

3 Selection Policy

Overview

The following table lists the basic principles for selecting APs and antennas.

Table 3-1 Basic principles

No.	Factors of Consideration	Description
1	Usage scenario and purpose	- Indoor scenarios: use indoor APs and antennas to provide signal coverage. - Outdoor scenarios: use outdoor APs and antennas with a high Ingress Protection (IP) grade and certain surge protection capability to provide signal coverage and bridge backhaul. - Rail transportation scenarios: - Train-ground communications: use outdoor APs and antennas with a high IP rating and certain anti-vibration capability. - Compartment coverage: use indoor APs and antennas with certain anti-vibration capability to provide signal coverage. - Station platform coverage: use the same APs as the common outdoor and indoor scenarios.
2	Local standards and regulations	The transmit power and maximum gain of antennas must strictly comply with local standards and regulations. For the rail transportation scenarios, the performance, environment adaptability, and anti-vibration capability of the antennas must also confirm to requirements of the related railway authorities.

No.	Factors of Consideration	Description
3	Mapping between APs and antennas	For details, see Mapping Between APs and Antennas .
4	Coverage/ Backhaul area and distance	• Coverage: Directional antennas are recommended for long and narrow areas while omnidirectional antennas are recommended for round and square areas. • Backhaul: Directional antennas are usually used. If the backhaul distance is long, high-gain antennas should be used; if the backhaul target is concentrated, small-angle antennas should be used.
5	Transmission frequency for radio signals	• Coverage: To implement 2.4 GHz and 5 GHz signal coverage, use 2.4 GHz and 5 GHz antennas separately in the same area or use dual-band antennas. • Backhaul: The 2.4 GHz antennas are not used for backhaul.
6	Construction cost and simplicity	An external directional antenna usually has a large size and needs to be connected to the AP's radio interface through a feeder cable. Compared to a built-in antenna and whip antenna directly installed on an AP, installing an external directional antenna requires higher construction cost and may affect indoor simplicity. To further simplify cable layout (especially in coverage scenarios) without compromising signal quality, you are advised to use built-in or whip antennas directly installed on APs.

Selection Solution in Typical Scenarios

In common WLAN networking scenarios, if APs with external antennas are selected, you can refer to the following table to learn about antenna selection policies.

NOTE

The antenna selection policies provided here are for reference only. In actual projects, you are advised to select APs and antennas based on the [WLAN planning documents](#).

Table 3-2 Outdoor backhaul (5 GHz only)

WLAN Networki ng Scenario	Recommended AP Model	AP Selection Policy	Recommended Antenna Model
1 km backhaul	• Wi-Fi 6 AP: AirEngine 6760R-51 AirEngine 8760R-X1E AirEngine 6760R-51E • Wi-Fi 5 AP: AP8050DN AP8150DN AP8030DN AP8130DN AP8082DN AP8182DN	• The AirEngine 6760R-51, AP8050DN, AP8030DN, and AP8082DN have built-in 2.4 GHz or 5 GHz directional antennas and require low construction costs. • The AirEngine 8760R-X1E, AirEngine 6760R-51E, AP8150DN, AP8130DN, and AP8182DN require external directional antennas and are applicable to more complex scenarios.	• Wi-Fi 6 AP: 27013719 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H33 V33 G13 & H30 V30 G13) 27013718 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H33 V33 G13 & H18 V18 G16) • Wi-Fi 5 AP: 27010889 Outdoor 5 GHz Dual-Polarized Directional Antenna (H60 V30 G11.5) 27010890 Outdoor 5 GHz Dual-Polarized Directional Antenna (H15 V15 G19) 27012565 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H35 V35 G12 & H26 V26 G11) Use antennas with moderate gain and radiation angle to reduce interference to other APs at the same site. For leaf nodes, small-angle high-gain antennas are recommended, which can improve bandwidth.

WLAN Networking Scenario	Recommended AP Model	AP Selection Policy	Recommended Antenna Model
3 km backhaul	- Wi-Fi 6 AP: AirEngine 8760R-X1E, AirEngine 6760R-51E, AirEngine 5761R-11E, AirEngine 5561R-11E - Wi-Fi 5 AP: AP8150DN, AP8130DN, AP8182DN	The AirEngine 8760R-X1E, AirEngine 6760R-51E, AP8150DN, AP8130DN, and AP8182DN require external directional antennas and are applicable to more complex scenarios.	- Wi-Fi 6 AP: 27010890 Outdoor 5 GHz Dual-Polarized Directional Antenna (H15 V15 G19) - Wi-Fi 5 AP: 27010890 Outdoor 5 GHz Dual-Polarized Directional Antenna (H15 V15 G19) 27012566 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H32 V32 G13 & H15 V15 G17) Use directional cross-polarized antennas that have a small radiation angle and high gain to ensure robust signal strength for long-distance backhaul.

