Item	Specification
Weight without packaging [kg(lb)]	0.46 kg (1.01 lb)
Weight with packaging [kg(lb)]	0.80 kg (1.76 lb)
Storage	NAND Flash 256 MB
Console port	None
Maximum power consumption [W]	11.2 W
Maximum heat dissipation [BTU/hour]	36.3 BTU/hour
Power supply mode	- DC adapter - PoE
Rated input voltage [V]	12 V
Input voltage range [V]	DC: 12 V ± 10% PoE: 802.3af
Service port surge protection	PoE port: Common mode (8 wires to ground): 4 kV (1.2/50 us, 42 ohms), criterion C
Maximum number of physical ports on the entire device	GE (RJ45) x 1, 10M/100M/1000M auto-sensing
Long-term operating temperature [°C(°F)]	–10°C to +50°C (14°F to 122°F) (If the altitude is in the range of 1800 m to 5000 m, the temperature decreases by 1°C or 1.8°F every time the altitude increases by 300 m.)
Storage temperature [°C(°F)]	–40°C to +70°C (–40°F to +158°F)
Long-term operating relative humidity [RH]	5% RH to 95% RH
Long-term operating altitude [m(ft.)]	–60 m to +5000 m (–196.85 ft to +16404.20 ft)
Atmospheric pressure [kPa]	53kPa - 106kPa ETSI 300 019-2-3
Ground	floating ground
BLE	Not supported
Radio number	2
Operating frequency band	2.4GHz 5GHz
MIMO spatial streams	Radio 0 (2.4 GHz): 2x2 Radio 1 (5 GHz): 2x2

2.1.33 AP362

Overview

Table 2-161 Basic information about the AP362

Item	Details
Description	AP362(11ax indoor,2+2 dual bands,smart antenna)

Item	Details
Part Number	50085706
Model	AP362
First supported version	V200R021C11

Appearance

Figure 2-97 Appearance of the AP362

Ports

Figure 2-98 Ports on the AP362
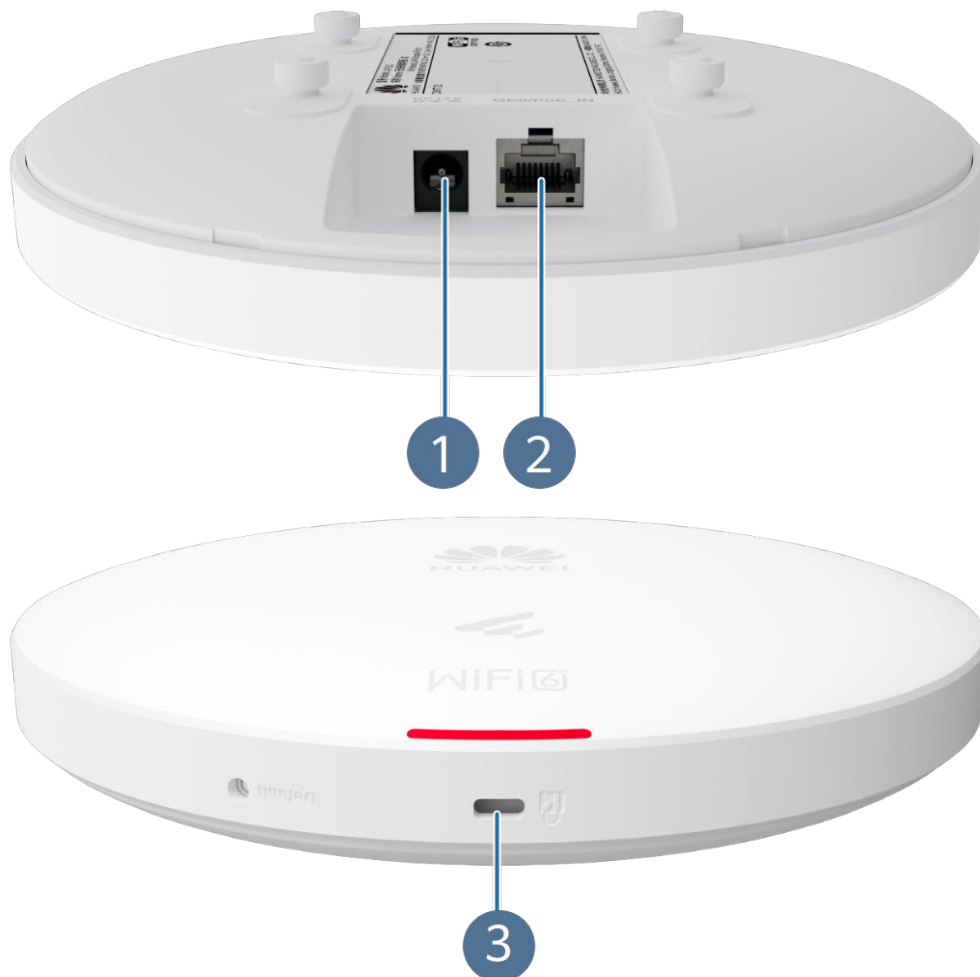
1	DC12V	2	GE0/PoE_IN
3	Security slot	-	-

Table 2-162 Ports on the AP362

Port	Connector Type	Description	Available Components
GE0/PoE_IN	RJ45	10/100/1000M auto-sensing Ethernet electrical port that connects to the wired Ethernet and supports PoE input.	Network cable
DC 12V	DC connector	Connects to a 12 V power adapter.	12 V DC power adapter

Indicators and Buttons

Figure 2-99 Indicators and buttons on the AP362
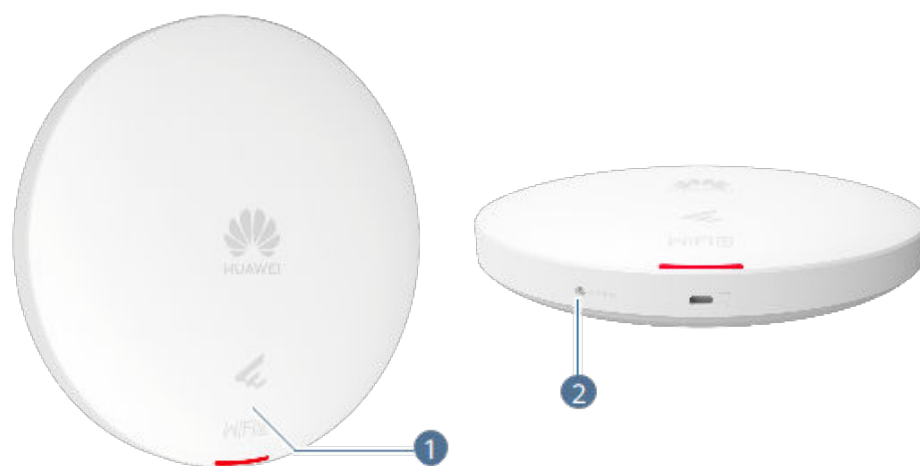
The indicator is located inside the panel, which turns on after the AP is powered on.

1	Indicator	2	Default

Table 2-163 Indicators on the AP362

Silkscreen	Name	Color	Status	Description
-	System indicator	Green	Steady on	The AP is just powered on and the software is not started yet.
		Green	Steady on after blinking once	After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
		Green	Slow blinking (0.5 Hz)	The AP runs in Fat or Fit mode, the Ethernet connection is normal, and STAs are associated with the AP.
		Green	Slow blinking (0.2 Hz)	The AP runs in Fat or Fit mode, the Ethernet connection is normal, and no STA is associated with the AP.

Silkscreen	Name	Color	Status	Description
		Green	Blinking once every 0.25s (4 Hz)	The AP works in Fat or Fit mode. ● The software is being upgraded. ● In Fit mode, the AP is requesting to go online or fails to go online.
		Blue	Slow blinking (0.5 Hz)	The AP works in cloud mode, has gone online on the cloud management controller, and is running properly.
		Blue	Blinking once every 0.25s (4 Hz)	The AP works in cloud mode and is connecting to the cloud management controller (including reconnection after disconnection).

Silkscreen	Name	Color	Status	Description
		Red	Steady on	A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Table 2-164 Buttons on the AP362

Silkscreen	Name	Description
Default	Reset button	If you press the button, the device resets; if you hold down the button for more than 6 seconds, the device restores the factory settings, switches to the Fit mode, and restarts.

Technical Specifications

Table 2-165 Technical specifications of the AP362

Item	Specification
Installation Type	● Wall ● Ceiling ● T-Rail
Dimensions without packaging (H x W x D) [mm(in.)]	Diameter x depth: 180 mm x 35 mm (7.09 in. x 1.38 in.)
Dimensions with packaging (H x W x D) [mm(in.)]	52 mm x 231 mm x 200 mm (2.05 in. x 9.09 in. x 7.87 in.)

Item	Specification
Weight without packaging [kg(lb)]	0.46 kg (1.01 lb)
Weight with packaging [kg(lb)]	0.80 kg (1.76 lb)
Storage	NAND Flash 256 MB
Console port	None
Maximum power consumption [W]	11.2 W
Power supply mode	• DC adapter • PoE
Rated input voltage [V]	12 V
Input voltage range [V]	DC: 12 V ± 10% PoE: 802.3af
Service port surge protection	PoE port: Common mode (8 wires to ground): 4 kV (1.2/50 us, 42 ohms), criterion C
Maximum number of physical ports on the entire device	GE (RJ45) x 1, 10M/100M/1000M auto-sensing
Long-term operating temperature [°C(°F)]	–10°C to +50°C (14°F to 122°F) (If the altitude is in the range of 1800 m to 5000 m, the temperature decreases by 1°C or 1.8°F every time the altitude increases by 300 m.)
Storage temperature [°C(°F)]	–40°C to +70°C (–40°F to +158°F)
Long-term operating relative humidity [RH]	5% RH to 95% RH
Long-term operating altitude [m(ft.)]	–60 m to +5000 m (–196.85 ft to +16404.20 ft)
Atmospheric pressure [kPa]	53kPa - 106kPa ETSI 300 019-2-3
Ground	floating ground
BLE	Not supported
Radio number	2
Operating frequency band	• 2.4GHz • 5GHz
MIMO spatial streams	Radio 0 (2.4 GHz): 2x2 Radio 1 (5 GHz): 2x2
Wi-Fi standard	2.4G: 802.11b/g/n/ax 5G: 802.11a/n/ac/ac Wave 2/ax

Item	Specification
Radio interface	Built-in smart antennas
Antenna gain	2.4G: 4 dBi/chain (peak) 2 dBi (combined gain) 5G: 5 dBi/chain (peak value) 3 dBi (combined gain)
Maximum transmit power	2.4G: 20 dBm/chain 23 dBm (combined power) 5G: 20 dBm/chain 23 dBm (combined power)
Singal radio transmit power [dBm]	2.4G: -10 dBm to 20 dBm/chain 5G: -10 dBm to 20 dBm/chain
MTBF [year]	205.07 year
MTTR [hour]	0.5 hour
Frequency stability [ppm]	+/-20
802.3bt power supply description	No function is limited.
802.3at power supply description	No function is limited.
802.3af power supply description	No function is limited.
DC power supply description	No function is limited.

2.2 Installing Indoor Settled APs

2.2.1 Preparing for Installation

2.2.1.1 Safety Precautions

- Take proper measures to prevent injuries and device damage.
- Place the device in a dry and flat position away from any liquid and prevent the device from slipping.
- Keep the device clean.
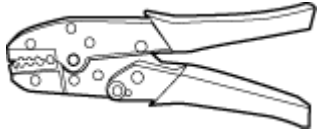- Do not put the device and tools in the aisles.

⚠ CAUTION
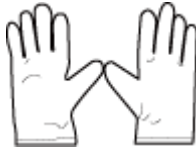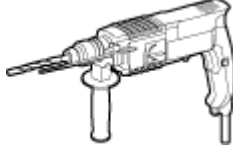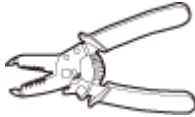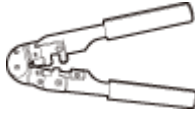
Only the qualified personnel are permitted to install and remove the device and its accessories. Before installation and operation, read the safety precautions carefully.

2.2.1.2 Preparing Installation Tools and Accessories

Tool Preparation

Table 2-166 lists the tools that may be used during installation.

Table 2-166 Tools

Phillips screwdriver	Protective gloves	ESD gloves
Slip-proof gloves	Marker	Hammer drill
Claw hammer	Torque wrench	Diagonal pliers
Wire stripper	RJ45 crimping tool	Crimping tool
Network cable tester	Multimeter	Ladder

Safety helmet	Safety belt	Anti-skid shoes
Torque screwdriver	-	-

📖 **NOTE**

You are advised to use a torque screwdriver instead of a Phillips screwdriver.

2.2.1.3 Determining the Installation Position

⚠️ WARNING

To ensure good heat dissipation, do not place a working AP (with the top cover facing upwards) on a desk for a long time.

Indoor APs are usually mounted on a wall or ceiling using mounting brackets. The installation positions of the APs are determined by the site survey result. At least 200 mm clearance must be reserved between the cable outlet of an AP and the wall. It is recommended that an AP be mounted 2.5 m to 3.5 m high off the floor. **Figure 2-100** shows installation clearance requirements.

Figure 2-100 Installation reference diagram
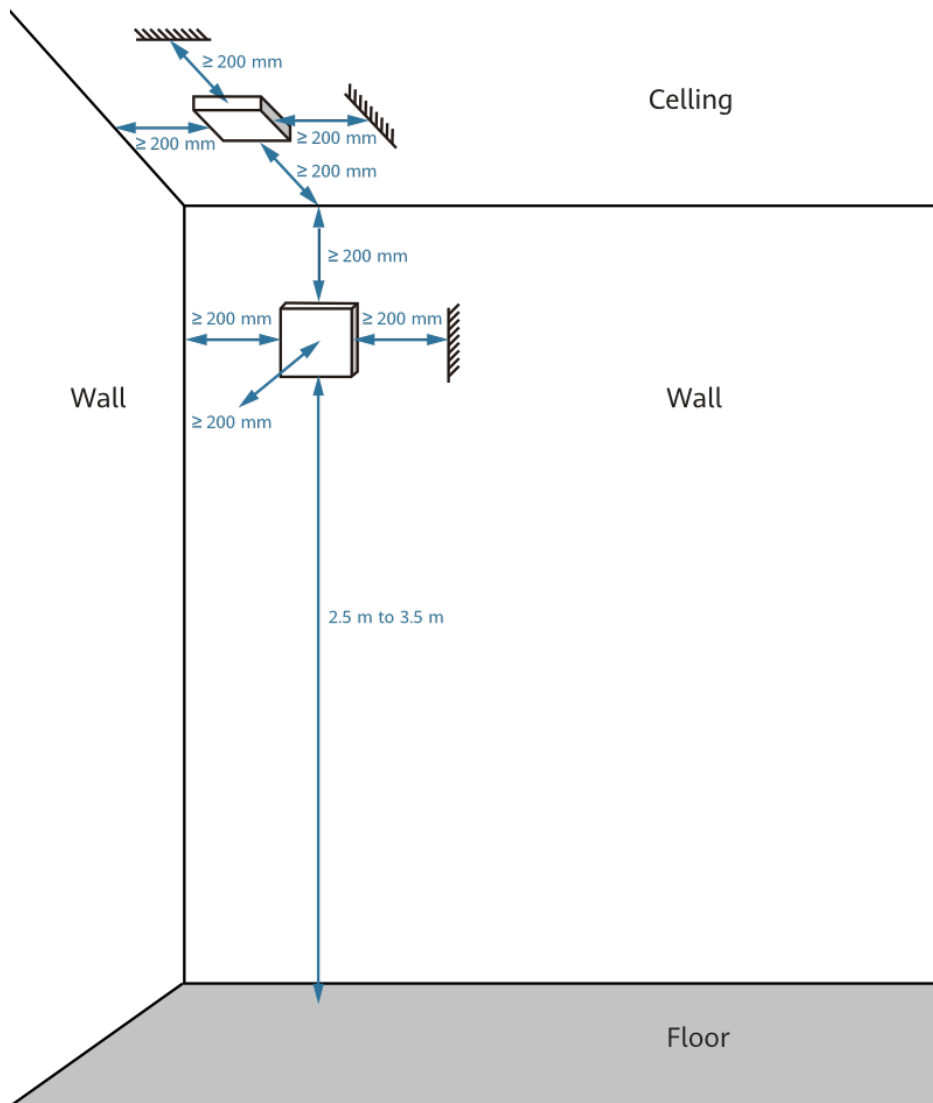
When determining the AP installation position, comply with the following rules:

- Try to reduce the number of obstacles, such as walls, between the AP and STAs.

