs)</p> <p>Link Layer Discovery Protocol (LLDP)</p> <p>Uninterrupted service forwarding upon CAPWAP channel disconnection in Fit AP mode</p> <p>Unified authentication on the AC in Fit AP mode</p>

Item	Description
	<p>AC dual-link backup in Fit AP mode</p> <p>Network Address Translation (NAT) in Fat AP mode</p> <p>IPv6 in Fit AP mode</p> <p>Soft Generic Routing Encapsulation (GRE)</p> <p>IPv6 Source Address Validation Improvements (SAVI)</p> <p>Multicast Domain Name Service (mDNS) gateway protocol</p>
QoS features	<p>WMM parameter management for each radio</p> <p>WMM power saving</p> <p>Priority mapping for upstream packets and flow-based mapping for downstream packets</p> <p>Queue mapping and scheduling</p> <p>User-based bandwidth limiting</p> <p>Adaptive bandwidth management (automatic bandwidth adjustment based on the user quantity and radio environment) to improve user experience</p> <p>Airtime scheduling</p> <p>Air interface HQoS scheduling</p> <p>Application acceleration for VR and mobile gaming Application identification</p> <p>Intelligent multimedia scheduling</p>
Security features	<p>Open system authentication</p> <p>WEP authentication/encryption using a 64-bit, 128-bit, 152-bit or 192-bit encryption key</p> <p>WPA2-PSK authentication and encryption (WPA2 personal edition)</p> <p>WPA2-802.1X authentication and encryption (WPA2 enterprise edition)</p> <p>WPA3-SAE authentication and encryption (WPA3 personal edition)</p> <p>WPA3-802.1X authentication and encryption (WPA3 enterprise edition)</p> <p>WPA-WPA2 hybrid authentication</p> <p>WPA2-WPA3 hybrid authentication</p> <p>WPA2-PPSK authentication and encryption in Fit AP mode</p> <p>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</p> <p>802.1X authentication, MAC address authentication, and Portal authentication</p> <p>DHCP snooping</p> <p>Dynamic ARP Inspection (DAI)</p> <p>IP Source Guard (IPSG)</p> <p>802.11w Protected Management Frames (PMFs)</p> <p>IPsec/DTLS hardware encryption</p>
EAP types	EAP-TLS, EAP-TTLS, EAP-PEAP, EAP-CHAP, EAP-SIM, EAP-AKA, EAP-GTC, EAP-FAST, EAP-PEAP, EAP-MD5, EAP-MSCHAPv2, PEAPv0, PEAPv1
Maintenance features	<p>Unified management and maintenance on the AC in Fit AP mode</p> <p>Automatic login, automatic configuration loading, and plug-and-play (PnP) in Fit AP mode</p> <p>Automatic batch upgrade in Fit AP mode</p> <p>Telnet</p> <p>STelnet using SSHv2</p> <p>SFTP using SSHv2</p> <p>Remote wireless O&amp;M through the Bluetooth console port</p>

Item	Description
	<p>Web system-based AP management in Fat AP mode, login through HTTP or HTTPS</p> <p>Real-time configuration monitoring and fast fault location using the NMS</p> <p>SNMP v1/v2/v3 in Fat AP mode</p> <p>System status alarm</p> <p>Network Time Protocol (NTP) in Fat AP mode</p>
BYOD	<p><b>NOTE</b></p> <p><i>The AP supports bring your own device (BYOD) only in Fit AP mode.</i></p> <p>Device type identification according to the organizationally unique identifier (OUI) in the MAC address</p> <p>Device type identification according to the user agent (UA) information in an HTTP packet</p> <p>Device type identification according to DHCP options</p> <p>The RADIUS server delivers packet forwarding, security, and QoS policies according to the device type carried in the RADIUS authentication and accounting packets.</p>
Location service	<p><b>NOTE</b></p> <p><i>The AP supports the location service only in Fit AP mode.</i></p> <p>STA location</p> <p>Working with the location server to locate rogue devices</p>
Spectrum analysis	<p><b>NOTE</b></p> <p><i>The AP supports spectrum analysis only in Fit AP mode.</i></p> <p>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</p> <p>Working with the location server to locate interference sources and perform spectrum analysis on them</p>