Table 3-3 Outdoor coverage (2.4 GHz and 5 GHz)

WLAN Networking Scenario	Recommended AP Model	AP Selection Policy	Recommended Antenna Model
Rural area, square, dock, customs checkpoint, customs inspection site, transportation hub, or long-distance bus station	• Wi-Fi 6 AP: AirEngine 6760R-51 AirEngine 6760R-51E AirEngine 8760R-X1 AirEngine 8760R-X1E • Wi-Fi 5 AP: AP8050DN AP8150DN AP8030DN AP8130DN AP8082DN AP8182DN	• The AirEngine 6760R-51, AirEngine 8760R-X1, AP8030DN, AP8050DN, and AP8082DN have built-in 2.4 GHz or 5 GHz directional antennas. When the coverage angle is proper, APs with built-in antennas are recommended, which can reduce construction costs and meet aesthetic requirements. • The AirEngine 8760R-X1E, AirEngine 6760R-51E, AP8150DN, AP8130DN, and AP8182DN require external directional antennas and are applicable to more complex scenarios.	• Wi-Fi 6 AP: 27013720 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H70 V70 G8 & H70 V70 G8) 27013721 Outdoor 2.4 GHz & 5 GHz Single-Polarized Omnidirectional Antenna (H360 V30 G4 & H360 V15 G7) • Wi-Fi 5 AP: 27011668 Outdoor 2.4 GHz & 5 GHz Single-Polarized Omnidirectional Antenna (H360 V33 G4 & H360 V22 G7) • Other types of directional antennas matching the AP (For details, see Mapping Between APs and Antennas.) Select directional antennas with proper radiation angles according to the coverage area, landscaping, obstacles, and AP installation height.

WLAN Networking Scenario	Recommended AP Model	AP Selection Policy	Recommended Antenna Model
Common road, pedestrian street, and rolling stock depot	- Wi-Fi 6 AP: AirEngine 6760R-51, AirEngine 6760R-51E, AirEngine 8760R-X1, AirEngine 8760R-X1E - Wi-Fi 5 AP: AP8050DN, AP8150DN, AP8030DN, AP8130DN, AP8082DN, AP8182DN	- The AirEngine 6760R-51, AirEngine 8760R-X1, AP8030DN, AP8050DN, and AP8082DN have built-in 2.4 GHz or 5 GHz directional antennas. When the coverage angle is proper, APs with built-in antennas are recommended, which can reduce construction costs and meet aesthetic requirements. - The AirEngine 8760R-X1E, AirEngine 6760R-51E, AP8150DN, AP8130DN, and AP8182DN require external directional antennas and are applicable to more complex scenarios.	- Wi-Fi 6 AP: 27013719 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H33 V33 G13 & H30 V30 G13), 27013720 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H70 V70 G8 & H70 V70 G8) - Wi-Fi 5 AP: 27012134 Indoor and Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H33 V33 G13 & H33 V33 G13) Use high-gain antennas with an angle of less than 60 degrees according to the road width.

WLAN Networking Scenario	Recommended AP Model	AP Selection Policy	Recommended Antenna Model
Stand in an outdoor stadium	- Wi-Fi 6 AP: AirEngine 6760R-51E AirEngine 8760R-X1E - Wi-Fi 5 AP: AP8050TN-HD AP8182DN AP8150DN AP8130DN	The AirEngine 6760R-51E, AirEngine 8760R-X1E, AP8150DN, AP8182DN, and AP8130DN support dual 5 GHz radios. NOTE The AP8050TN-HD is not recommended in countries that are subject to EU standards for the EIRP limits of 20 dBm on the 2.4 GHz frequency band and 23 dBm on the 5 GHz frequency band.	- AirEngine 6760R-51E and AirEngine 8760R-X1E: 27012565 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H35 V35 G12 & H26 V26 G11) - AP8182DN: 27012565 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H35 V35 G12 & H26 V26 G11) - AP8150DN and AP8130DN: 2.4 GHz: 27012544 Outdoor 2.4 GHz Dual-Polarized Directional Antenna (H18 V18 G18) 5 GHz: 27010890 Outdoor 5 GHz Dual-Polarized Directional Antenna (H15 V15 G19)

Table 3-4 Indoor coverage (2.4 GHz and 5 GHz)