- Place the AP far away from electronic devices that may produce radio interference, such as microwave ovens, other APs, antennas, and other radio communication devices.

- The device cannot be installed in Class D environments (within 500 m away from the seaside or salt lakes).

- Install the AP at a site that is free from leaking or dripping water, heavy dew, and humidity, and take protective measures to prevent water from flowing into the device along the cable.

- Do not install the AP in an environment with high temperature, direct sunlight, dust, poisonous gases, flammable or explosive objects, electromagnetic interference (from a radar station, radio station, or substation), unstable voltage, violent shakes, or strong noise.

- Do not place the device shell, mounting bracket, screws, Ethernet cables, or power cables in contact with high-voltage conductors in order to avoid damage to the device or even injury to the human body.

Table 2-167 General requirements for the antenna anti-interference deployment distance

Scenario	Deployment Distance Requirement
Indoor installation	- Distance between antennas: > 7 m - Distance from carriers' base station antennas: > 5 m - Far away from other electronic devices that may cause antenna interference, such as microwave ovens

☐ **NOTE**

For a device with built-in antennas, the distance requirements for the antennas determine the deployment distance requirements for the device.

2.2.1.4 Unpacking the Equipment

Before unpacking the equipment from a carton, ensure that the packing carton is intact and not damaged or soaked. If the device is found eroded or damped, stop unpacking, check for the reason, and contact the equipment supplier.

Typically, the packing list contains the following items:

- AP device
- Mounting bracket
- Quick Start Guide
- SN/MAC label

☐ **NOTE**

- Specific items are subject to the actual delivery.
- Use the standard mounting bracket delivered with the AP to prevent impact on device performance. For special requirements, contact technical support.
- To use a PoE or DC power adapter, purchase one that complies with related safety standards or is CCC certified. For specific adapter models, see **10 Power Modules**.
- For details about how to select optical modules, see **12 Pluggable Modules for Optical Interfaces**.
- The port availability may vary according to the power supply standard. For details, query the specifications based on the device model using **Info-Finder**.

2.2.1.5 (Optional) Installing an IoT Card

This section uses an indoor settled AP that supports IoT cards as an example. This AP provides two IoT slots that can accommodate one dual-slot IoT card or two single-slot IoT cards. Depending on the IoT communications frequency band, the AP can use built-in antennas or independent FPC antennas.

The AP has two IoT antennas (supporting the 2.4 GHz and 6 GHz frequency bands) and also supports independent FPC antennas matching IoT cards. However,

the AP does not support external remote antennas. When an IoT card is installed, you can use built-in IoT antennas of the AP or corresponding FPC antennas. To ensure smooth installation, note the following:

- In a new deployment scenario, the RF jumpers and fastening screws are delivered with the newly purchased IoT card. You are advised to check that these materials are included in the IoT card accessories before installation.

- In an AP replacement scenario, if the built-in IoT antennas of the AP are used, you need to separately purchase RF jumpers based on the card type (for details, see the following table), and prepare fastening screws.

Part Number	Description	IoT Card Recommendation
041333 15	RF Cable Parts, 0.11m,U.FL,RF1.37,MCX50AM	Used with ESL IoT cards of SES
041330 44	Radio Frequency Cable, 0.11m,MCX50AM,RF1.37B,MMCX50AM	Used with asset management IoT cards of Sense Technology

Installing an IoT Card

1. Slide the release button towards both sides to open the AP cover. Do not forcibly bend the cover to prevent damage.
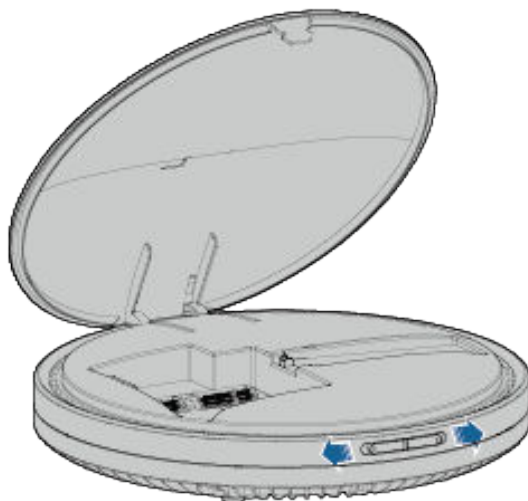
2. Install the IoT card in the slot.

   a. Hold both sides of the card end, align the card with the slot, and gently push the card in.

      To prevent the card or slot from any damage, insert the card downwards with an oblique angle to ensure that the top of the edge connector of the card is aligned with the slot.

   b. Press down the end of the card to align the mounting holes on the card with the screw holes on the AP. Then secure the card using two M2.5x6 screws with a torque of 0.3 N·m.
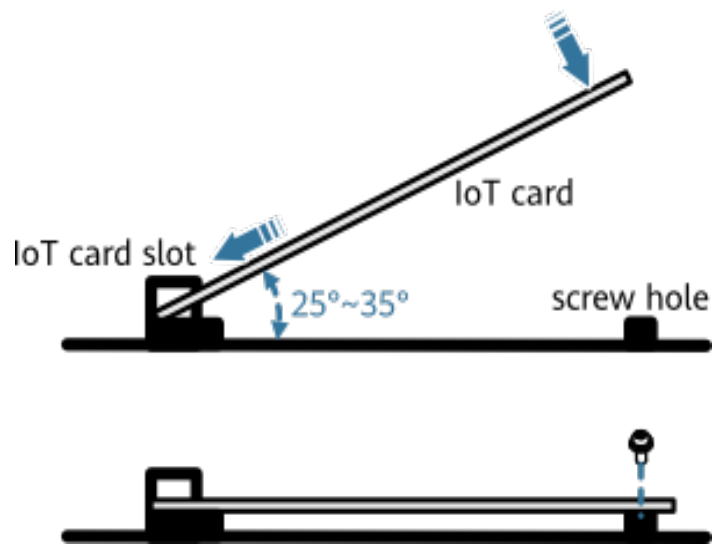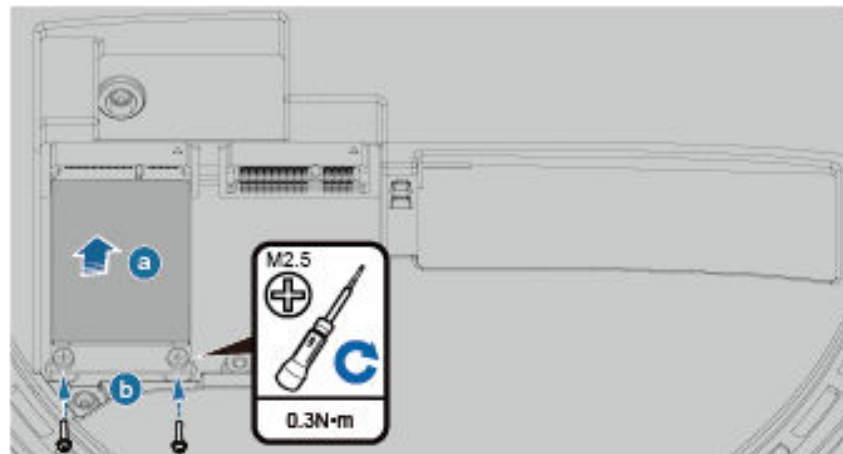
3. Connect the IoT card to the built-in antennas of the AP or an FPC antenna using an RF jumper, as shown in **Figure 2-101** and **Figure 2-102**.

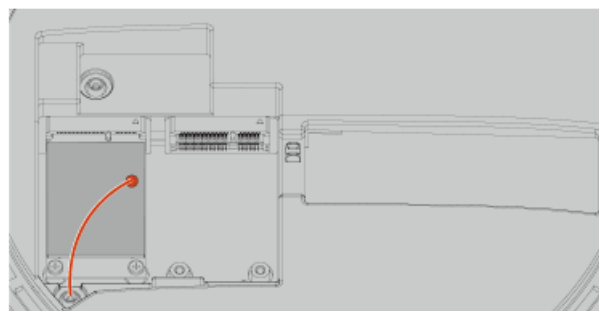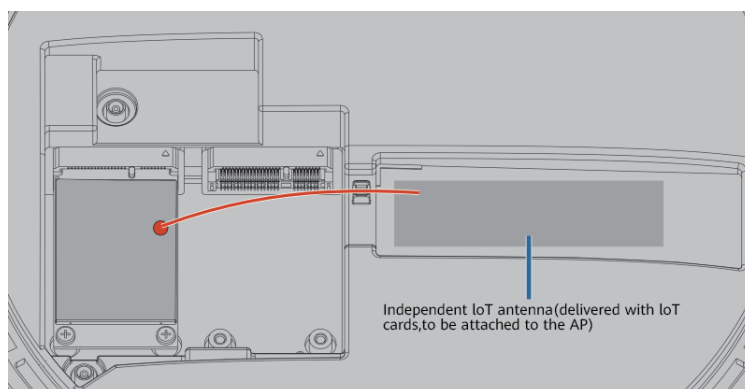**Figure 2-101** Connecting an IoT card to the built-in antennas of an AP

Figure 2-102 Connecting an IoT card to an FPC antenna

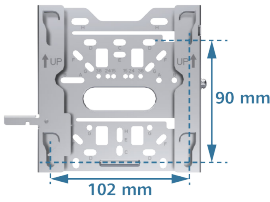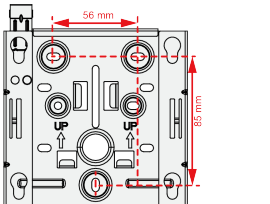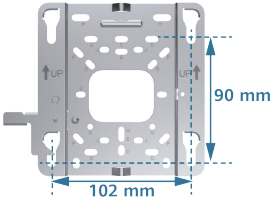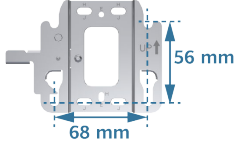Independent IoT antenna(delivered with IoT cards,to be attached to the AP)

☐ NOTE

- Connect an IoT card to the nearest antenna using a jumper, and arrange the cables to prevent them from protruding or being twisted.
- Press the MCX connector. When you hear a click, the connector is successfully installed.
- CARD1 is preferred when you install a single-antenna IoT card.

2.2.2 Understanding Mounting Brackets and Installation Scenarios

The following table lists the standard mounting brackets that may be delivered with indoor settled APs depending on the device model.
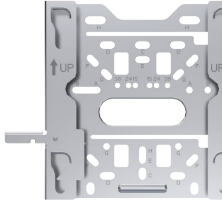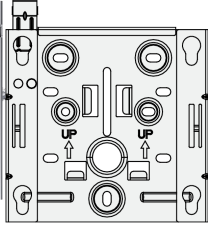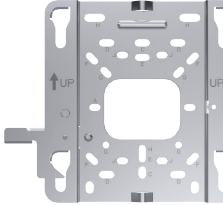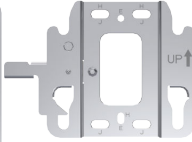
Mounting Bracket Appearance	Name	Part Number	Matching AP Model
	15 mm mounting bracket A	21154678	AirEngine 8760-X1-PRO AirEngine 5760-11DH AirEngine 6760-X1 AirEngine 6760-X1E AirEngine 5760-10
	15 mm mounting bracket B	21242879	AirEngine 8761-X1
	7 mm mounting bracket	21155588	AirEngine 5761 series settled APs AirEngine 6761 series settled APs AirEngine 8771-X1T AirEngine 5760-51

Mounting Bracket Appearance	Name	Part Number	Matching AP Model
	Small mounting bracket	21155758	AirEngine 5762 series settled APs AirEngine 5562-10 AirEngine 3562-10 AP363 AP365 AP362

 NOTE

- The AP mounting holes on the 15 mm mounting bracket are compatible with those on the 7 mm mounting bracket. The preceding APs with standard 7 mm mounting brackets can be directly fixed on 15 mm mounting brackets. However, for the sake of heat dissipation, do not install the AirEngine 8760-X1-PRO, AirEngine 6760-X1, or AirEngine 6760-X1E on a 7 mm mounting bracket.

- The following models that were shipped earlier are delivered with a 15 mm mounting bracket: AirEngine 6761-21T, AirEngine 5761-21, AirEngine 5761-11, AirEngine 6761S-21T, AirEngine 5761S-11, AirEngine 5761S-12, AirEngine 5761S-13, AirEngine 5761S-21, AirEngine 5760-51. Select a proper installation mode based on the delivered mounting bracket.

- Huawei's mounting brackets are recommended, instead of customized mounting brackets, to ensure heat dissipation, secure installation, and security and reliability.

The following table lists the installation scenarios supported by the three types of mounting brackets. For details about installation methods, see the corresponding installation guide.

Installation Scenario	Mounting Bracket Applicability (15 mm Mounting Bracket A)	Mounting Bracket Applicability (15 mm Mounting Bracket B)	Mounting Bracket Applicability (7 mm Mounting Bracket)	Mounting Bracket Applicability (Small Mounting Bracket)
-				
Wall mounting	Supported (H)	Supported	Supported (H)	Supported (H)

Installation Scenario	Mounting Bracket Applicability (15 mm Mounting Bracket A)	Mounting Bracket Applicability (15 mm Mounting Bracket B)	Mounting Bracket Applicability (7 mm Mounting Bracket)	Mounting Bracket Applicability (Small Mounting Bracket)
Mounting on a spring tee ceiling	Supported (square holes) Steel wire ropes need to be separately prepared.	Not supported	Supported (J) Steel wire ropes need to be separately prepared.	Supported (J) Steel wire ropes need to be separately prepared.
Mounting on a gypsum board ceiling	Supported (H) Hollow wall anchors need to be separately prepared.	Supported	Supported (H) Hollow wall anchors need to be separately prepared.	Supported (H) Hollow wall anchors need to be separately prepared.
T-rail mounting on a suspended ceiling	Supported (rail) Alternatively, route steel wire ropes through square holes for mounting an AP.	Supported	Supported (J) Steel wire ropes need to be separately prepared.	Supported (J) Steel wire ropes need to be separately prepared.
Beam mounting	Supported (square holes) Steel wire ropes need to be separately prepared.	Not supported	Supported (J) Steel wire ropes need to be separately prepared.	Supported (J) Steel wire ropes need to be separately prepared.

Installation Scenario	Mounting Bracket Applicability (15 mm Mounting Bracket A)	Mounting Bracket Applicability (15 mm Mounting Bracket B)	Mounting Bracket Applicability (7 mm Mounting Bracket)	Mounting Bracket Applicability (Small Mounting Bracket)
Junction box mounting	Supported • Junction box (86 mm) (A) • Junction box (118 mm) (B) • 1-gang junction box (120 mm) (C) • 2-gang junction box (120 mm) (D) • Octagonal junction box (E)	Not supported	Supported • Junction box (86 mm) (A) • 1-gang junction box (120 mm) (C) • 2-gang junction box (120 mm) (D) • Octagonal junction box (E) The mounting bracket cannot be installed on a junction box (118 mm).	Not supported
Threaded rod mounting	Supported (E) The support (part number: 21244035) and threaded rod need to be separately prepared.	Not supported	Supported (E) The support (part number: 21244035) and threaded rod need to be separately prepared.	Supported (E) The support (part number: 21244035) and threaded rod need to be separately prepared.

* The letters in the brackets indicate the mounting holes on a mounting bracket. For example, "Supported (H)" indicates that the specified mounting bracket is used to secure an AP using group H holes in the corresponding installation scenario.