## Cloud-based management mode

Item	Description
WLAN features	<p>Compliance with IEEE 802.11a/b/g/n/ac/ac Wave 2/ax</p> <p>Maximum ratio combining (MRC)</p> <p>Space time block code (STBC)</p> <p>Beamforming</p> <p>OFDMA</p> <p>MU-MIMO</p> <p>Preamble puncturing</p> <p>Per-packet power control</p> <p>BSS Color</p> <p>TxBF</p> <p>Low-density parity-check (LDPC)</p> <p>Frame aggregation, including A-MPDU (Tx/Rx) and A-MSDU (Tx/Rx)</p> <p>802.11 dynamic frequency selection (DFS)</p> <p>Priority mapping and packet scheduling based on a Wi-Fi Multimedia (WMM) profile to implement priority-based data processing and forwarding</p> <p>WLAN channel management and channel rate adjustment</p> <p><b>NOTE</b></p> <p><i>For detailed management channels, see the Country Code &amp; Channel Compliance Table.</i></p>



Item	Description
	<ul style="list-style-type: none"> <li>Automatic channel scanning and interference avoidance</li> <li>Service set identifier (SSID) hiding</li> <li>Signal sustain technology (SST)</li> <li>Unscheduled automatic power save delivery (U-APSD)</li> <li>Automatic login</li> </ul>
Network features	<ul style="list-style-type: none"> <li>Compliance with IEEE 802.3ab</li> <li>Auto-negotiation of the rate and duplex mode and automatic switchover between the Media Dependent Interface (MDI) and Media Dependent Interface Crossover (MDI-X)</li> <li>Compliance with IEEE 802.1q</li> <li>SSID-based VLAN assignment</li> <li>VLAN trunk on uplink Ethernet ports</li> <li>Management channel of the AP uplink port in tagged and untagged mode</li> <li>DHCP client, obtaining IP addresses through DHCP</li> <li>Tunnel data forwarding and direct data forwarding</li> <li>STA isolation in the same VLAN</li> <li>IPv4/IPv6 Access control lists (ACLs)</li> <li>Link Layer Discovery Protocol (LLDP)</li> <li>Uninterrupted service forwarding upon CAPWAP channel disconnection in Fit AP mode</li> <li>Unified authentication on the AC in Fit AP mode</li> <li>AC dual-link backup in Fit AP mode</li> <li>Network Address Translation (NAT) in Fat AP mode</li> <li>IPv6 in Fit AP mode</li> <li>Soft Generic Routing Encapsulation (GRE)</li> <li>IPv6 Source Address Validation Improvements (SAVI)</li> <li>Multicast Domain Name Service (mDNS) gateway protocol</li> </ul>
QoS features	<ul style="list-style-type: none"> <li>WMM parameter management for each radio</li> <li>WMM power saving</li> <li>Priority mapping for upstream packets and flow-based mapping for downstream packets</li> <li>Queue mapping and scheduling</li> <li>User-based bandwidth limiting</li> <li>Airtime scheduling</li> <li>Application acceleration for VR and mobile gaming</li> <li>Air interface HQoS scheduling</li> </ul>
Security features	<ul style="list-style-type: none"> <li>Open system authentication</li> <li>WEP authentication/encryption using a 64-bit, 128-bit, 152-bit or 192-bit encryption key</li> <li>WPA2-PSK authentication and encryption (WPA2 personal edition)</li> <li>WPA2-802.1X authentication and encryption (WPA2 enterprise edition)</li> <li>WPA3-SAE authentication and encryption (WPA3 personal edition)</li> <li>WPA3-802.1X authentication and encryption (WPA3 enterprise edition)</li> <li>WPA-WPA2 hybrid authentication</li> <li>WPA2-WPA3 hybrid authentication</li> <li>802.1x authentication, MAC address authentication, and Portal authentication</li> <li>DHCP snooping</li> <li>Dynamic ARP Inspection (DAI)</li> </ul>