WLAN Networki ng Scenario	Recommended AP Model	AP Selection Policy	Recommended Antenna Model
Factory and warehous e	• Wi-Fi 6 AP: AirEngine 5761R-11E (outdoor), AirEngine 5561R-11E (outdoor), and AirEngine 6760-X1E (indoor) • Wi-Fi 5 AP: AP4151DN AP6150DN	The AirEngine 5761R-11E, AirEngine 5561R-11E, and AirEngine 6760-X1E are Wi-Fi 6 products, and the AP4151DN and AP6150DN are Wi-Fi 5 products. You are advised to select the product based on actual requirements. When an AirEngine 5761R-11E or AirEngine 5561R-11E works in dual-5G mode and connects to external antennas (part number: 27013720), connect the RF ports on its top and bottom both to two antennas.	• Wi-Fi 6 AP: 27013720 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H70 V70 G8 & H70 V70 G8) 27013721 Outdoor 2.4 GHz & 5 GHz Single-Polarized Omnidirectional Antenna (H360 V30 G4 & H360 V15 G7) • Wi-Fi 5 AP: 27011668 Outdoor 2.4 GHz & 5 GHz Single-Polarized Omnidirectional Antenna (H360 V33 G4 & H360 V22 G7) Install the APs on the wall, with external directional antennas directing at the aisles. Alternatively, install APs with external omnidirectional antennas connected on the ceiling of aisles for coverage.
Elevator coverage	• Wi-Fi 5 AP: AP9131DN	The AP9131DN and AP9132DN support 3x3 MIMO and can connect to external directional antennas.	27012045 Vehicle-Mounted 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H75 V65 G5.5 & H80 V40 G6)

WLAN Networking Scenario	Recommended AP Model	AP Selection Policy	Recommended Antenna Model
Elevator backhaul	- Wi-Fi 6 AP: AirEngine 5761R-11E - Wi-Fi 5 AP: AP9131DN, AP8150DN, AP8130DN	The AirEngine 5761R-11E and AP9131DN are recommended above elevator cars. The AirEngine 5761R-11E, AP8150DN, and AP8130DN are recommended at the top of elevator shafts.	- AP9131DN: 27012140 Rail Transportation 5 GHz Dual-Polarized Directional Antenna (H33 V33 G13) - AP8130DN and AP8150DN: 27010890 Outdoor 5 GHz Dual-Polarized Directional Antenna (H15 V15 G19) - AP8130DN and AP8150DN: 27010906 Outdoor 5 GHz Dual-Polarized Directional Antenna (H32 V32 G14) - AirEngine 5761R-11E and AirEngine 5561R-11E: 27013720 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H70 V70 G8 & H70 V70 G8)
Stand in an indoor stadium	Wi-Fi 6 AP: AirEngine 6760-X1E	The AirEngine 6760-X1E is a Wi-Fi 6 product. Select APs as required.	AirEngine 6760-X1E: 27012565 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H35 V35 G12 & H26 V26 G11)

Table 3-5 Rail transportation (2.4 GHz and 5 GHz)

WLAN Networking Scenario	Recommended AP Model	AP Selection Policy	Recommended Antenna Model (Only for APs Using External Antennas)
Train-ground backhaul (5G)	Wi-Fi 6 AP: - Front and rear of a train: AirEngine 6761-51EI - Trackside: AirEngine 8760R-X1E, AirEngine 6760R-51E, AirEngine 5761R-11E, and AirEngine 5561R-11E Wi-Fi 5 AP: - Front and rear of a train: AP9131DN and AP9132DN - Trackside: AP8130DN	- The AirEngine 8760R-X1E, AirEngine 6760R-51E, AirEngine 5761R-11E, AirEngine 5561R-11E, and AP8130DN are applicable to rail transportation scenarios. They comply with railway specifications in terms of performance and environment adaptability, and have a high Ingress Protection (IP) rating. - The AirEngine 6761-51EI has four 2.4 GHz/5 GHz RF ports for train-to-ground backhaul. The AP9131DN has three 2.4G/5G radio interfaces for backhaul or coverage. The AP9132DN has three 2.4G/5G radio interfaces and three 2.4G radio interfaces, which can be simultaneously used for 5G backhaul and 2.4G coverage. The AirEngine 6761-51EI, AP9131DN, and	Wi-Fi 6 AP: - Front and rear of a train: 27013955 Outdoor 5 GHz Dual-Polarized Directional Antenna (H25 V25 G16) - Trackside wall mounting: 27013955 Outdoor 5 GHz Dual-Polarized Directional Antenna (H25 V25 G16) 27013921 Rail Transportation 5 GHz Dual-Polarized Directional Antenna (H45 V15 G15) - Trackside pole mounting: 27013956 Outdoor 5 GHz Dual-Polarized Directional Antenna (H25 V25 G16) 27013413 Rail Transportation 5 GHz Dual-Polarized Directional Antenna (H45 V15 G15) Wi-Fi 5 AP: - Front and rear of a train: 27012140 Rail Transportation 5 GHz Dual-Polarized Directional Antenna (H33 V33 G13) - Trackside wall mounting: Yagi antenna 27012046 Rail Transportation 5 GHz Dual-Polarized