Related Videos

You can visit the following link to learn about various AP installation methods in typical installation scenarios:

https://info.support.huawei.com/network/ptmngsys/Web/ OnlineCourse_WLAN/en/mooc/wdm/index_en_2.html

2.2.3 Installing an AP (With the 15 mm Mounting Bracket A)

This section describes how to install an AP using the 15 mm mounting bracket A.

2.2.3.1 Solid Wall Mounting

Background

A wall for installing the device needs to meet the following requirements:

- The wall can bear the weight of four times the total weight of the device and mounting bracket without damage. When the total weight of the device and mounting bracket is less than 1.25 kg, the load-bearing capability of the wall must be greater than or equal to 5 kg.
- When the tightening torque of a screw reaches 3.5 N·m, the screw still properly works, without crack or damage on the wall.

The following table lists the screws to be used.

Screw	Quantity	Description
ST3.5 expansion screw + expansion tube	3	Secure the mounting bracket to the wall.
M3x12 screw	1	Prevent the AP from falling off due to vibrations.

Procedure

When fixing the mounting bracket, ensure that the arrows of **UP⇧** point upwards.

Step 1 Attach the mounting bracket against the wall and adjust its position properly. Mark positions of the mounting holes with a marker, as shown in the following figure.
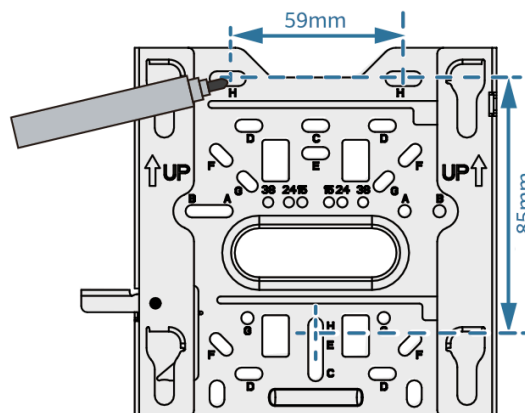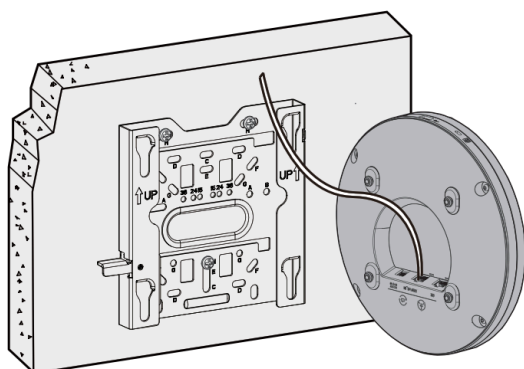

Step 2 Use a 6 mm drill bit to drill 40 mm to 45 mm deep holes in the marked positions. Hammer the expansion tubes into the holes until the expansion tubes are flush with the wall.
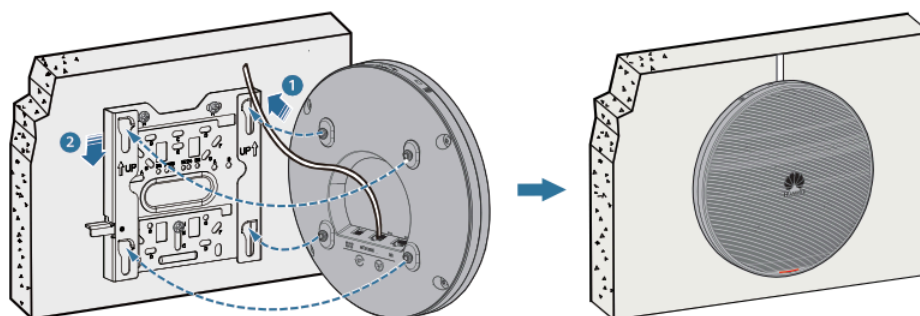
Step 3 Fix the mounting bracket to the wall and use the Phillips screwdriver to fasten three expansion screws into the expansion tubes.
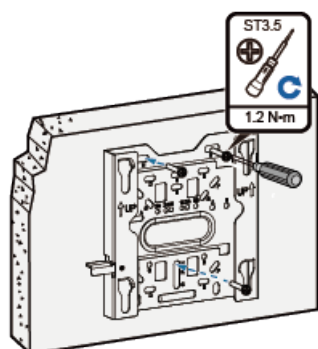
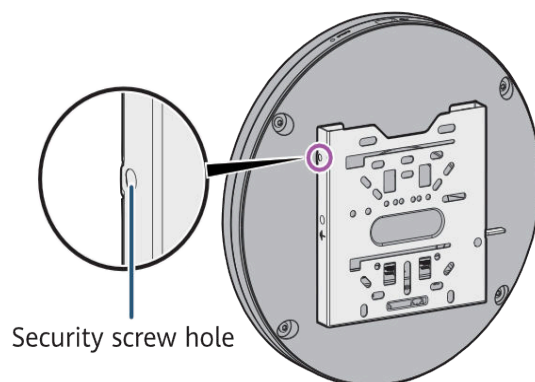**Step 4** Connect and properly sort cables.

Step 5 Align the four rubber feet at the rear of the AP with the installation holes on the mounting bracket, and fasten the AP, as shown in the figure. When you hear a click, the AP is secured to the lock position.

----End

◫ NOTE

- After the device is installed, ensure that the release lever springs back in place. Ensure that the installation space meets the specified requirements to facilitate future maintenance.

- In a scenario with heavy vibrations, tighten the AP to the mounting bracket using an M3x12 screw with a torque of 0.5 N m. This prevents the AP from falling off due to vibrations. In normal scenarios, you do not need to install this screw.

Security screw hole

2.2.3.2 Mounting on a Spring Tee Ceiling

Background

Spring tees are concealed within a ceiling and show only evenly distributed grid-shaped tiles seen from the bottom. This type of ceiling is made of aluminum panels, which do not have good load-bearing capacity. Therefore, APs cannot be directly fixed on such ceilings.

In this mounting mode, a spring tee for installing the device must be able to bear the weight four times the total weight of the device and mounting bracket without damage. When the total weight of the device and mounting bracket is less than 1.25 kg, the load-bearing capability of the spring tee must be greater than or equal to 5 kg.

The following lists the materials required for installation.

Material	Quantity	Description
Steel wire rope (part number: 21154869)	2	Secure the mounting bracket to a spring tee.

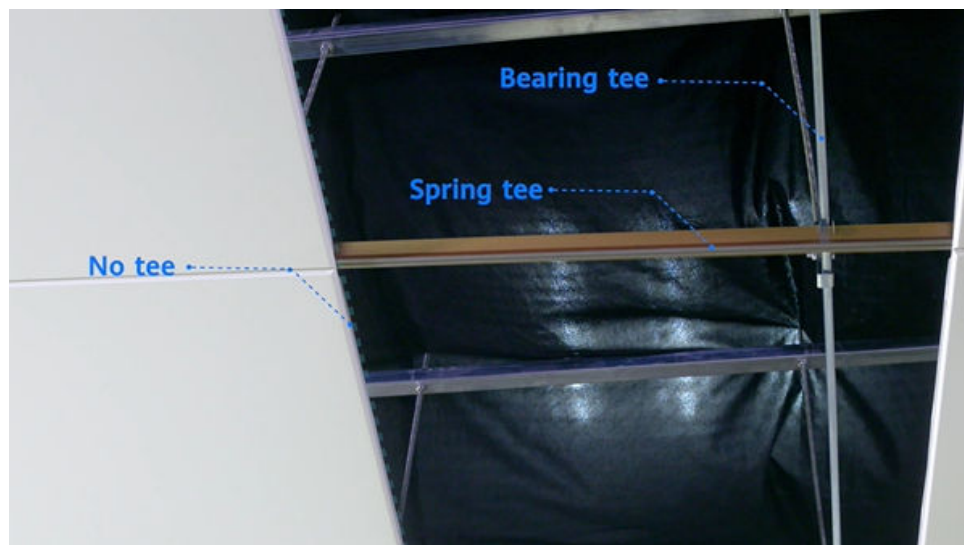**Figure 2-103** Two typical structures of spring tee ceilings
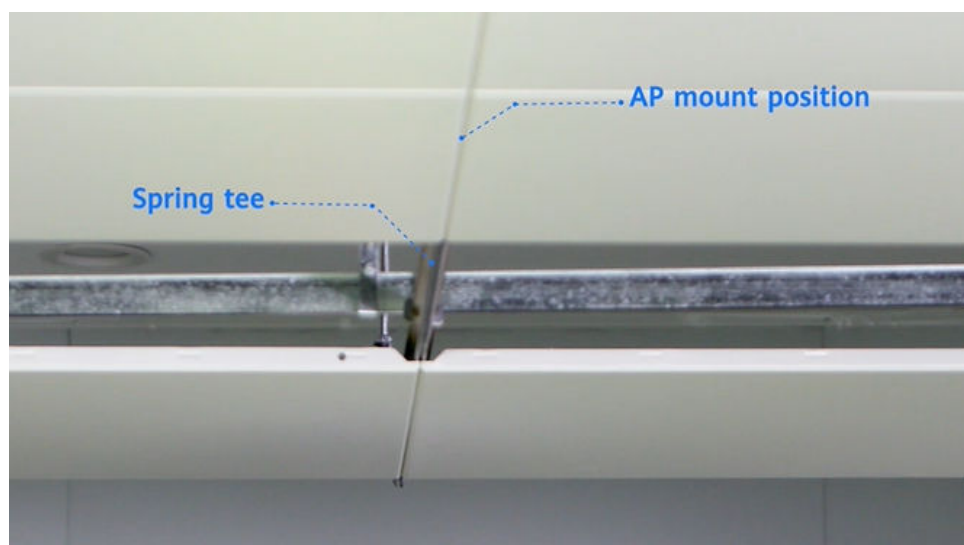

Prerequisites

When installing an AP on a spring tee ceiling, it is recommended that self-locking steel ropes be used to mount the AP on spring tees. The steel ropes should pass through the aluminum panel and bind the AP. Before installing the AP, determine the position of the spring tee.

Remove one or two aluminum panels. The rails that clamp the two sides of the aluminum panel are the spring tees. Spring tees are distributed in parallel and in the same direction. They are not vertical to each other.
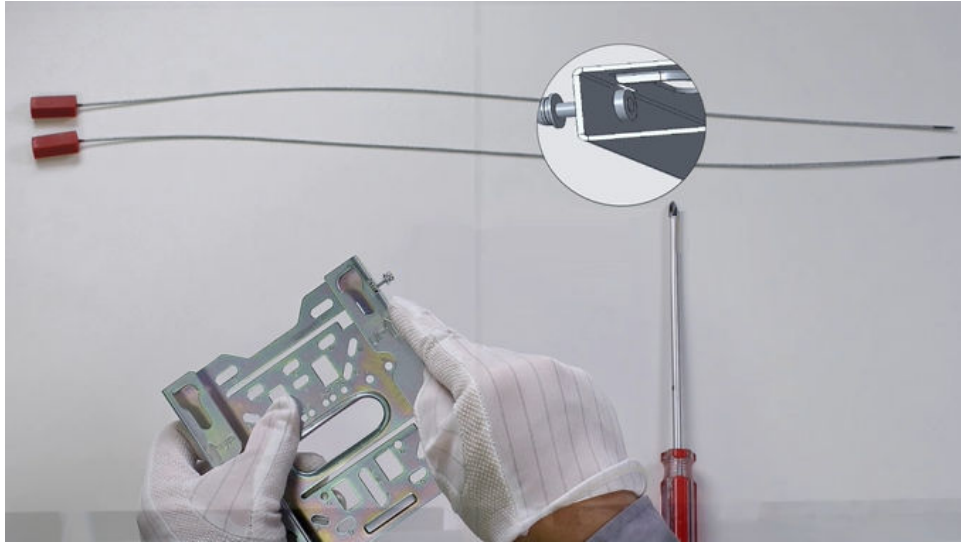

Therefore, the AP can only be mounted at the joint point between two aluminum panels where the spring tees are distributed, as shown in the following figure.
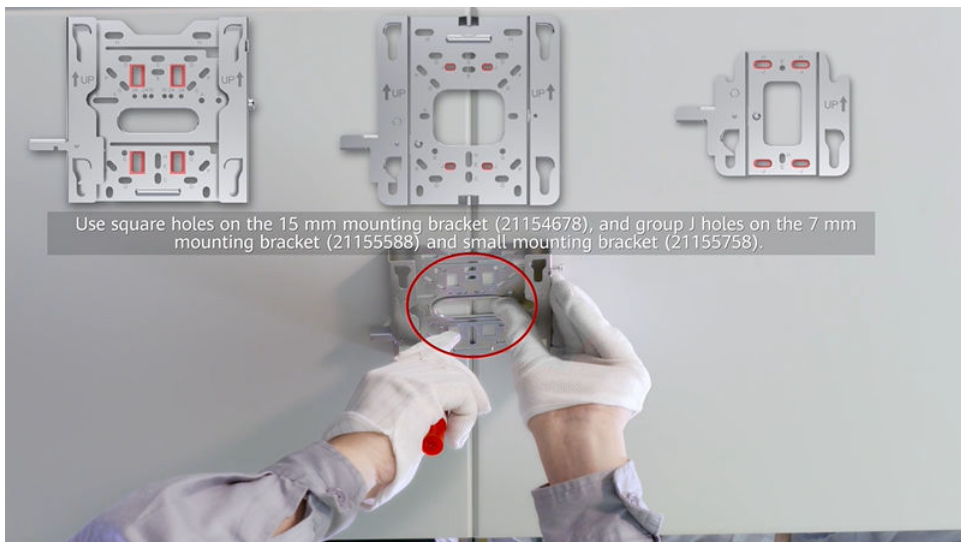

Procedure

Step 1 Pre-install the safety screw on the main mounting bracket. Note that the screw end should not protrude from the surface of the nut.

Step 2 Before the installation, mark the mounting hole positions on the two sides of the joint point with a marker. Square holes on the mounting bracket are recommended.


Use square holes on the 15 mm mounting bracket (21154678), and group J holes on the 7 mm mounting bracket (21155588) and small mounting bracket (21155758).

Step 3 Drill holes on the aluminum panels based on the marks. The diameters of holes should be slightly larger than those of steel wire ropes.