Item	Description
	IP Source Guard (IPSG)
EAP types	EAP-TLS, EAP-TTLS, EAP-PEAP, EAP-CHAP, EAP-SIM, EAP-AKA, EAP-GTC, EAP-FAST, EAP-PEAP, EAP-MD5, EAP-MSCHAPv2, PEAPv0, PEAPv1
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 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 (Diameter × Height)	Φ165×387mm
	Weight	<ul style="list-style-type: none"> <li>AirEngine 8760R-X1: 4.15kg</li> <li>AirEngine 8760R-X1E: 4.05kg</li> </ul>
	Interface type	1 x 100M/1000M/2.5G/5G/10 GE electrical 1 x 10M/100M/1GE electrical 1 x 1G/10 GE SFP+ <b>NOTE</b> <ul style="list-style-type: none"> <li>10GE electrical port supports PoE input.</li> <li>10G optical port supports 10GE/GE optical module.</li> </ul>
	Bluetooth	Build in BLE5.2
	LED indicator	Indicates the power-on, startup, running, alarm, and fault states of the system.
Power specifications	Power input	PoE power supply: In compliance with 802.3at/bt. <b>NOTE</b> <ul style="list-style-type: none"> <li>For details about the working status of the Ethernet port, see the <a href="#">Specification Query Tool</a>.</li> <li>The actual maximum power consumption depends on local laws and regulations.</li> <li>When 802.3bt (PoE++) Class 6 power supply is used, only one 10GE interface can work properly, it can be electrical port or SFP+ optical port.</li> </ul>
Environmental specifications	Operating temperature	-40°C to +65°C
	Storage temperature	-40°C to +85°C
	Operating humidity	0% to 100%

Item		Description
	Dustproof and waterproof grade	IP68
	Altitude	-60 m to +5000 m
	Atmospheric pressure	53 kPa to 106 kPa
Radio specifications	Antenna type	AirEngine 8760R-X1: Built-in smart antennas <b>NOTE</b> <i>Both 2.4 GHz and 5 GHz provide semi-omnidirectional coverage.</i> <ul style="list-style-type: none"> <li>• 2.4 GHz horizontal: 180°@6 dB beamwidth, 70°@3 dB beamwidth</li> <li>• 5 GHz horizontal: 180°@6 dB beamwidth, 100°@3 dB beamwidth</li> <li>• Vertical beamwidth: 40° for 2.4 GHz and 20° for 5 GHz</li> </ul> AirEngine 8760R-X1E: External antennas
	Antenna gain	AirEngine 8760R-X1: 2.4GHz: 10dBi 5GHz: 11dBi
	Maximum number of SSIDs for each radio	≤ 16
	Maximum number of users	AirEngine 8760R-X1: ≤ 1024 (512/Radio) AirEngine 8760R-X1E: ≤ 1024 (dual-radio) (512/Radio) ≤ 1152 (triple-radio) (128(2.4G Radio)+512(5G Radio1)+512(5G Radio2)) <b>NOTE</b> <i>The actual number of users varies according to the environment.</i>
	Maximum transmit power	2.4GHz: 33dBm (combined power) 5GHz: 33dBm (combined power) <b>NOTE</b> <i>The actual transmit power depends on local laws and regulations.</i>
	Power increment	1 dBm
	Frequency bands	2.400 to 2.4835 GHz ISM 5.150 to 5.250 GHz U-NII-1 5.250 to 5.350 GHz U-NII-2A 5.470 to 5.725 GHz U-NII-2C 5.725 to 5.850 GHz U-NII-3/ISM <b>NOTE</b> The available bands and channels are dependent on the configured regulatory domain (country).
	Receiver sensitivity	<ul style="list-style-type: none"> <li>• 2.4GHz 802.11b: -101dBm/1Mbit/s;-98dBm/2Mbit/s;-95dBm/5.5Mbit/s;-92dBm/11Mbit/s;</li> <li>• 2.4GHz 802.11g: -100dBm/6Mbit/s;-97dBm/9Mbit/s;-95dBm/12Mbit/s;-93dBm/18Mbit/s;-90dBm/24Mbit/s;-87dBm/36Mbit/s;-83dBm/48Mbit/s;-81dBm/54Mbit/s;</li> </ul>