WLAN Networki ng Scenario	Recommended AP Model	AP Selection Policy	Recommended Antenna Model (Only for APs Using External Antennas)
		AP9132DN are purpose-built for rail transportation scenarios and comply with anti-vibration requirements of related railway authorities.	Directional Antenna (H30 V30 G14) Trackside pole mounting: 27011618 Rail Transportation 5 GHz Dual-Polarized Directional Antenna (H30 V30 G14)
Train compartm ent (2.4 GHz and 5 GHz)	Wi-Fi 5 AP: - AP9131DN - AP9132DN	The two types of APs are purpose-built for rail transportation scenarios and comply with anti-vibration requirements of related railway authorities. - The AP9131DN can transmit 2.4 GHz and 5 GHz signals simultaneously on a radio interface and uses both radios for compartment coverage. - The AP9132DN can transmit only 2.4 GHz or 5 GHz signals on a radio interface, and uses the 5 GHz radio for compartment bridging and 2.4 GHz radio for compartment coverage, or for dual-band compartment coverage.	- Bridging: 27012050 Vehicle-Mounted 5 GHz Dual-Polarized Directional Antenna (H70 V35 G9) - Compartment coverage: 27012045 Vehicle-Mounted 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H75 V65 G5.5 & H80 V40 G6) - Distributed coverage: 27012075 Vehicle-Mounted 2.4 GHz & 5 GHz Single-Polarized Directional Antenna (H80 V40 G4 & H80 V40 G6)

WLAN Networki ng Scenario	Recommended AP Model	AP Selection Policy	Recommended Antenna Model (Only for APs Using External Antennas)
Outdoor station platform (2.4 GHz and 5 GHz)	- Wi-Fi 6 AP: AirEngine 6760R-51 AirEngine 6760R-51E AirEngine 8760R-X1 AirEngine 8760R-X1E - Wi-Fi 5 AP: AP8050DN AP8150DN AP8030DN AP8130DN AP8082DN AP8182DN	- The AirEngine 6760R-51, AirEngine 8760R-X1, AP8030DN, AP8050DN, and AP8082DN have built-in 2.4 GHz or 5 GHz directional antennas. When the coverage angle is proper, APs with built-in antennas are recommended, which can reduce construction costs and meet aesthetic requirements. - The AirEngine 8760R-X1E, AirEngine 6760R-51E, AP8150DN, AP8130DN, and AP8182DN require external directional antennas and are applicable to more complex scenarios.	- Wi-Fi 6 AP: 27013721 Outdoor 2.4 GHz & 5 GHz Single-Polarized Omnidirectional Antenna (H360 V30 G4 & H360 V15 G7) - Wi-Fi 5 AP: 27011668 Outdoor 2.4 GHz & 5 GHz Single-Polarized Omnidirectional Antenna (H360 V33 G4 & H360 V22 G7) - Other types of directional antennas matching the AP (For details, see Mapping Between APs and Antennas.) Select directional antennas with proper radiation angles according to the coverage area, landscaping, obstacles, and AP installation height.

Mapping Between APs and Antennas

[Table 3-6](#) lists mapping between APs and antennas involved in this manual.

Table 3-6 Mapping between APs and antennas

AP Model	Matching Antenna Model
AP6150DN	27012545 Indoor 2.4 GHz & 5 GHz Linear-Polarized Omnidirectional Antenna (H360 V110 G4 & H360 V110 G5) 27011172 Indoor 2.4 GHz & 5 GHz Single-Polarized Omnidirectional Antenna (H360 G3 & H360 G4)

AP Model	Matching Antenna Model
AP6310SN	27010209 Indoor 2.4 GHz Single-Polarized Directional Antenna (H88 V47 G7) 27010210 Indoor 2.4 GHz Single-Polarized Omnidirectional Antenna (H360 V45 G3)
AP6510DN/ AP6610DN	27010215 Outdoor 2.4 GHz Single-Polarized Omnidirectional Antenna (H360 V9 G11) 27010812 Outdoor 2.4 GHz Dual-Polarized Directional Antenna (H60 V30 G12) 27010889 Outdoor 5 GHz Dual-Polarized Directional Antenna (H60 V30 G11.5) 27010890 Outdoor 5 GHz Dual-Polarized Directional Antenna (H15 V15 G19) 27010898 Outdoor 2.4 GHz Dual-Polarized Directional Antenna (H60 V7 G16.5) 27010902 Outdoor 2.4 GHz Single-Polarized Directional Antenna (H120 V6 G14.5) 27010904 Outdoor 2.4 GHz Dual-Polarized Directional Antenna (H30 V30 G14) 27010906 Outdoor 5 GHz Dual-Polarized Directional Antenna (H32 V32 G14) 27010912 Outdoor 5 GHz Single-Polarized Directional Antenna (H100 V5.5 G16) 27010913 Outdoor 2.4 GHz Single-Polarized Omnidirectional Antenna (H360 V11.5 G8) 27011016 Outdoor 5 GHz Dual-Polarized Directional Antenna (H9 V9 G23) 27011332 Outdoor 2.4 GHz Single-Polarized Omnidirectional Antenna (H360 V32 G3) 27011333 Outdoor 5 GHz Single-Polarized Omnidirectional Antenna (H360 V20 G5) 27012544 Outdoor 2.4 GHz Dual-Polarized Directional Antenna (H18 V18 G18)
AP7152DN	27012545 Indoor 2.4 GHz & 5 GHz Linear-Polarized Omnidirectional Antenna (H360 V110 G4 & H360 V110 G5) 27011172 Indoor 2.4 GHz & 5 GHz Single-Polarized Omnidirectional Antenna (H360 G3 & H360 G4)