Step 4 Thread the steel rope across the two aluminum panels. It is recommended that two persons do this together. One person threads the rope from the top to the bottom, while the other threads it from the bottom to the top.
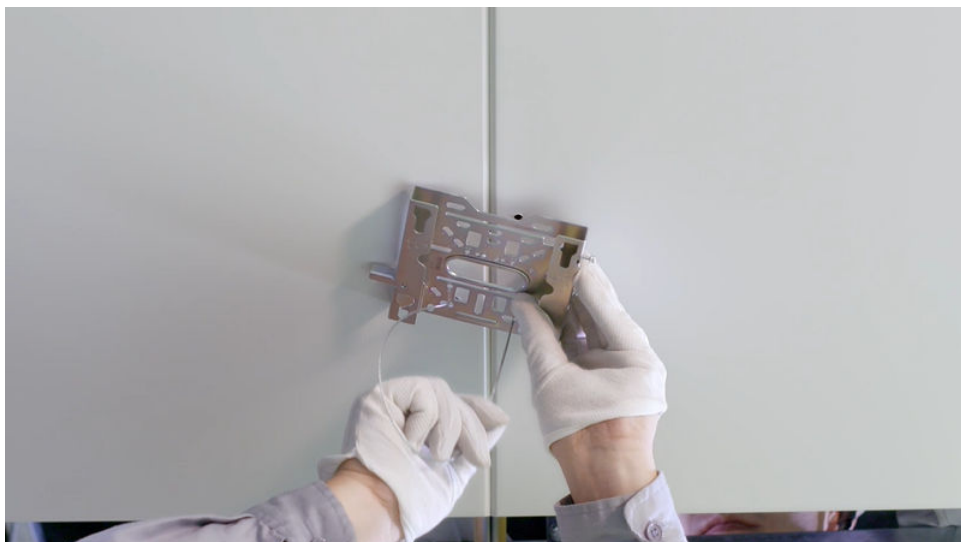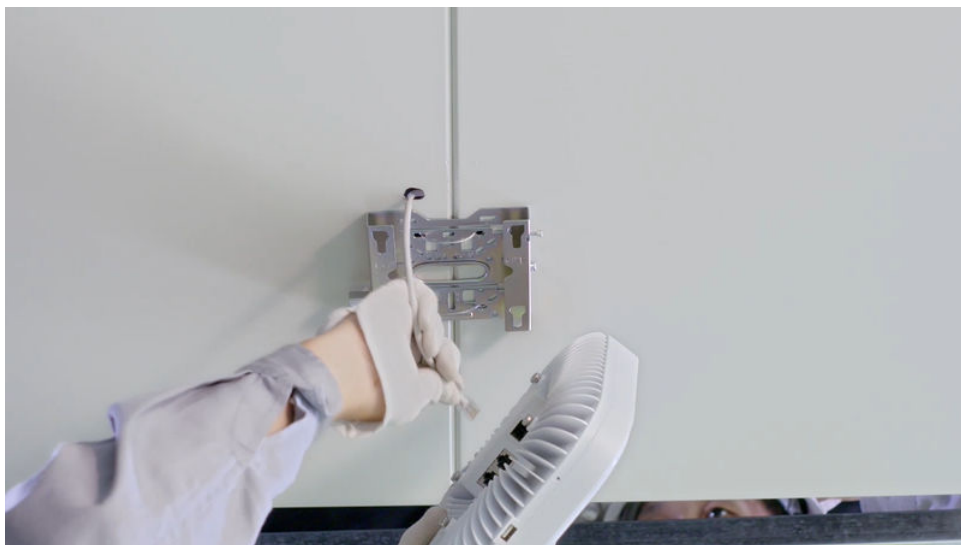

Step 5 Lock and tighten the rope above the spring tee. The bracket is installed successfully.
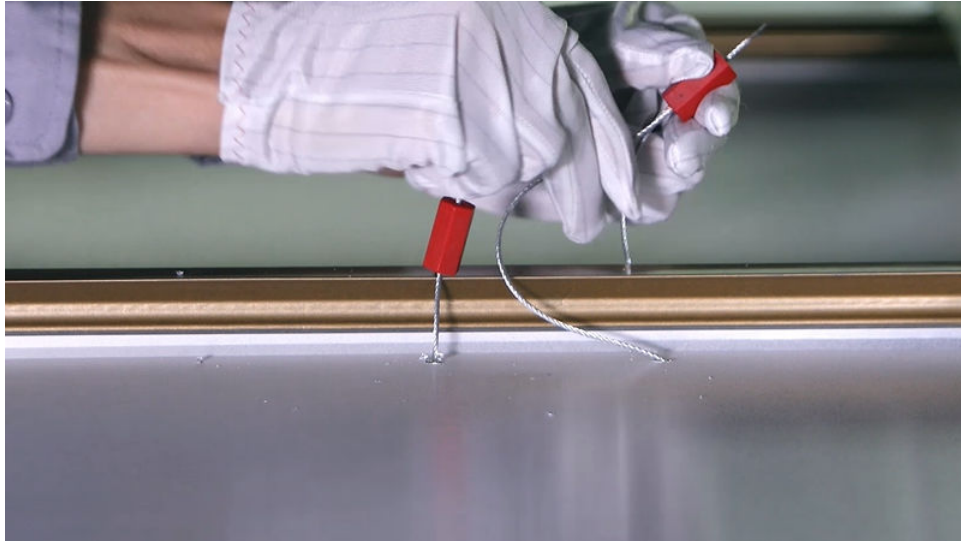
Step 6 Drill a cable hole on the ceiling in front of the mounting bracket.

Step 7 Route the cable and connect it to the corresponding port on the AP as required.

NOTE

If grounding is required, connect the ground cable to the position with the ground mark on the mounting bracket using the M4 ground screw delivered with the device. (The M4 OT terminal and ground cable need to be prepared separately.)

Step 8 Clamp the AP on the mounting bracket. When you hear a click sound from the release lever, the AP is properly installed. Ensure that the four rubber feet fit into the mounting holes.

NOTE

In a scenario with heavy vibrations, tighten the AP to the mounting bracket using an M3x12 screw with a torque of 0.5 N m. This prevents the AP from falling off due to vibrations. In normal scenarios, you do not need to install this screw.

Security screw hole
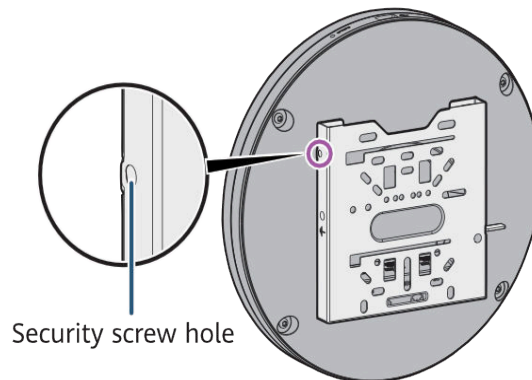
Step 9 Install the ceiling plate.

----End

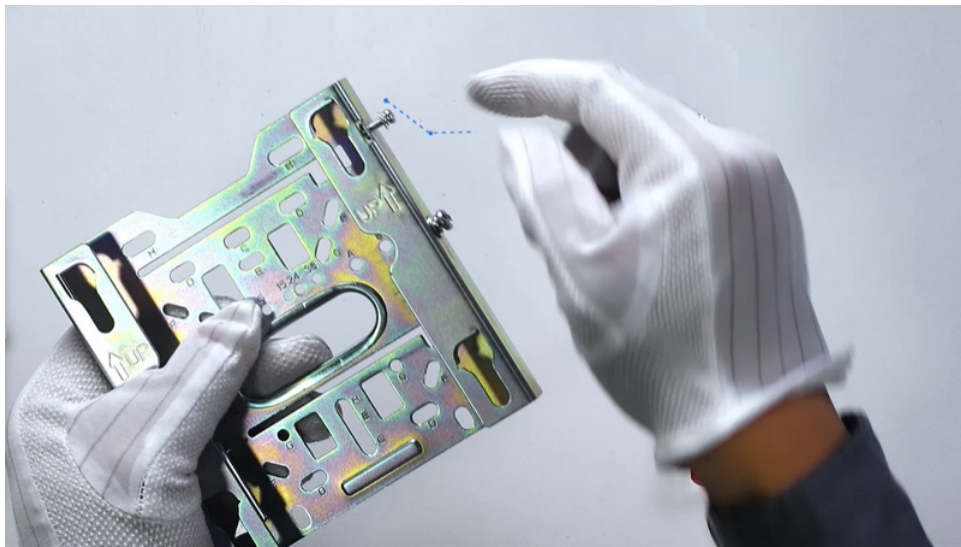## 2.2.3.3 Mounting on a Gypsum Board Ceiling

Background

In this mounting mode, a gypsum board ceiling for installing the device must be able to bear the weight four times the total weight of the device and mounting

bracket without damage. When the total weight of the device and mounting bracket is less than 1.25 kg, the load-bearing capability of the gypsum board ceiling must be greater than or equal to 5 kg.
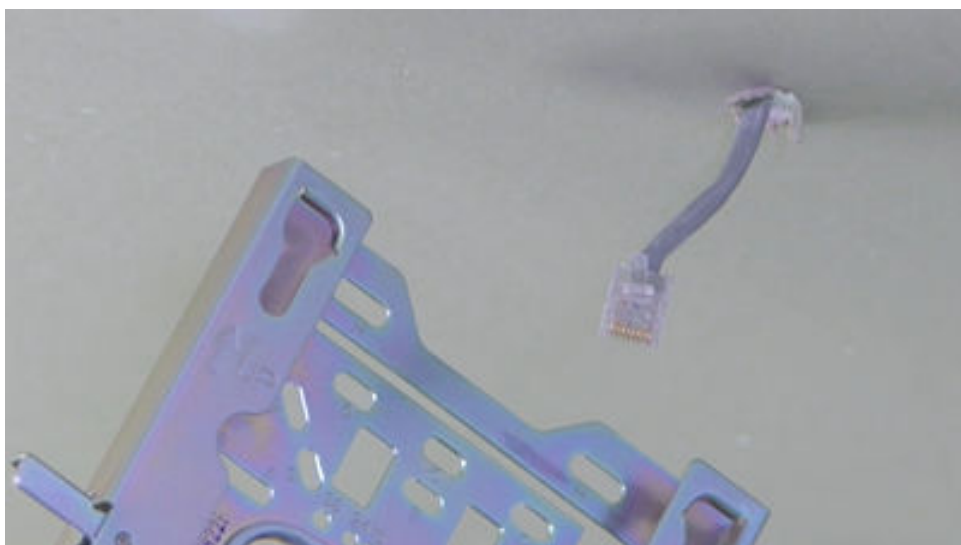
Expansion screws are used for mounting APs on a paper gypsum board ceiling. Before installing an AP, select a proper installation position based on the structural features of the paper gypsum board ceiling. Then, select expansion screws of proper specifications based on the thickness of the gypsum board. The expansion screws need to be purchased by the customer as required.
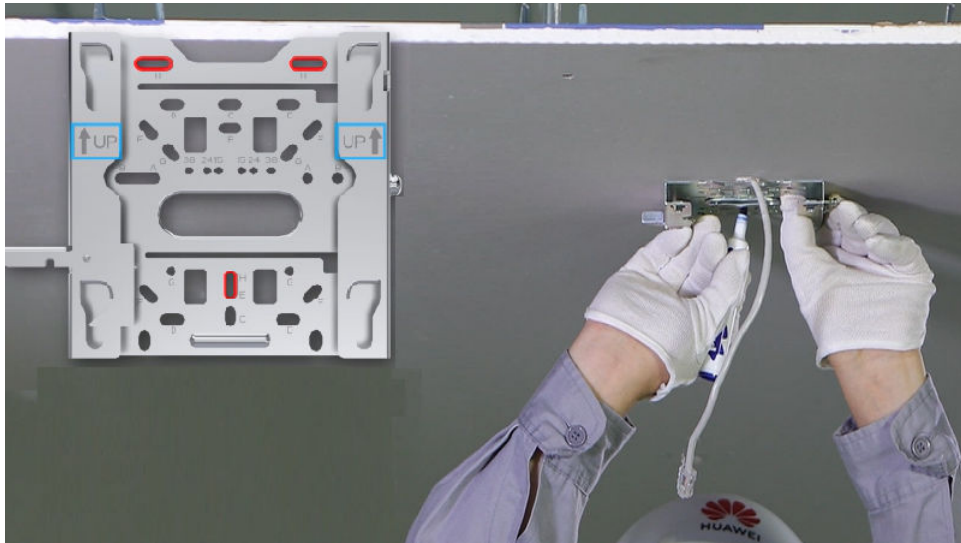
Procedure

Step 1 Pre-install the safety screw on the mounting bracket. Note that the screw end should not protrude from the surface of the nut.

After determining a proper installation position, drill a hole on the gypsum board from the top to the bottom for the Ethernet cable to pass through. Determine where the AP will be mounted based on the position of this hole.

Step 2 Ensure that the Ethernet cable hole is in front of the mounting bracket (The arrows on the mounting bracket point to the front end of the mounting bracket).

Step 3 Mark the positions for drilling holes for expansion screws using a marker. The holes should correspond to group H holes on the mounting bracket. Drill holes on the paper gypsum board upwards from bottom to top using a hand-held electric drill. Ensure that the hole diameters are not too large and just sufficient for the expansion screws of the selected model.
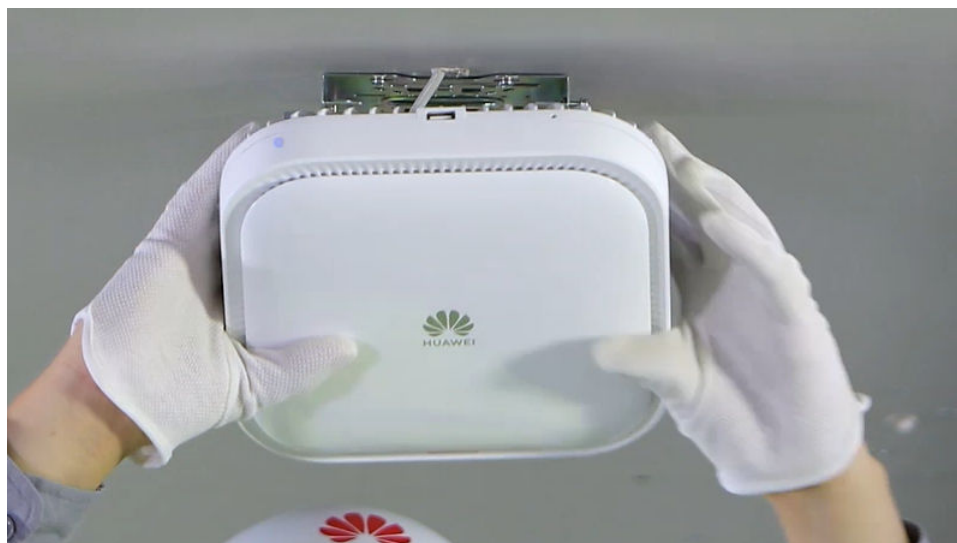

Step 4 Use a hollow wall anchor gun to fix the expansion screws to the paper gypsum board. Remove the screws from the expansion screws.

Step 5 Install the mounting bracket and install the ground cable (prepared separately) as required.

Step 6 Connect the Ethernet cable to the correct port on the AP and clamp the AP on the mounting bracket.

Step 7 Ensure that the four rubber feet fit into the mounting holes. When you hear a click sound from the release lever, the AP is properly installed.

----End

 NOTE

In a scenario with heavy vibrations, tighten the AP to the mounting bracket using an M3x12 screw with a torque of 0.5 N m. This prevents the AP from falling off due to vibrations. In normal scenarios, you do not need to install this screw.


Security screw hole
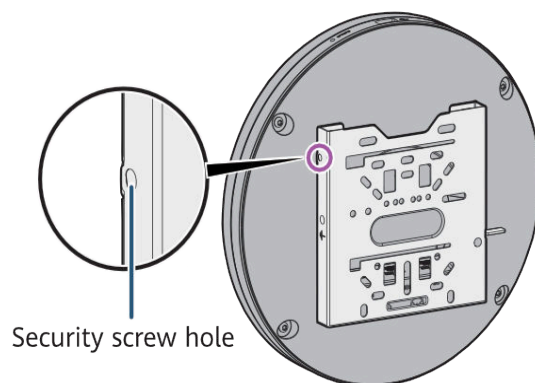
2.2.3.4 T-Rail Mounting

Background

In this mounting mode, a T-rail for installing the device must be able to bear the weight four times the total weight of the device and mounting bracket without damage. When the total weight of the device and mounting bracket is less than 1.25 kg, the load-bearing capability of the T-rail must be greater than or equal to 5 kg.

The following table lists the screws that may be used.

| Screw	Quantity	Description
M3x8 screw	2	Secure the mounting bracket and T-rail brackets ST-F1 and ST-F2
M3x6.2 screw	1	Secure the mounting bracket to the T-rail.
M3x12 screw	1	Prevent the AP from falling off due to vibrations.