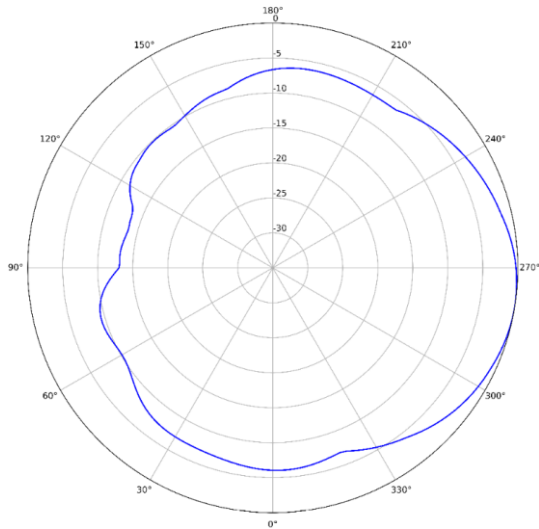
Item	Description
	<ul style="list-style-type: none"> <li>• 2.4GHz 802.11n(HT20): -98dBm/MCS0;-95dBm/MCS1;-93dBm/MCS2;-90dBm/MCS3;-87dBm/MCS4;-83dBm/MCS5;-80dBm/MCS6;-79dBm/MCS7;</li> <li>• 2.4GHz 802.11n(HT40): -94dBm/MCS0;-93dBm/MCS1;-90dBm/MCS2;-87dBm/MCS3;-84dBm/MCS4;-80dBm/MCS5;-78dBm/MCS6;-77dBm/MCS7;</li> <li>• 2.4GHz 802.11ac(VHT20): -97dBm/MCS0NSS1;-95dBm/MCS1NSS1;-93dBm/MCS2NSS1;-90dBm/MCS3NSS1;-87dBm/MCS4NSS1;-83dBm/MCS5NSS1;-80dBm/MCS6NSS1;-79dBm/MCS7NSS1;-76dBm/MCS8NSS1;</li> <li>• 2.4GHz 802.11ac(VHT40): -94dBm/MCS0NSS1;-93dBm/MCS1NSS1;-90dBm/MCS2NSS1;-87dBm/MCS3NSS1;-84dBm/MCS4NSS1;-80dBm/MCS5NSS1;-78dBm/MCS6NSS1;-77dBm/MCS7NSS1;-72dBm/MCS8NSS1;-70dBm/MCS9NSS1;</li> <li>• 2.4GHz 802.11ax(HE20): -97dBm/MCS0NSS1;-95dBm/MCS1NSS1;-93dBm/MCS2NSS1;-90dBm/MCS3NSS1;-87dBm/MCS4NSS1;-83dBm/MCS5NSS1;-80dBm/MCS6NSS1;-79dBm/MCS7NSS1;-76dBm/MCS8NSS1;-73dBm/MCS9NSS1;-71dBm/MCS10NSS1;-69dBm/MCS11NSS1;</li> <li>• 2.4GHz 802.11ax(HE40): -94dBm/MCS0NSS1;-93dBm/MCS1NSS1;-90dBm/MCS2NSS1;-87dBm/MCS3NSS1;-84dBm/MCS4NSS1;-80dBm/MCS5NSS1;-78dBm/MCS6NSS1;-77dBm/MCS7NSS1;-72dBm/MCS8NSS1;-70dBm/MCS9NSS1;-67dBm/MCS10NSS1;-65dBm/MCS11NSS1;</li> <li>• 5GHz 802.11a: -97dBm/6Mbit/s;-95dBm/9Mbit/s;-94dBm/12Mbit/s;-92dBm/18Mbit/s;-89dBm/24Mbit/s;-86dBm/36Mbit/s;-82dBm/84Mbit/s;-79dBm/81Mbit/s;</li> <li>• 5GHz 802.11n(HT20): -96dBm/MCS0;-93dBm/MCS1;-91dBm/MCS2;-88dBm/MCS3;-85dBm/MCS4;-81dBm/MCS5;-79dBm/MCS6;-78dBm/MCS7;</li> <li>• 5GHz 802.11n(HT40): -91dBm/MCS0;-88dBm/MCS1;-86dBm/MCS2;-83dBm/MCS3;-80dBm/MCS4;-77dBm/MCS5;-75dBm/MCS6;-73dBm/MCS7;</li> <li>• 5GHz 802.11ac(VHT20): -96dBm/MCS0NSS1;-93dBm/MCS1NSS1;-91dBm/MCS2NSS1;-88dBm/MCS3NSS1;-85dBm/MCS4NSS1;-81dBm/MCS5NSS1;-79dBm/MCS6NSS1;-78dBm/MCS7NSS1;-74dBm/MCS8NSS1;</li> <li>• 5GHz 802.11ac(VHT40): -91dBm/MCS0NSS1;-88dBm/MCS1NSS1;-86dBm/MCS2NSS1;-83dBm/MCS3NSS1;-80dBm/MCS4NSS1;-77dBm/MCS5NSS1;-75dBm/MCS6NSS1;-73dBm/MCS7NSS1;-70dBm/MCS8NSS1;-73dBm/MCS9NSS1;</li> <li>• 5GHz 802.11ac(VHT80): -90dBm/MCS0NSS1;-87dBm/MCS1NSS1;-85dBm/MCS2NSS1;-82dBm/MCS3NSS1;-80dBm/MCS4NSS1;-77dBm/MCS5NSS1;-75dBm/MCS6NSS1;-73dBm/MCS7NSS1;-69dBm/MCS8NSS1;-67dBm/MCS9NSS1;</li> <li>• 5GHz 802.11ac(VHT160): -89dBm/MCS0NSS1;-86dBm/MCS1NSS1;-84dBm/MCS2NSS1;-81dBm/MCS3NSS1;-78dBm/MCS4NSS1;-74dBm/MCS5NSS1;-72dBm/MCS6NSS1;-69dBm/MCS7NSS1;-67dBm/MCS8NSS1;-65dBm/MCS9NSS1;</li> <li>• 5GHz 802.11ax(HE20): -96dBm/MCS0NSS1;-93dBm/MCS1NSS1;-91dBm/MCS2NSS1;-83dBm/MCS3NSS1;-85dBm/MCS4NSS1;-81dBm/MCS5NSS1;-79dBm/MCS6NSS1;-78dBm/MCS7NSS1;-76dBm/MCS8NSS1;-74dBm/MCS9NSS1;-72dBm/MCS8NSS1;-69dBm/MCS9NSS1;</li> <li>• 5GHz 802.11ax(HE40): -91dBm/MCS0NSS1;-</li> </ul>