AP Model	Matching Antenna Model
AP8130DN	• 27010215 Outdoor 2.4 GHz Single-Polarized Omnidirectional Antenna (H360 V9 G11) • 27010812 Outdoor 2.4 GHz Dual-Polarized Directional Antenna (H60 V30 G12) • 27010889 Outdoor 5 GHz Dual-Polarized Directional Antenna (H60 V30 G11.5) • 27010890 Outdoor 5 GHz Dual-Polarized Directional Antenna (H15 V15 G19) • 27010904 Outdoor 2.4 GHz Dual-Polarized Directional Antenna (H30 V30 G14) • 27010906 Outdoor 5 GHz Dual-Polarized Directional Antenna (H32 V32 G14) • 27011145 Outdoor 5 GHz Dual-Polarized Directional Antenna (H15 V15 G19) • 27011618 Rail Transportation 5 GHz Dual-Polarized Directional Antenna (H30 V30 G14) • 27011619 Rail Transportation 2.4 GHz Dual-Polarized Directional Antenna (H35 V35 G12) • 27011668 Outdoor 2.4 GHz & 5 GHz Single-Polarized Omnidirectional Antenna (H360 V33 G4 & H360 V22 G7) • 27012134 Indoor and Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H33 V33 G13 & H33 V33 G13) • 27012140 Rail Transportation 5 GHz Dual-Polarized Directional Antenna (H33 V33 G13) • 27012046 Rail Transportation 5 GHz Dual-Polarized Directional Antenna (H30 V30 G14) • 27012048 Rail Transportation 2.4 GHz Dual-Polarized Directional Antenna (H35 V35 G12) • 27012544 Outdoor 2.4 GHz Dual-Polarized Directional Antenna (H18 V18 G18)
AP8130DN-W	• 27010889 Outdoor 5 GHz Dual-Polarized Directional Antenna (H60 V30 G11.5) • 27010904 Outdoor 2.4 GHz Dual-Polarized Directional Antenna (H30 V30 G14)

AP Model	Matching Antenna Model
AP8150DN	• 27010215 Outdoor 2.4 GHz Single-Polarized Omnidirectional Antenna (H360 V9 G11) • 27010812 Outdoor 2.4 GHz Dual-Polarized Directional Antenna (H60 V30 G12) • 27010889 Outdoor 5 GHz Dual-Polarized Directional Antenna (H60 V30 G11.5) • 27010890 Outdoor 5 GHz Dual-Polarized Directional Antenna (H15 V15 G19) • 27010904 Outdoor 2.4 GHz Dual-Polarized Directional Antenna (H30 V30 G14) • 27010906 Outdoor 5 GHz Dual-Polarized Directional Antenna (H32 V32 G14) • 27011619 Rail Transportation 2.4 GHz Dual-Polarized Directional Antenna (H35 V35 G12) • 27011668 Outdoor 2.4 GHz & 5 GHz Single-Polarized Omnidirectional Antenna (H360 V33 G4 & H360 V22 G7) • 27012048 Rail Transportation 2.4 GHz Dual-Polarized Directional Antenna (H35 V35 G12) • 27012544 Outdoor 2.4 GHz Dual-Polarized Directional Antenna (H18 V18 G18) • 27013721 Outdoor 2.4 GHz & 5 GHz Single-Polarized Omnidirectional Antenna (H360 V30 G4 & H360 V15 G7) • 27013571 Outdoor 2.4 GHz Dual-Polarized Directional Antenna (H18 V18 G18)
AP8182DN	• 27011668 Outdoor 2.4 GHz & 5 GHz Single-Polarized Omnidirectional Antenna (H360 V33 G4 & H360 V22 G7) • 27012565 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H35 V35 G12 & H26 V26 G11) • 27012566 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H32 V32 G13 & H15 V15 G17) • 27013721 Outdoor 2.4 GHz & 5 GHz Single-Polarized Omnidirectional Antenna (H360 V30 G4 & H360 V15 G7) • 27013718 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H33 V33 G13 & H18 V18 G16) • 27013719 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H33 V33 G13 & H30 V30 G13) • 27013571 Outdoor 2.4 GHz Dual-Polarized Directional Antenna (H18 V18 G18) • 27013720 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H70 V70 G8 & H70 V70 G8)