Procedure

Step 1 Determine the model of the T-rail. The following figure shows the specifications of the T-rail supported by the mounting bracket. The following uses a flat-edge T-rail of 24 mm as an example.
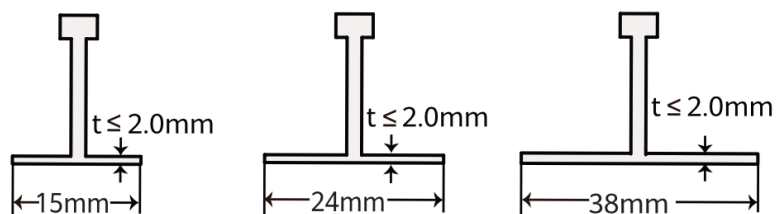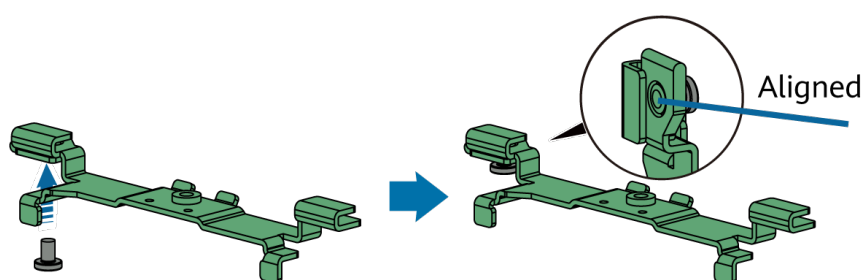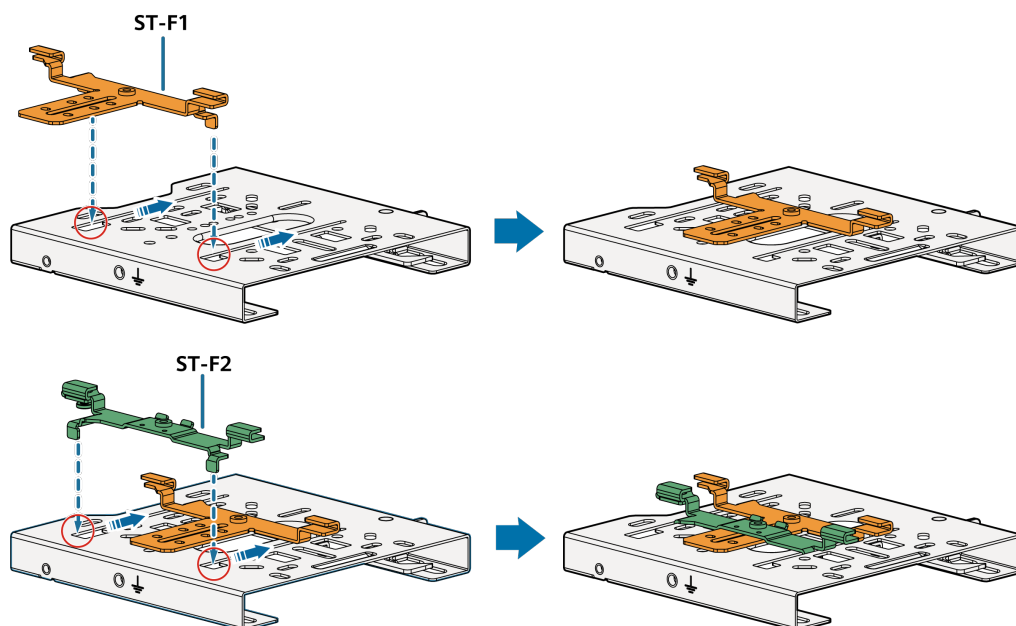

☐ NOTE

The mounting bracket must be installed on the main T-bar.
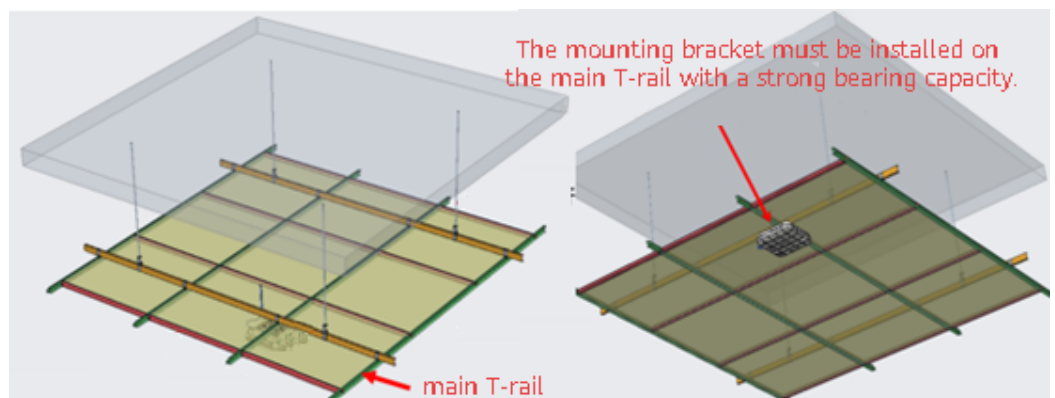
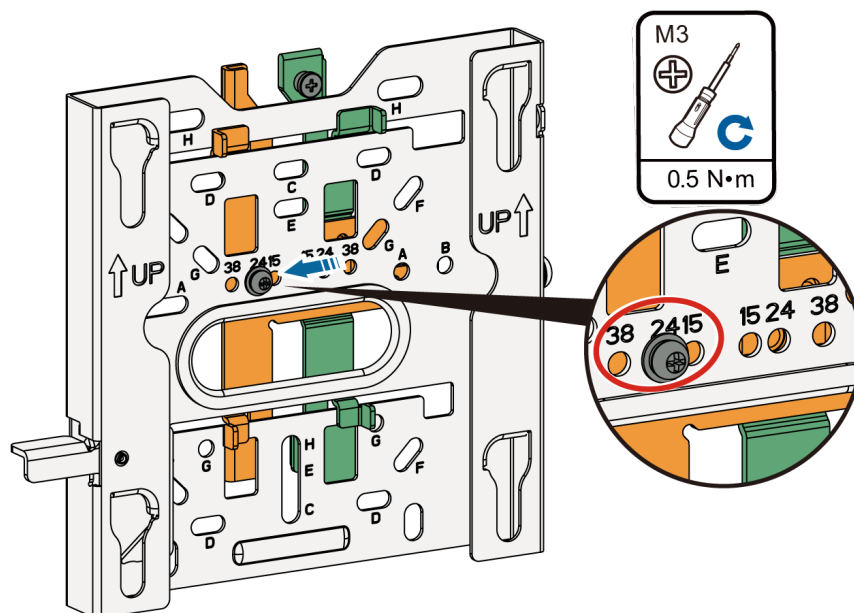**Step 2** Pre-tighten the M3x6.2 screw into T-rail bracket ST-F2.

Step 3 Slide T-rail brackets ST-F1 and ST-F2 into the mounting bracket according to the sequence shown in the figure.
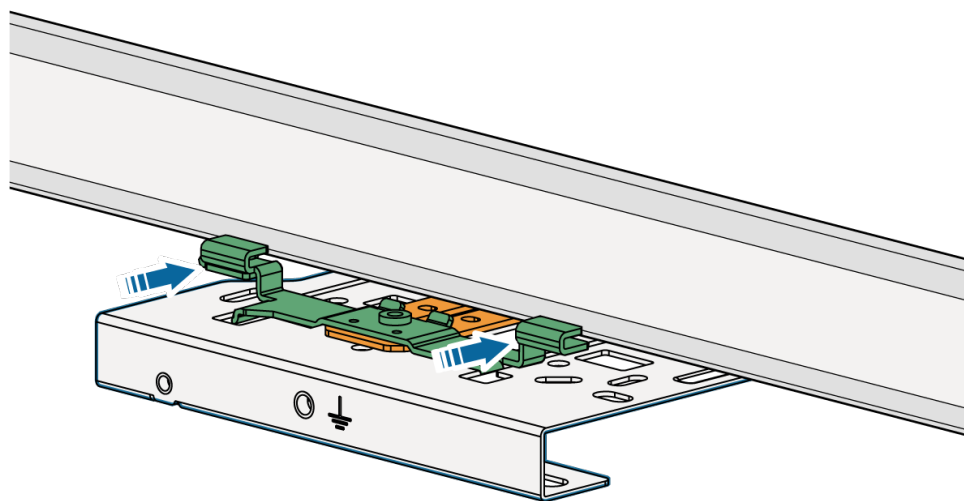

Step 4 Secure the M3x8 screw through hole 24 marked in the figure, and secure T-rail bracket ST-F1.

The T-rails of 15 mm and 38 mm correspond to holes 15 and 38 on the mounting bracket, respectively.
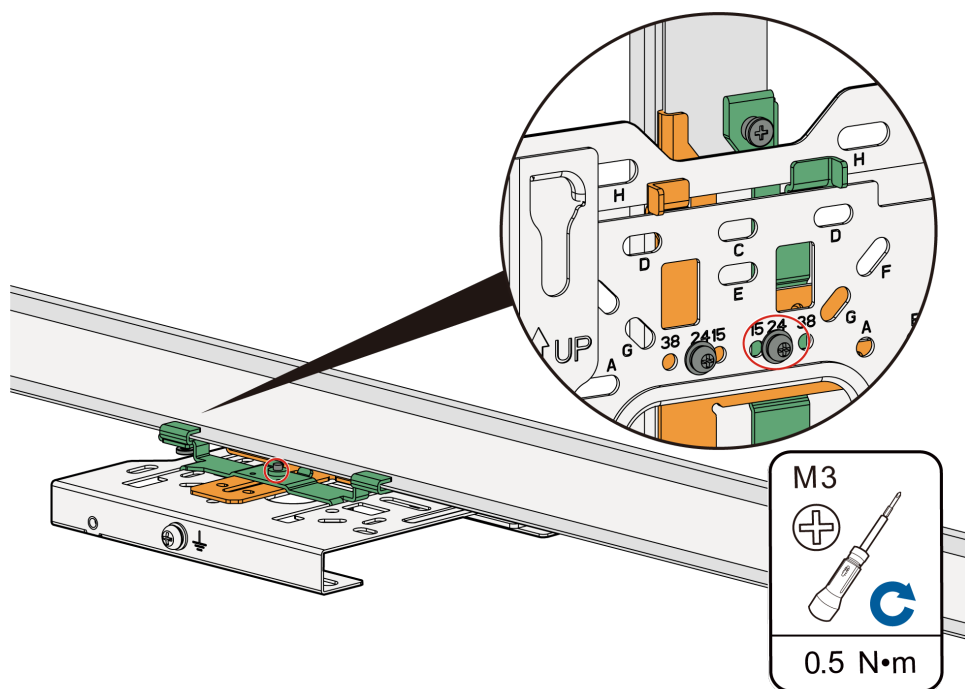

Step 5 Insert T-rail bracket ST-F1 into the T-rail, and slide bracket ST-F2 along the slot until the T-rail is tightened.
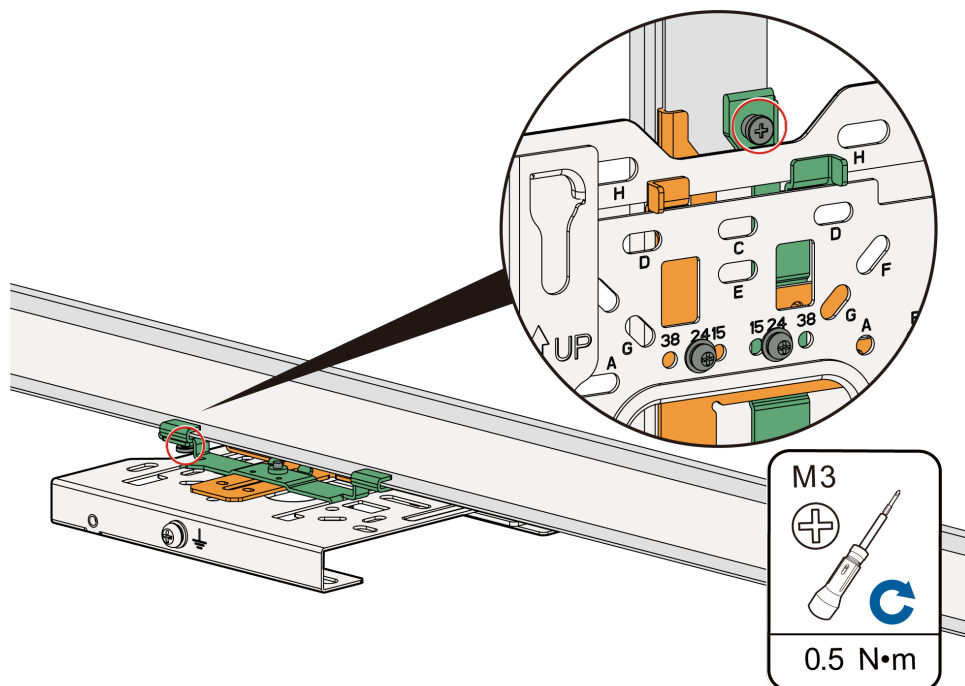
Step 6 Secure the M3x8 screw through hole 24 marked in the figure, and secure T-rail bracket ST-F2.

The T-rails of 15 mm and 38 mm correspond to holes 15 and 38 on the mounting bracket, respectively.

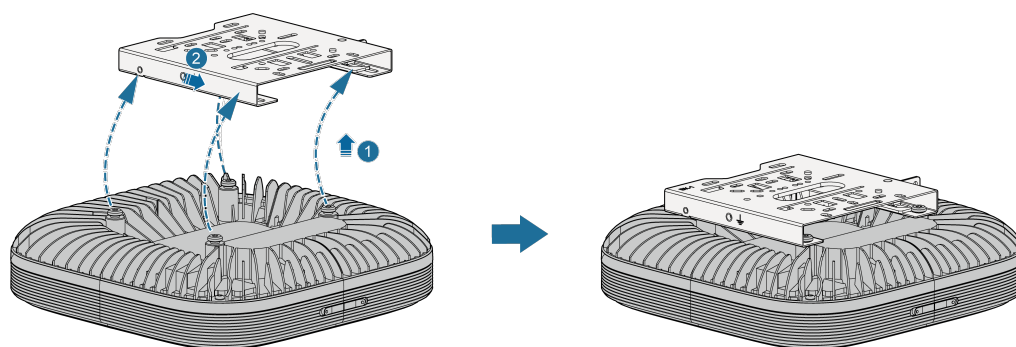**Step 7** Tighten the M3x6.2 security screw for installing the bracket.

📖 **NOTE**

After the security screw is tightened, the mounting bracket may be deformed. This is normal and does not affect the AP use.

Step 8 Connect the cables.

Step 9 Align the four rubber feet at the rear of the AP with the installation holes on the mounting bracket, and fasten the AP, as shown in the figure. When you hear a click, the AP is secured to the lock position.
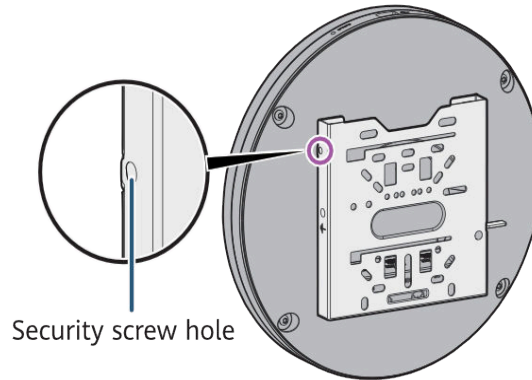
Before fastening the AP, ensure that the four rubber feet at the rear of the AP are aligned with the installation holes on the mounting bracket.

----End

📖 **NOTE**

- After the device is installed, ensure that the release lever springs back in place. Ensure that the installation space meets the specified requirements to facilitate future maintenance.
- In a scenario with heavy vibrations, tighten the AP to the mounting bracket using an M3x12 screw with a torque of 0.5 N m. This prevents the AP from falling off due to vibrations. In normal scenarios, you do not need to install this screw.

Security screw hole

2.2.3.5 Beam Mounting

Background

In scenarios such as airports, stations, and factories, steel structures are typically used. In these scenarios, APs can be mounted on the steel beams beneath a building's roof.

In this mounting mode, a beam for installing the device must be able to bear the weight four times the total weight of the device and mounting bracket without damage. When the total weight of the device and mounting bracket is less than 1.25 kg, the load-bearing capability of the beam must be greater than or equal to 5 kg.

The following lists the materials required for installation.

Material	Quantity	Description
Steel wire rope (part number: 21154869)	2	Secure the mounting bracket to a beam.

Procedure

Step 1 Pre-assemble the accessories to facilitate installation, and pre-install the security screw on the mounting bracket.