Item	Description
	<p>88dBm/MCS1NSS1;-86dBm/MCS2NSS1;-83dBm/MCS3NSS1;-80dBm/MCS4NSS1;-77dBm/MCS5NSS1;-75dBm/MCS6NSS1;-73dBm/MCS7NSS1;-70dBm/MCS8NSS1;-68dBm/MCS9NSS1;-65dBm/MCS8NSS1;-63dBm/MCS9NSS1;</p> <ul style="list-style-type: none"> <li>• 5GHz 802.11ax(HE80): -90dBm/MCS0NSS1;-87dBm/MCS1NSS1;-85dBm/MCS2NSS1;-82dBm/MCS3NSS1;-80dBm/MCS4NSS1;-77dBm/MCS5NSS1;-75dBm/MCS6NSS1;-73dBm/MCS7NSS1;-69dBm/MCS8NSS1;-67dBm/MCS9NSS1;-64dBm/MCS10NSS1;-62dBm/MCS11NSS1;</li> <li>• 5GHz 802.11ax(HE160): -89dBm/MCS0NSS1;-86dBm/MCS1NSS1;-84dBm/MCS2NSS1;-81dBm/MCS3NSS1;-78dBm/MCS4NSS1;-74dBm/MCS5NSS1;-72dBm/MCS6NSS1;-69dBm/MCS7NSS1;-67dBm/MCS8NSS1;-65dBm/MCS9NSS1;-62dBm/MCS10NSS1;-61dBm/MCS11NSS1;</li> </ul>