AP Model	Matching Antenna Model
AP9130DN	• 27011618 Rail Transportation 5 GHz Dual-Polarized Directional Antenna (H30 V30 G14) • 27011619 Rail Transportation 2.4 GHz Dual-Polarized Directional Antenna (H35 V35 G12) • 27012046 Rail Transportation 5 GHz Dual-Polarized Directional Antenna (H30 V30 G14) • 27012048 Rail Transportation 2.4 GHz Dual-Polarized Directional Antenna (H35 V35 G12)
AP9131DN	• 27010904 Outdoor 2.4 GHz Dual-Polarized Directional Antenna (H30 V30 G14) • 27011618 Rail Transportation 5 GHz Dual-Polarized Directional Antenna (H30 V30 G14) • 27011619 Rail Transportation 2.4 GHz Dual-Polarized Directional Antenna (H35 V35 G12) • 27012045 Vehicle-Mounted 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H75 V65 G5.5 & H80 V40 G6) • 27012046 Rail Transportation 5 GHz Dual-Polarized Directional Antenna (H30 V30 G14) • 27012048 Rail Transportation 2.4 GHz Dual-Polarized Directional Antenna (H35 V35 G12) • 27012075 Vehicle-Mounted 2.4 GHz & 5 GHz Single-Polarized Directional Antenna (H80 V40 G4 & H80 V40 G6) • 27012140 Rail Transportation 5 GHz Dual-Polarized Directional Antenna (H33 V33 G13)

AP Model	Matching Antenna Model
AP9132DN	• 27010904 Outdoor 2.4 GHz Dual-Polarized Directional Antenna (H30 V30 G14) • 27011618 Rail Transportation 5 GHz Dual-Polarized Directional Antenna (H30 V30 G14) • 27011619 Rail Transportation 2.4 GHz Dual-Polarized Directional Antenna (H35 V35 G12) • 27012045 Vehicle-Mounted 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H75 V65 G5.5 & H80 V40 G6) • 27012046 Rail Transportation 5 GHz Dual-Polarized Directional Antenna (H30 V30 G14) • 27012048 Rail Transportation 2.4 GHz Dual-Polarized Directional Antenna (H35 V35 G12) • 27012050 Vehicle-Mounted 5 GHz Dual-Polarized Directional Antenna (H70 V35 G9) • 27012075 Vehicle-Mounted 2.4 GHz & 5 GHz Single-Polarized Directional Antenna (H80 V40 G4 & H80 V40 G6) • 27012140 Rail Transportation 5 GHz Dual-Polarized Directional Antenna (H33 V33 G13)
AP9330DN	27011792 Indoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H75 V55 G4 & H75 V50 G6)

AP Model	Matching Antenna Model
AirEngine 8760R-X1E	• 27013571 Outdoor 2.4 GHz Dual-Polarized Directional Antenna (H18 V18 G18) • 27013718 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H33 V33 G13 & H18 V18 G16) • 27013719 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H33 V33 G13 & H30 V30 G13) • 27013720 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H70 V70 G8 & H70 V70 G8) • 27013721 Outdoor 2.4 GHz & 5 GHz Single-Polarized Omnidirectional Antenna (H360 V30 G4 & H360 V15 G7) • 27010664 Outdoor 2.4 GHz Dual-Polarized Directional Antenna (H60 V7 G18) • 27010215 Outdoor 2.4 GHz Single-Polarized Omnidirectional Antenna (H360 V9 G11) • 27010812 Outdoor 2.4 GHz Dual-Polarized Directional Antenna (H60 V30 G12) • 27010889 Outdoor 5 GHz Dual-Polarized Directional Antenna (H60 V30 G11.5) • 27010890 Outdoor 5 GHz Dual-Polarized Directional Antenna (H15 V15 G19) • 27012565 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H35 V35 G12 & H26 V26 G11) • 27012566 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H32 V32 G13 & H15 V15 G17) • 27013955 Outdoor 5 GHz Dual-Polarized Directional Antenna (H25 V25 G16) • 27013956 Outdoor 5 GHz Dual-Polarized Directional Antenna (H25 V25 G16)

AP Model	Matching Antenna Model
AirEngine 6760R-51E	• 27010215 Outdoor 2.4 GHz Single-Polarized Omnidirectional Antenna (H360 V9 G11) • 27013571 Outdoor 2.4 GHz Dual-Polarized Directional Antenna (H18 V18 G18) • 27013718 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H33 V33 G13 & H18 V18 G16) • 27013719 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H33 V33 G13 & H30 V30 G13) • 27013720 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H70 V70 G8 & H70 V70 G8) • 27013721 Outdoor 2.4 GHz & 5 GHz Single-Polarized Omnidirectional Antenna (H360 V30 G4 & H360 V15 G7) • 27010812 Outdoor 2.4 GHz Dual-Polarized Directional Antenna (H60 V30 G12) • 27010664 Outdoor 2.4 GHz Dual-Polarized Directional Antenna (H60 V7 G18) • 27013955 Outdoor 5 GHz Dual-Polarized Directional Antenna (H25 V25 G16) • 27013956 Outdoor 5 GHz Dual-Polarized Directional Antenna (H25 V25 G16) • 27010889 Outdoor 5 GHz Dual-Polarized Directional Antenna (H60 V30 G11.5) • 27010890 Outdoor 5 GHz Dual-Polarized Directional Antenna (H15 V15 G19) • 27012565 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H35 V35 G12 & H26 V26 G11) • 27012566 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H32 V32 G13 & H15 V15 G17) • 27013413 Rail Transportation 5 GHz Dual-Polarized Directional Antenna (H45 V15 G15) • 27013921 Rail Transportation 5 GHz Dual-Polarized Directional Antenna (H45 V15 G15)
AirEngine 5761-11EI	• 27014279 Mining 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H30 V30 G11&H15 V15 G15)