Step 2 Fix the mounting bracket on the beam by using two steel ropes. The group J holes are recommended. Tighten the steel ropes.
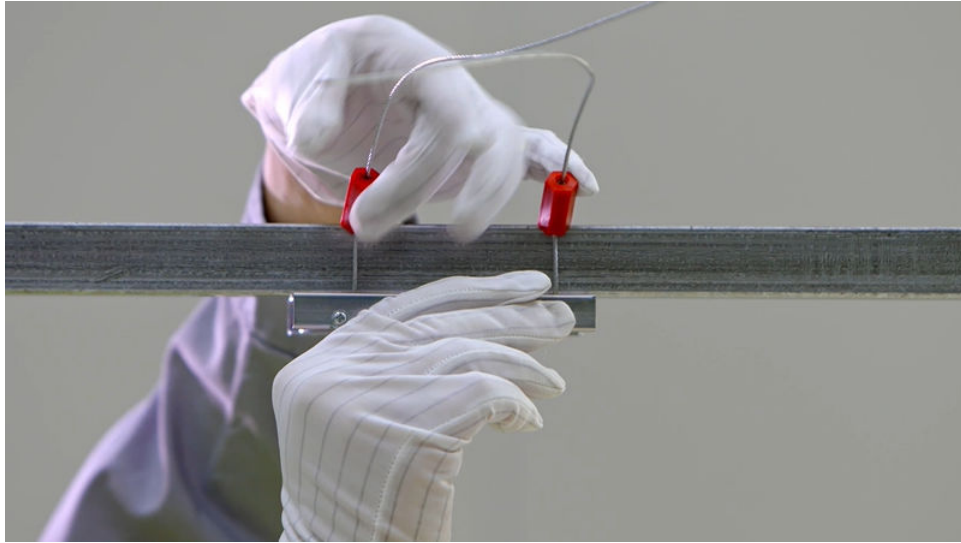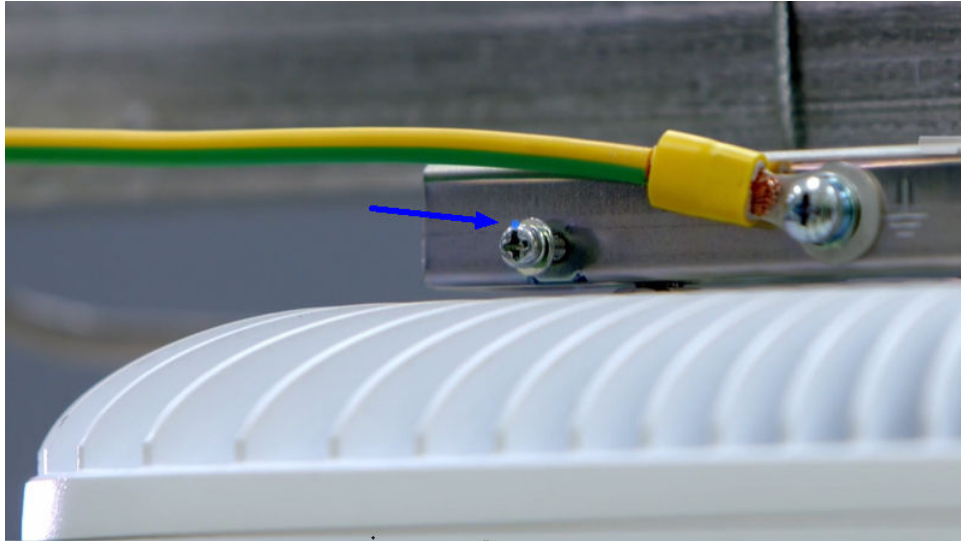
Step 3 Install the ground cable as required.
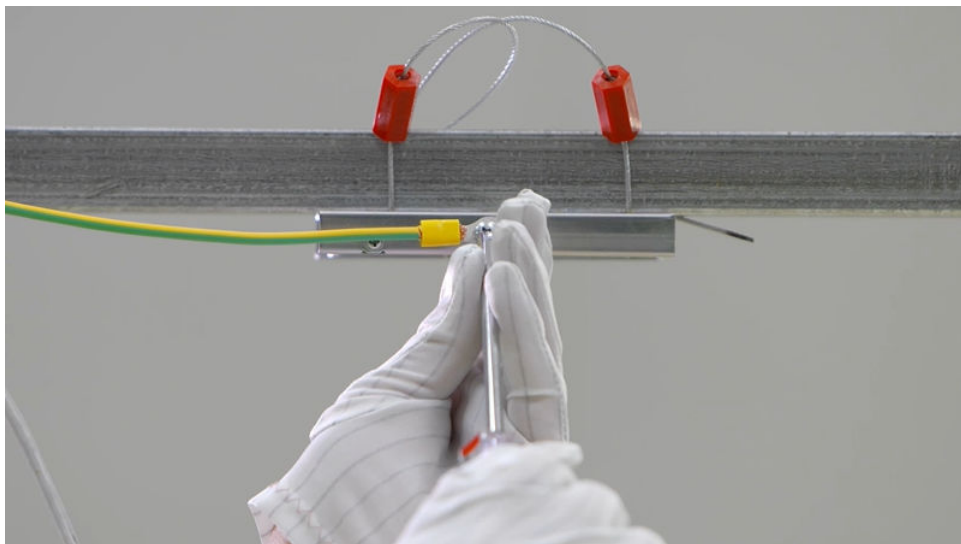
Step 4 Route the cable and connect it to the corresponding port on the AP as required.

Step 5 Clamp the AP on the mounting bracket. Ensure that the four rubber feet fit into the mounting holes. When you hear a click sound from the release lever, the AP is properly installed.
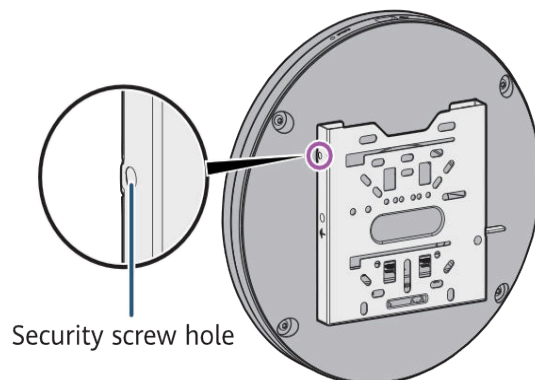
Step 6 Bundle the cable on the beam by using plastic ties to keep it orderly.

----End

📖 **NOTE**

In a scenario with heavy vibrations, tighten the AP to the mounting bracket using an M3x12 screw with a torque of 0.5 N m. This prevents the AP from falling off due to vibrations. In normal scenarios, you do not need to install this screw.

Security screw hole

2.2.3.6 Junction Box Mounting

Background

An electric junction box is used for embedding cables in electrical engineering. Electric junction boxes are offered in 86 mm, 118 mm, 120 mm, and octagonal dimensions. The following uses an 86 mm junction box as an example to describe how to mount an AP on a standard junction box.

In this mounting mode, a junction box for installing the device must be able to bear the weight four times the total weight of the device and mounting bracket without damage. When the total weight of the device and mounting bracket is less than 1.25 kg, the load-bearing capability of the junction box must be greater than or equal to 5 kg.

Procedure

Step 1 Pre-assemble the accessories to facilitate installation, and pre-install the security screw on the mounting bracket.

Step 2 Deploy the Ethernet cable and junction box in advance. Thread the Ethernet cable through the oval cable hole on the mounting bracket. Secure the mounting bracket on the junction box with screws.
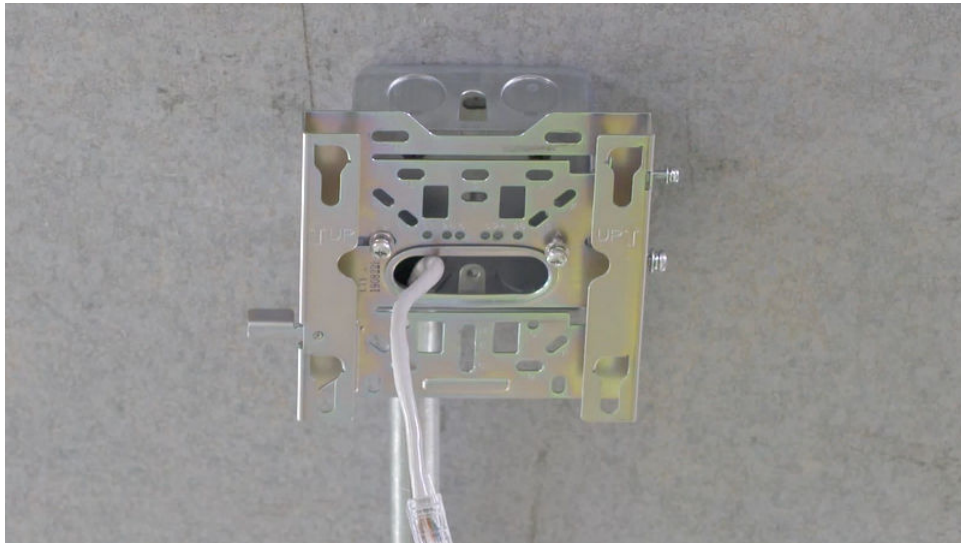
 NOTE

> The junction box type determines which mounting holes on the bracket. Group A holes are used for mounting an AP on the 86 mm junction box.
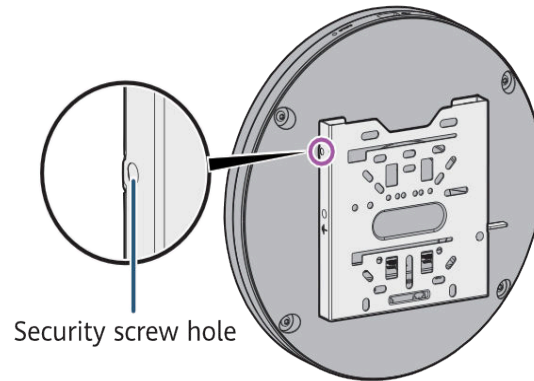
Step 3 Route the cable and connect it to the corresponding port on the AP as required. Clamp the AP on the mounting bracket. Ensure that the four rubber feet fit into the mounting holes. When you hear a click sound from the release lever, the AP is properly installed.

----End

📖 **NOTE**

In a scenario with heavy vibrations, tighten the AP to the mounting bracket using an M3x12 screw with a torque of 0.5 N m. This prevents the AP from falling off due to vibrations. In normal scenarios, you do not need to install this screw.

Security screw hole

2.2.3.7 Threaded Rod Mounting on a Ceiling

Background

Some scenarios do not have suspended ceilings, such as warehouse supermarkets, factory buildings, and garages. Various metal pipes for fire protection, ventilation, and wiring are densely deployed beneath the building top. These metal pipes block AP signals. As such, threaded rod mounting is recommended.

In this mounting mode, a threaded rod for installing the device must be able to bear the weight four times the total weight of the device and mounting bracket without damage. When the total weight of the device and mounting bracket is less than 1.25 kg, the load-bearing capability of the threaded rod must be greater than or equal to 5 kg.

Prerequisites

Before the installation, ensure that the network cable has been deployed at a proper position and the threaded rod cut to the required length has been installed on the concrete ceiling where the cable ends.

The optional mounting bracket (part number: 21244035) can be installed on a threaded rod (diameter: 8 mm). The threaded rod and related nuts need to be purchased by the customer.
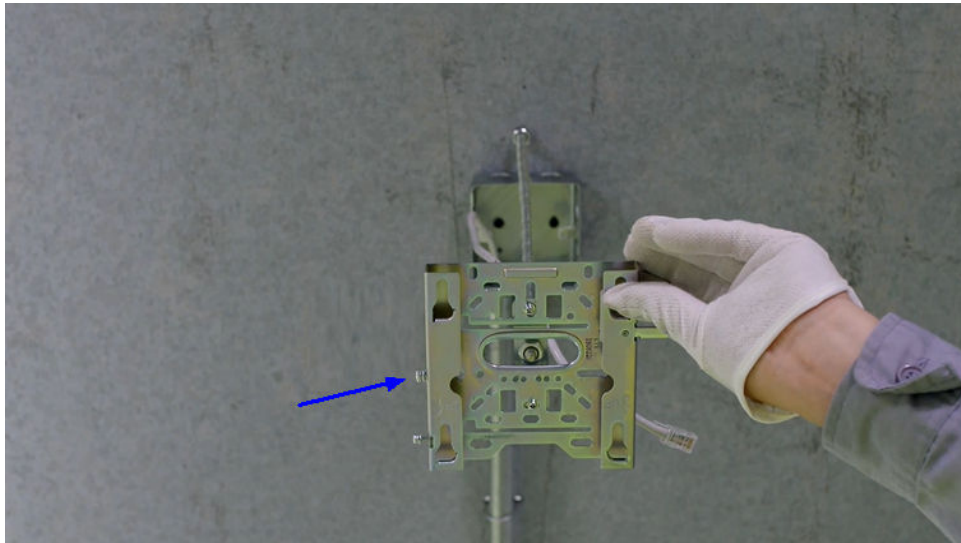
Procedure

Step 1 Secure the Ω-shaped fixing bracket to the mounting bracket, install the mounting bracket to the end of the threaded rod, and tighten the screw.

Step 2 Install the ground cable as required.

Step 3 Route the cable and connect it to the corresponding port on the AP as required.

Step 4 Clamp the AP on the mounting bracket. When you hear a click sound from the release lever, the AP is properly installed.

Step 5 Ensure that the four rubber feet fit into the mounting holes. Bundle the cable on the threaded rod by using plastic ties to keep it orderly.

----End

NOTE

In a scenario with heavy vibrations, tighten the AP to the mounting bracket using an M3x12 screw with a torque of 0.5 N m. This prevents the AP from falling off due to vibrations. In normal scenarios, you do not need to install this screw.

Security screw hole
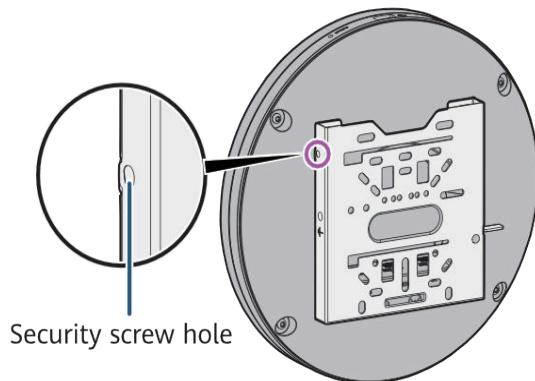
2.2.3.8 Mounting Together with External Antennas (AirEngine 6760-X1E as an Example)

Background

When an AirEngine 6760-X1E is used with the antenna 27013718 or 27013719, the mounting bracket material package 02313LGC can be purchased separately to assemble the AP and antenna together.

NOTE

- The package includes a mounting support, an angle-adjustable mounting bracket, screws, nuts, an extension cable, SMA-to-N RF cables, hose clamps, and cable ties.
- By following this installation guide, the IoT card function will be unavailable.

Wall Mounting

NOTE

A wall for installing the device needs to meet the following requirements:
- The wall can bear the weight of four times the total weight of the device and mounting bracket without damage.
- When the tightening torque of a screw reaches 12 N·m, the screw still properly works, without crack or damage on the wall.
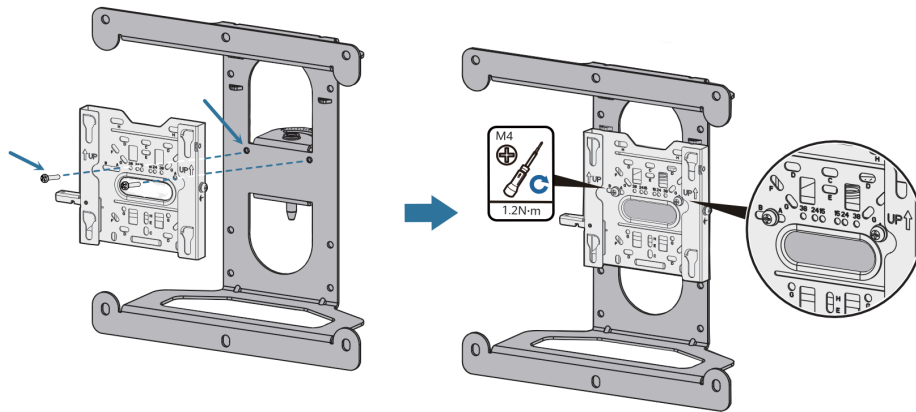
Table 2-168 Wall mounting screws

Screw	Quantity	Description
Expansion screw	2	Secure the mounting bracket to the wall.
M4x12 screw	2	Secure the AP mounting bracket to the mounting support.