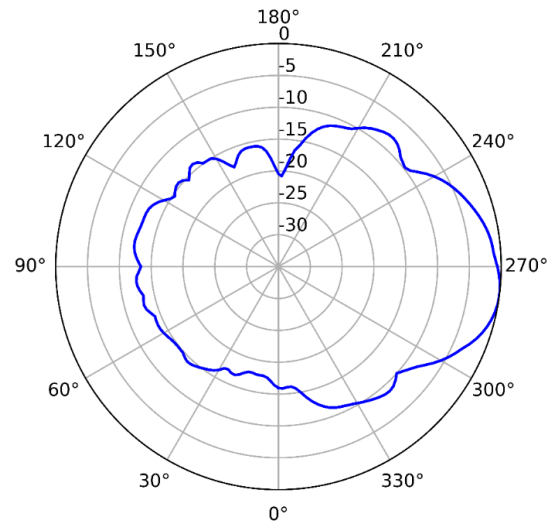
## Standards Compliance

Item	Description
Safety standards	<ul style="list-style-type: none"> <li>• UL 60950-1</li> <li>• EN 60950-1</li> <li>• IEC 60950-1</li> <li>• UL 62368-1</li> <li>• EN 62368-1</li> <li>• IEC 62368-1</li> <li>• GB 4943.1</li> <li>• CAN/CSA 22.2 No.60950-1</li> </ul>
Radio standards	<ul style="list-style-type: none"> <li>• ETSI EN 300 328</li> <li>• ETSI EN 301 893</li> <li>• AS/NZS 4268</li> </ul>
EMC standards	<ul style="list-style-type: none"> <li>• EN 301 489-1</li> <li>• EN 301 489-17</li> <li>• EN 60601-1-1</li> <li>• EN 60601-1-2</li> <li>• EN 55024</li> <li>• EN 55032</li> <li>• EN 55035</li> <li>• GB 9254</li> <li>• GB 17625.1</li> <li>• GB 17625.2</li> <li>• AS/NZS CISPR32</li> <li>• CISPR 24</li> <li>• CISPR 32</li> <li>• CISPR 35</li> <li>• IEC/EN61000-4-2</li> <li>• IEC/EN 61000-4-3</li> <li>• IEC/EN 61000-4-4</li> <li>• IEC/EN 61000-4-5</li> <li>• IEC/EN61000-4-6</li> <li>• ICES-003</li> </ul>
IEEE standards	<ul style="list-style-type: none"> <li>• IEEE 802.11a/b/g</li> <li>• IEEE 802.11n</li> <li>• IEEE 802.11ac</li> <li>• IEEE 802.11ax</li> <li>• IEEE 802.11h</li> <li>• IEEE 802.11d</li> <li>• IEEE 802.11e</li> <li>• IEEE 802.11k</li> <li>• IEEE 802.11v</li> <li>• IEEE 802.11w</li> <li>• IEEE 802.11r</li> </ul>
Security standards	<ul style="list-style-type: none"> <li>• 802.11i, Wi-Fi Protected Access (WPA), WPA2, WPA2-Enterprise, WPA2-PSK, WPA3, WAPI</li> <li>• 802.1X</li> <li>• Advanced Encryption Standards(AES), Temporal Key Integrity Protocol(TKIP), WEP, Open</li> <li>• EAP Type(s)</li> </ul>
EMF	<ul style="list-style-type: none"> <li>• EN 62311</li> <li>• EN 50385</li> </ul>
RoHS	<ul style="list-style-type: none"> <li>• Directive 2002/95/EC &amp; 2011/65/EU</li> <li>• (EU)2015/863</li> </ul>
Reach	<ul style="list-style-type: none"> <li>• Regulation 1907/2006/EC</li> </ul>
WEEE	<ul style="list-style-type: none"> <li>• Directive 2002/96/EC &amp; 2012/19/EU</li> </ul>

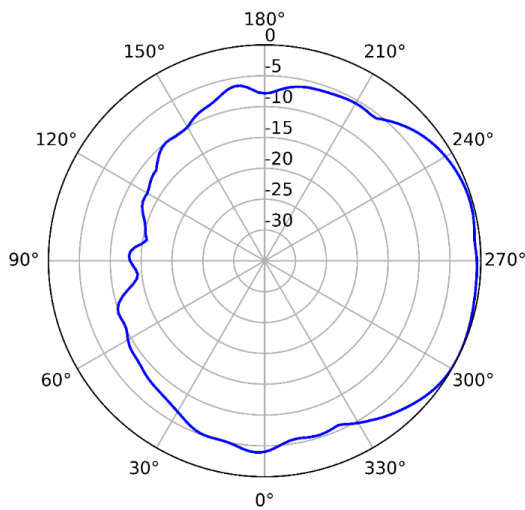
# Antennas Pattern



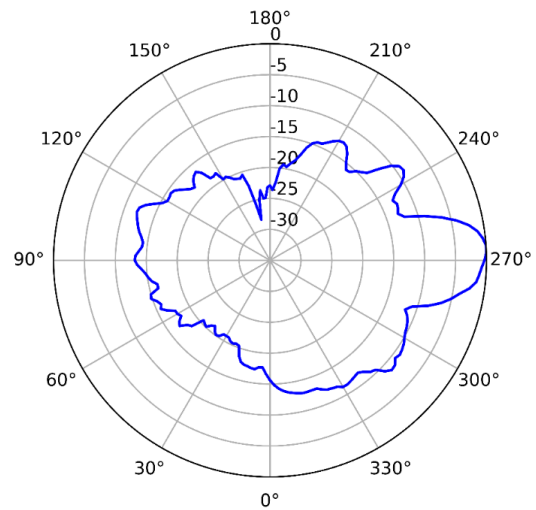
2.4GHz (Horizontal)



2.4GHz (Vertical)



5GHz (Horizontal)



5GHz (Vertical)

## More Information

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- 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](mailto:support_e@huawei.com)

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#### **Huawei Technologies Co., Ltd.**

Address: Huawei Industrial Base Bantian, Longgang Shenzhen 518129 People's Republic of China

Website: [www.huawei.com](http://www.huawei.com)