AP Model	Matching Antenna Model
AirEngine 5761R-11E and AirEngine 5561R-11E	• 27010812 Outdoor 2.4 GHz Dual-Polarized Directional Antenna (H60 V30 G12) • 27010889 Outdoor 5 GHz Dual-Polarized Directional Antenna (H60 V30 G11.5) • 27010904 Outdoor 2.4 GHz Dual-Polarized Directional Antenna (H30 V30 G14) • 27010906 Outdoor 5 GHz Dual-Polarized Directional Antenna (H32 V32 G14) • 27013719 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H33 V33 G13 & H30 V30 G13) • 27013720 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H70 V70 G8 & H70 V70 G8) • 27013721 Outdoor 2.4 GHz & 5 GHz Single-Polarized Omnidirectional Antenna (H360 V30 G4 & H360 V15 G7) • 27010215 Outdoor 2.4 GHz Single-Polarized Omnidirectional Antenna (H360 V9 G11) • 27010890 Outdoor 5 GHz Dual-Polarized Directional Antenna (H15 V15 G19) • 27013718 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H33 V33 G13 & H18 V18 G16) • 27013571 Outdoor 2.4 GHz Dual-Polarized Directional Antenna (H18 V18 G18) • 27013413 Rail Transportation 5 GHz Dual-Polarized Directional Antenna (H45 V15 G15) • 27013921 Rail Transportation 5 GHz Dual-Polarized Directional Antenna (H45 V15 G15) • 27013955 Outdoor 5 GHz Dual-Polarized Directional Antenna (H25 V25 G16) • 27013956 Outdoor 5 GHz Dual-Polarized Directional Antenna (H25 V25 G16) • 27012565 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H35 V35 G12 & H26 V26 G11)
AirEngine 6760-51EI	• 27013955 Outdoor 5 GHz Dual-Polarized Directional Antenna (H25 V25 G16)

AP Model	Matching Antenna Model
AirEngine 6760-X1E	• 27013718 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H33 V33 G13 & H18 V18 G16) • 27013719 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H33 V33 G13 & H30 V30 G13) • 27013720 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H70 V70 G8 & H70 V70 G8) • 27011172 Indoor 2.4 GHz & 5 GHz Single-Polarized Omnidirectional Antenna (H360 G3 & H360 G4) • 27012545 Indoor 2.4 GHz & 5 GHz Linear-Polarized Omnidirectional Antenna (H360 V110 G4 & H360 V110 G5) • 27012565 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H35 V35 G12 & H26 V26 G11) NOTE When antennas with Type N connectors 27013718, 27013719, 27013720, or 27012565 are used, you need to purchase feeders separately to implement interface conversion. The following types of feeders are available: • RF cable parts - 0.5 m (part number: 04133329) • RF cable parts - 1 m (part number: 04133329-001) • RF cable parts - 3 m (part number: 04133329-002) • RF cable parts - 5 m (part number: 04133329-003)
AirEngine 6761-21E	• 27013718 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H33 V33 G13 & H18 V18 G16) • 27013719 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H33 V33 G13 & H30 V30 G13) • 27013720 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H70 V70 G8 & H70 V70 G8) • 27011172 Indoor 2.4 GHz & 5 GHz Single-Polarized Omnidirectional Antenna (H360 G3 & H360 G4) • 27012545 Indoor 2.4 GHz & 5 GHz Linear-Polarized Omnidirectional Antenna (H360 V110 G4 & H360 V110 G5) • 27012565 Outdoor 2.4 GHz & 5 GHz Dual-Polarized Directional Antenna (H35 V35 G12 & H26 V26 G11) NOTE When antennas with Type N connectors 27013718, 27013719, 27013720, or 27012565 are used, you need to purchase feeders separately to implement interface conversion. The following types of feeders are available: • RF cable parts - 0.5 m (part number: 04133329) • RF cable parts - 1 m (part number: 04133329-001) • RF cable parts - 3 m (part number: 04133329-002) • RF cable parts - 5 m (part number: 04133329-003)

AP Model	Matching Antenna Model
AirEngine 5760-11DH	27014400 Indoor 2.4 GHz & 5 GHz Single-Polarized Omnidirectional Antenna (H360 V110 G4 & H360 V110 G5)

CAUTION

- The regulatory requirements for the strength of radio signals vary in different countries and regions. Therefore, when APs and external antennas are used together, run the **antenna-gain** command to set the antenna gain based on the actual antenna specifications. Then the device software controls the transmit power based on the configured antenna gain within the range allowed by the country code.
- If directional antennas are connected to an AirEngine X760 series AP requiring external antennas, ensure that the number of antennas used to cover the same area is not less than half of the total number of antennas on a single radio of the AP. Otherwise, issues such as a long service delay will occur. For example, to use 5 GHz directional antennas on an AirEngine 6760-X1E in 4+8 radio mode to cover multiple areas, ensure that at least four 5 GHz antennas are used to cover the same area.