Screw	Quantity	Description
M6 hexagon nut (with a flat washer and a spring washer)	6	Secure the antenna to the mounting support.

Step 1 Use two M4x12 screws to secure the AP mounting bracket to the mounting support.
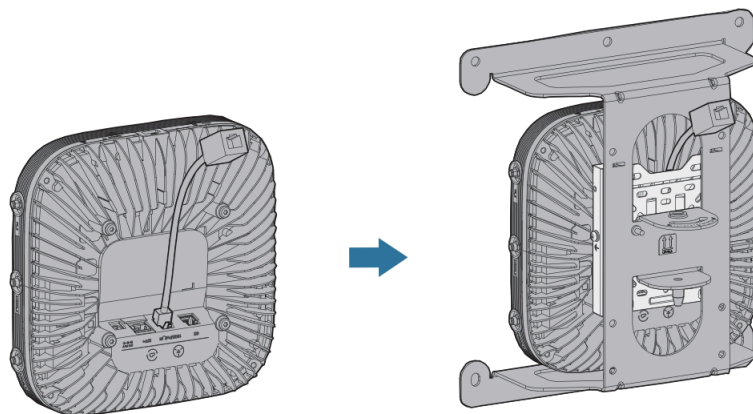
☐ NOTE

- During installation, ensure that the AP mounting bracket and the mounting support face the same direction according to the signs on them.
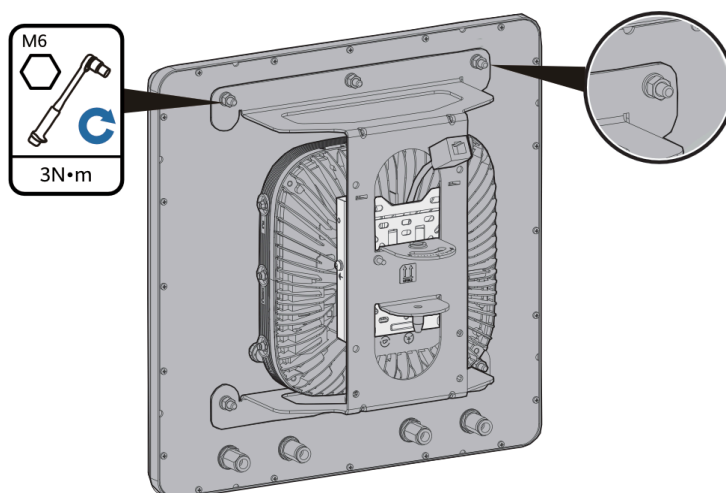- Install both M4x12 screws in the A holes on the AP mounting bracket.

Step 2 Connect the extension cable to the AP, route the cable through the hole on the mounting support, and hang the AP on the AP mounting bracket.

☐ NOTE

When installing the device on the mounting support, ensure that the arrows on the mounting support point upward and the Huawei logo on the device cover is the right way up.

Step 3 Use flat washers, spring washers, and M6 nuts to secure the antenna to the mounting support, as shown in the following figure.

Step 4 Connect four SMA-to-N RF cables according to **Table 2-169**. After the cables are connected, tighten the RF cables at their junction.

**Table 2-169** Port relationships for RF cable connections

| AP RF Port	Antenna RF Port
2.4G&5G_A	B
2.4G&5G_B	A
2.4G&5G_C	D
2.4G&5G_D	C

 NOTE

- Do not connect the SMA connectors to the 5G ports on both sides of the AP.
- The bend radius of an SMA-to-N RF cable is 30 mm.
- Insert RF loads (50 ohms) into idle RF ports to prevent radio interference. Huawei offers 50-ohm RF loads (part number: 27110089) for purchase.
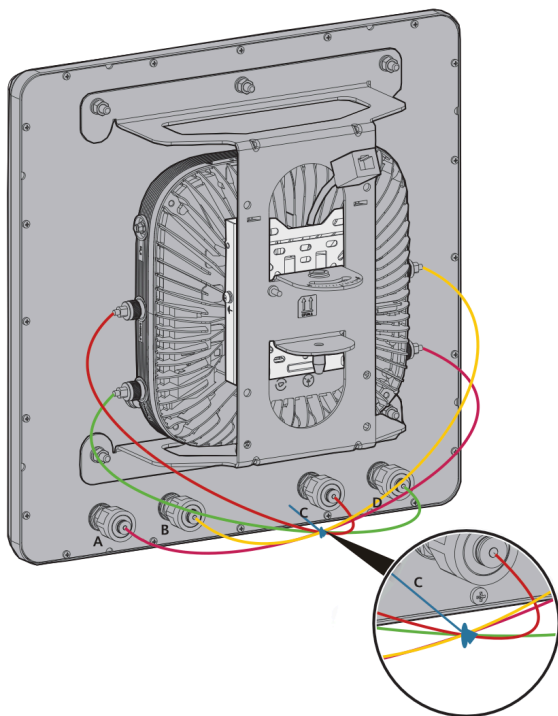
Step 5 Fasten the extension cable to the mounting support to ensure that the network cable is securely connected.
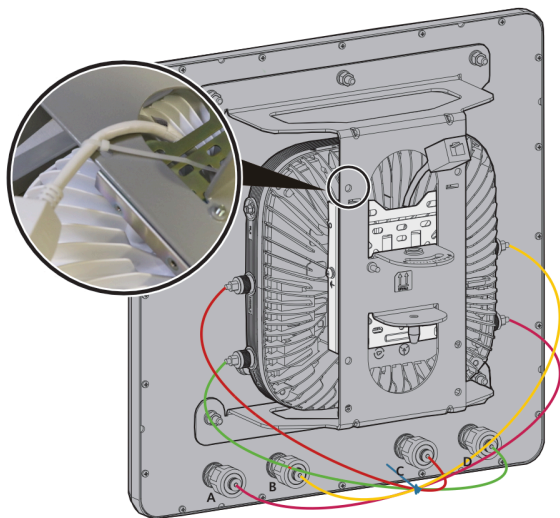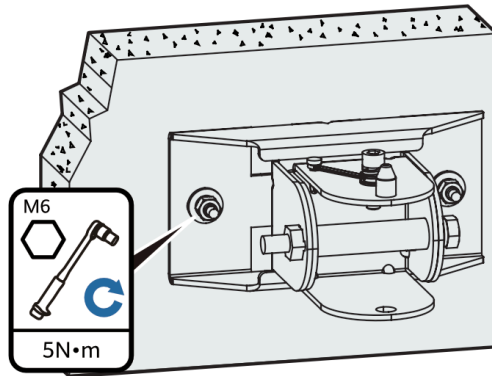

Step 6 Attach the angle-adjustable mounting bracket against the wall and adjust its position properly. Mark positions of the mounting holes with a marker, as shown in the following figure.
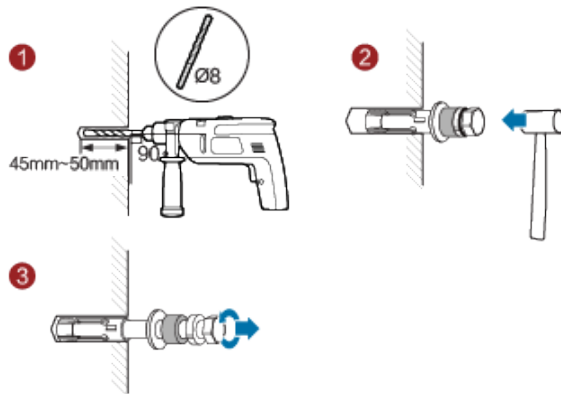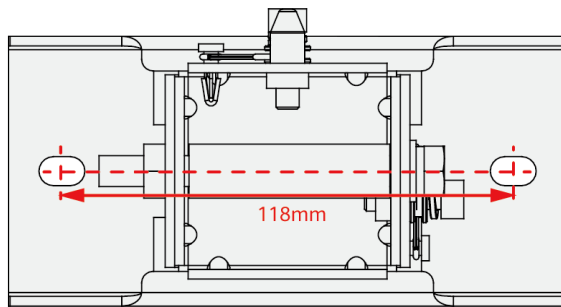
Step 7 Use an 8 mm drill bit to drill 45 mm to 50 mm deep holes in the drilling positions and hammer the expansion screws into the installation holes until the flat washers are completely attached to the wall. Then, remove the nut, spring washer, and flat washer in order.
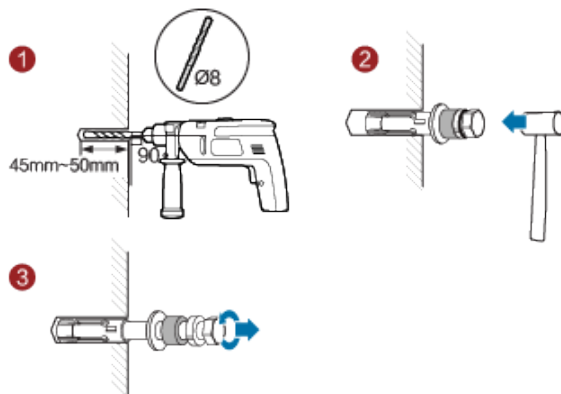
Step 8 Fit the angle-adjustable mounting bracket onto the expansion screws, and place the flat washers, spring washers, and nuts onto the expansion screws in sequence. Then, use a wrench to tighten the expansion screws to secure the angle-adjustable mounting bracket to the wall.

Step 9 Loosen the screw on the top of the angle-adjustable mounting bracket. Mount the assembly on the bracket. Then, loosely tighten the screw onto the horizontal scale plate.
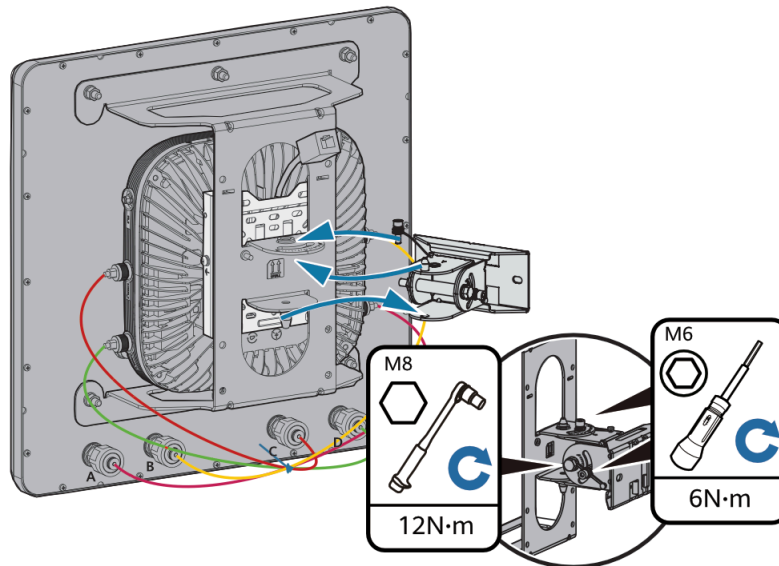
Step 10 Loosen the vertical M6 screw, adjust the AP's angle at the horizontal and vertical directions based on the scale plate, and then tighten the M6 and M8 screws.

◻ NOTE

- The length of the M6 inner hexagon screwdriver must be greater than or equal to 200 mm.
- The angle adjustment range of the angle-adjustable mounting bracket used with an AirEngine 6760-X1E is –20° to +30° in the vertical direction and ±40° in the horizontal direction.

Step 11 Connect the PoE network cable to the extension cable on the AP.
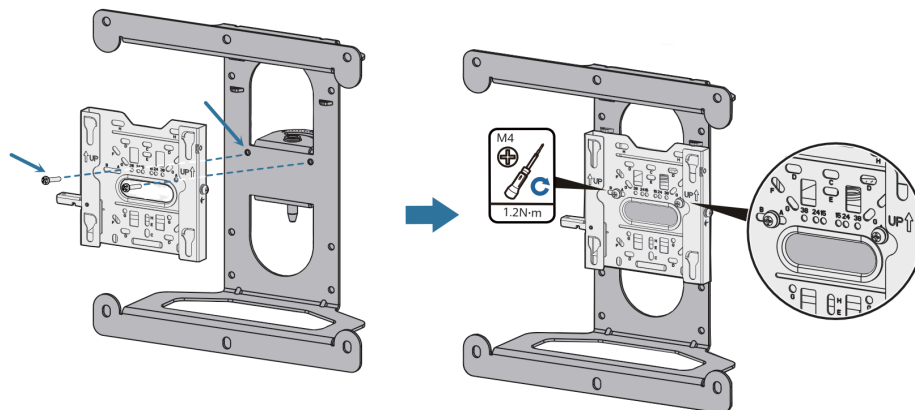
----End

Pole Mounting

Table 2-170 Pole mounting screws

Screw	Quantity	Description
M4x12 screw	2	Secure the AP mounting bracket to the mounting support.
M6 hexagon nut (with a flat washer and a spring washer)	6	Secure the antenna to the mounting support.

Step 1 Use two M4x12 screws to secure the AP mounting bracket to the mounting support.
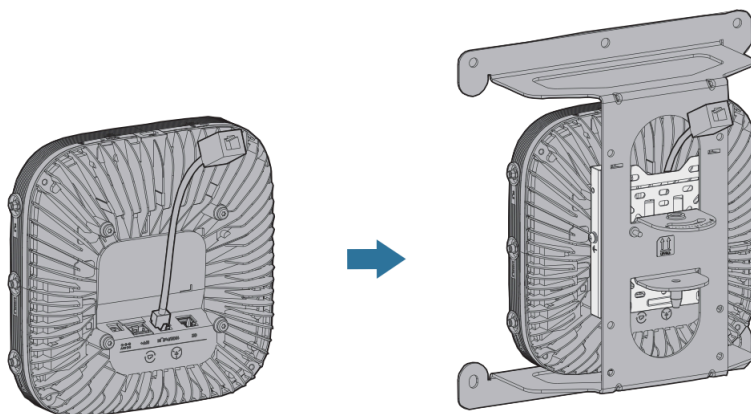
□ NOTE

- During installation, ensure that the AP mounting bracket and the mounting support face the same direction according to the signs on them.
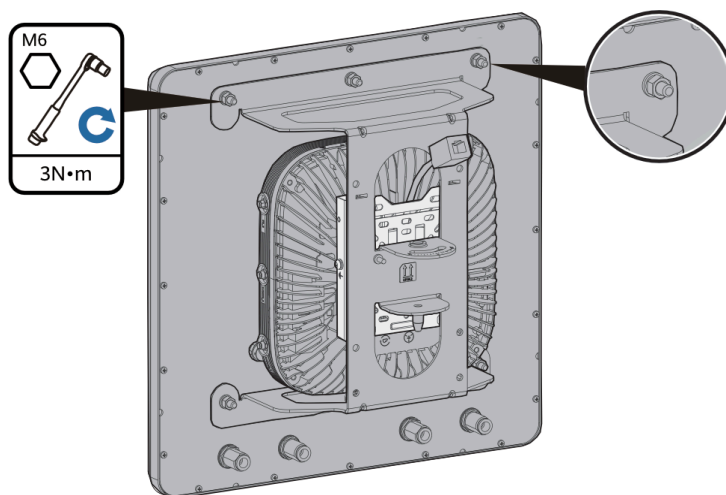- Install both M4x12 screws in the A holes on the AP mounting bracket.

Step 2 Connect the extension cable to the AP, route the cable through the hole on the mounting support, and hang the AP on the AP mounting bracket.

□ NOTE

When installing the device on the mounting support, ensure that the arrows on the mounting support point upward and the Huawei logo on the device cover is the right way up.

Step 3 Use flat washers, spring washers, and M6 nuts to secure the antenna to the mounting support, as shown in the following figure.