The following figures show the correct and incorrect connections between antennas and RF ports (eight 5 GHz antennas as an example). In the correct example, every four RF ports are connected to a directional antenna through feeders, and the antennas are used to cover two areas. In the incorrect example, every two RF ports are connected to a directional antenna through feeders, and the antennas are used to cover four areas.

Figure 3-1 Correct example

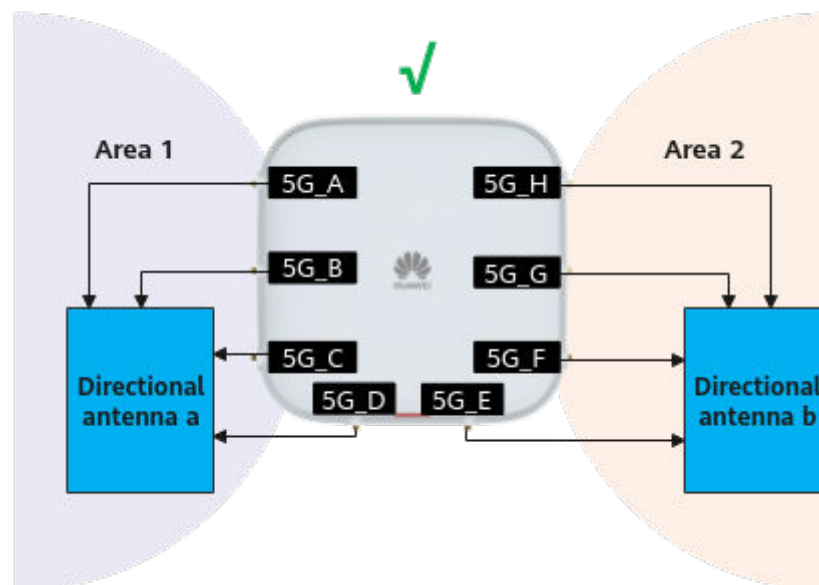
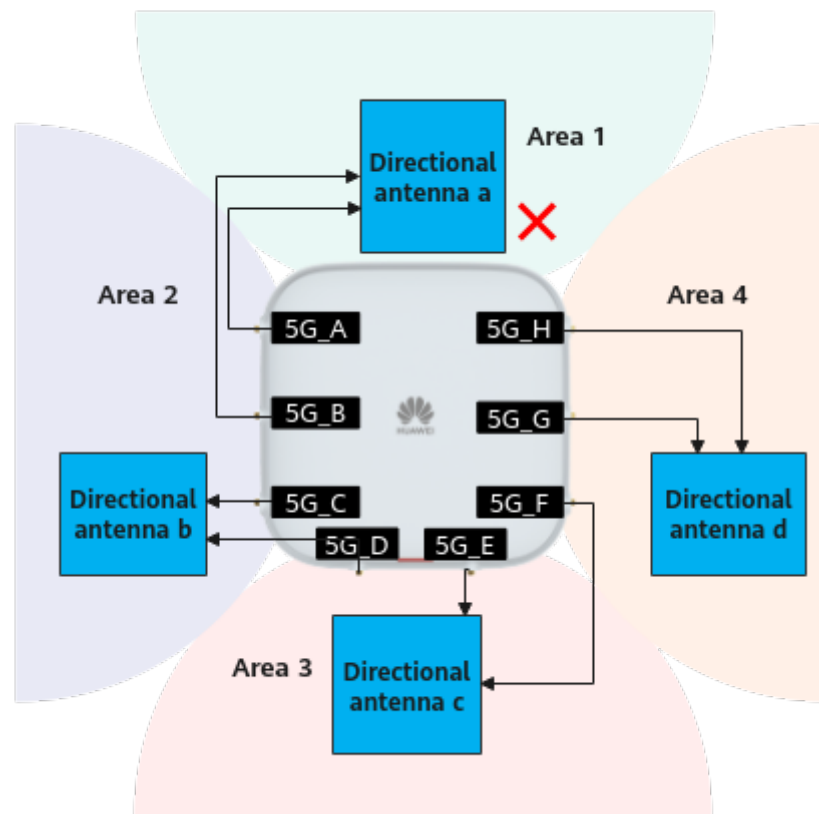


Figure 3-2 Incorrect example



- Strictly follow the preceding mapping rules to select antennas. Otherwise, service functions may be affected.