Step 4 Connect four SMA-to-N RF cables according to **Table 2-171**. After the cables are connected, tighten the RF cables at their junction.

Table 2-171 Port relationships for RF cable connections

| AP RF Port	Antenna RF Port
2.4G&5G_A	B
2.4G&5G_B	A
2.4G&5G_C	D
2.4G&5G_D	C

 NOTE

- Do not connect the SMA connectors to the 5G ports on both sides of the AP.
- The bend radius of an SMA-to-N RF cable is 30 mm.
- Insert RF loads (50 ohms) into idle RF ports to prevent radio interference. Huawei offers 50-ohm RF loads (part number: 27110089) for purchase.
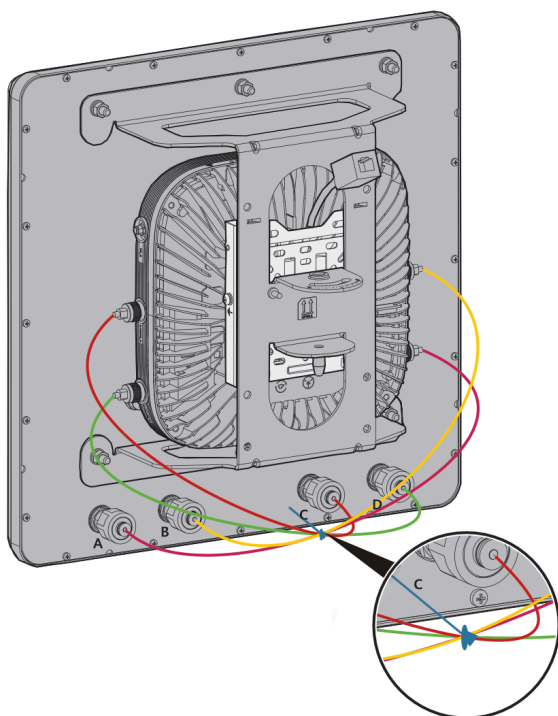
Step 5 Fasten the extension cable to the mounting support to ensure that the network cable is securely connected.
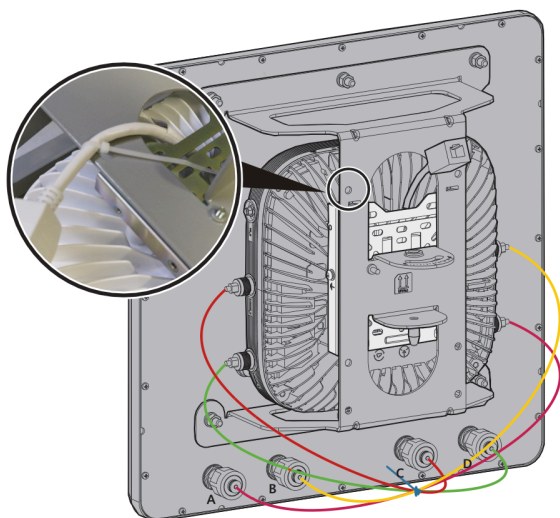

Step 6 Determine the installation position of the AP on the pole and use hose clamps to secure the angle-adjustable mounting bracket on the pole.

1. Use an M6 inner hex torque screwdriver to loosen the screw on the hose clamp to open it.

2. Lead the hose clamp through the mounting bracket and secure the mounting bracket to the pole.

3. Tighten and close the hose clamp.

4. Use an M6 inner hex torque screwdriver to tighten the screw.
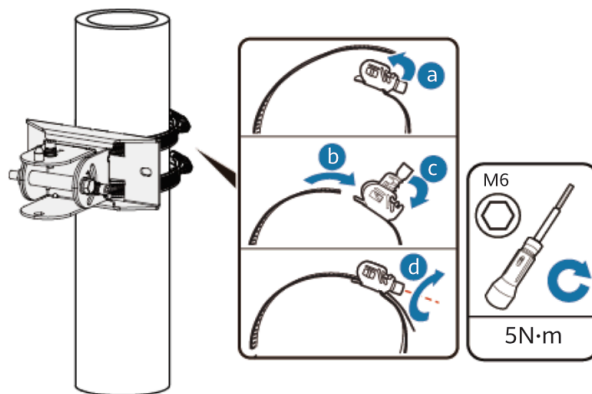
Step 7 Loosen the screw on the top of the angle-adjustable mounting bracket. Mount the assembly on the bracket. Then, loosely tighten the screw onto the horizontal scale plate.
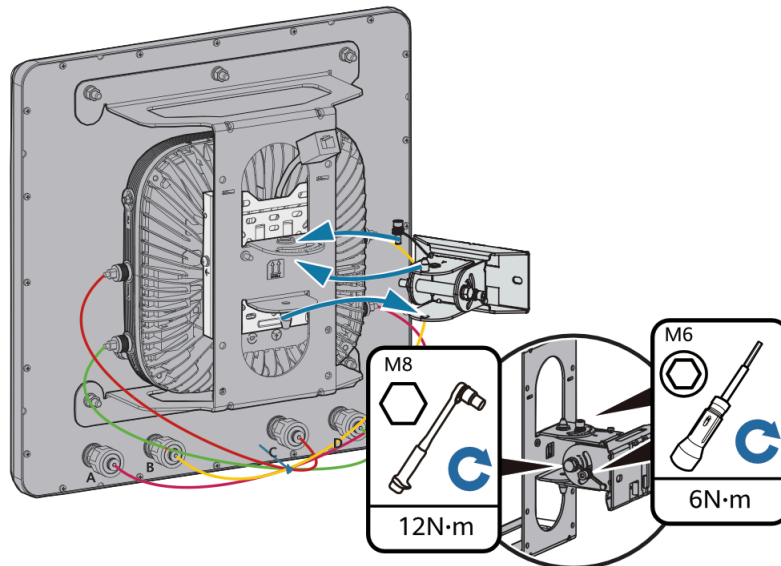
Step 8 Loosen the vertical M6 screw, adjust the AP's angle at the horizontal and vertical directions based on the scale plate, and then tighten the M6 and M8 screws.

  NOTE

  - The length of the M6 inner hexagon screwdriver must be greater than or equal to 200 mm.
  - The angle adjustment range of the angle-adjustable mounting bracket used with an AirEngine 6760-X1E is –20° to +30° in the vertical direction and ±40° in the horizontal direction.

**Step 9** Connect the PoE network cable to the extension cable on the AP.

  ----End

2.2.3.9 Anti-Theft and Removal
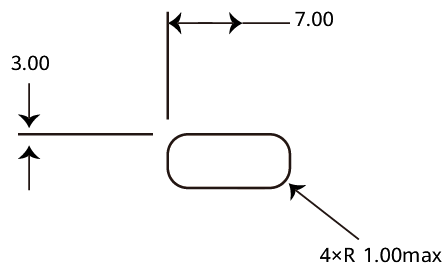
Anti-Theft Lock Mode

There is a security slot on the device. You can lock the device to an immovable object to prevent theft. The detailed procedure is as follows:

1. Fasten the cable of the security lock to an immovable object around.
2. Insert the security lock into the security slot and lock it.


Lock hole
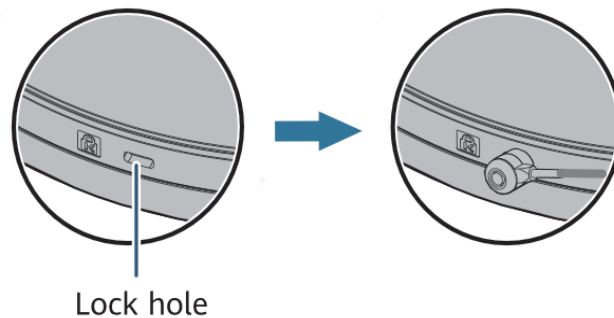
☐ NOTE

You need to purchase the security lock separately. The security slot is 7 mm long and 3 mm wide. The maximum radius of its four round corners is 1 mm.


U-shaped Brass Padlock Mode

There is a keyhole on the release lever of a 15 mm mounting bracket, which can work with a plastic part (part number: 21205724). You can then use a U-shaped padlock to lock the device and the mounting bracket for anti-theft.
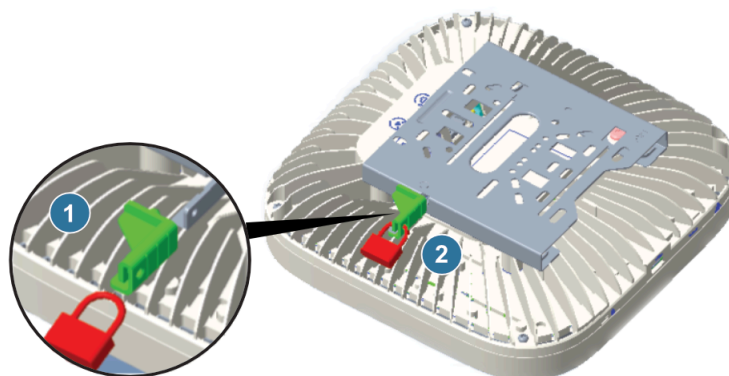
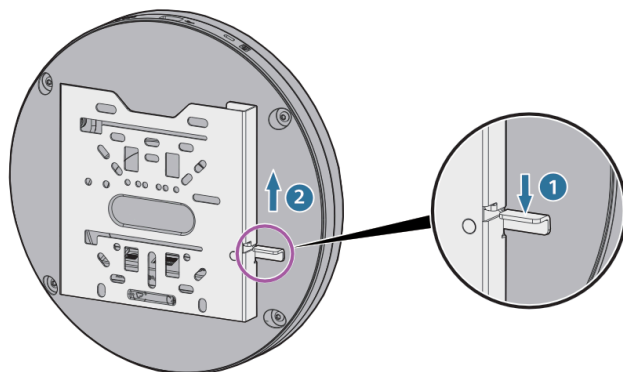The padlock needs to be purchased separately. **Figure 2-104** shows the dimensions of a padlock.

Figure 2-104 Padlock dimensions
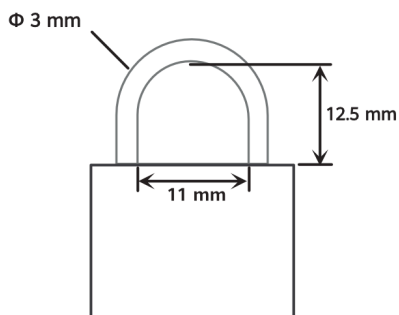
Removing an AP

Remove the security screw. Hold the AP securely. Press down the release lever on the mounting bracket, and slide the AP out of the mounting bracket to unlock the AP.

Figure 2-105 Removing an AP

NOTE

When removing an AP, do not pull out the AP directly. Otherwise, the device may fall down, or the cables and connectors may be damaged.

2.2.4 Installing an AP (With the 15 mm Mounting Bracket B)

This section describes how to install an AP using the 15 mm mounting bracket B.

2.2.4.1 Solid Wall Mounting

📖 **NOTE**

A wall for installing the device needs to meet the following requirements:

- The wall can bear the weight of four times the total weight of the device and mounting bracket without damage. When the total weight of the device and mounting bracket is less than 1.25 kg, the load-bearing capability of the wall must be greater than or equal to 5 kg.

- When the tightening torque of a screw reaches 3.5 N·m, the screw still properly works, without crack or damage on the wall.

Mounting kits and expansion bolts are required to install the AP on a wall. The procedures are as follows:

When fixing the sheet metal mounting bracket, ensure that the arrows point upwards on the ⬆ label.

1. Fix a mounting bracket to the wall against the wall and mark the drilling positions through holes of the bracket.
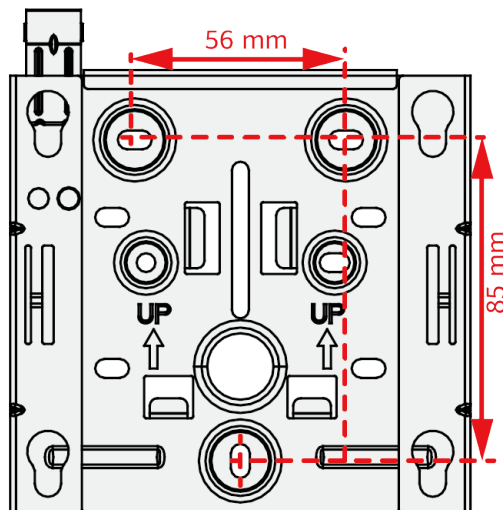
2. Use a 6 mm drill bit to drill 35 mm to 40 mm deep holes in the drilling positions. Hammer the expansion tubes into the holes until the expansion tubes are completely embedded into the wall.
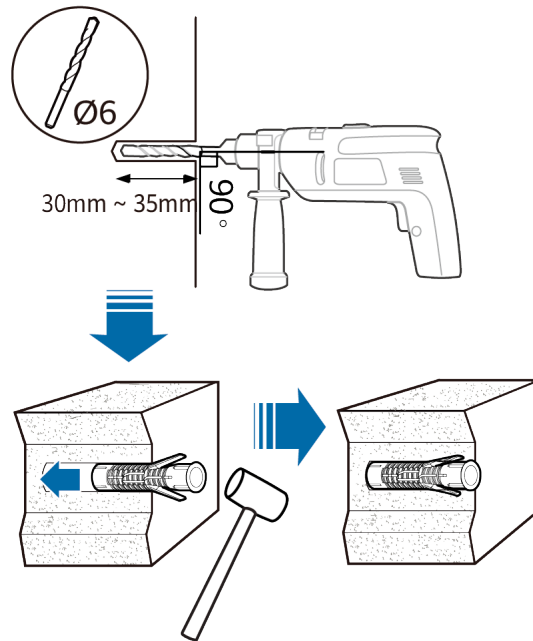
3. Fix the mounting bracket to the wall and use the Phillips screwdriver to fasten three tapping screws into the expansion tubes.
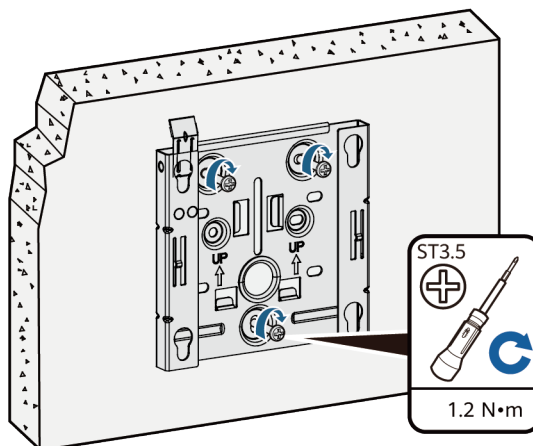
4. Connect the cables.

5. Align the rubber feet of the device over the mounting slots on the mounting bracket and vertically push the AP to secure it. When the spring clip is popped up, push the AP downward until it snaps into place (you can hear a click).
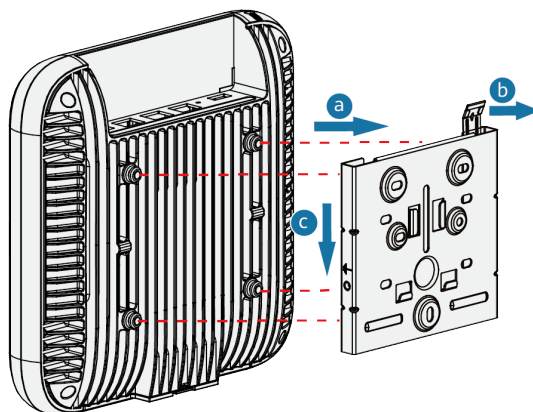
⬚ NOTE

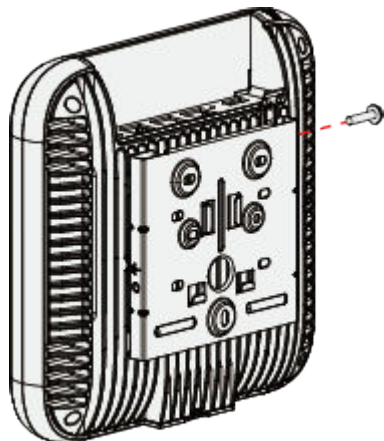In a scenario with heavy vibrations, tighten the AP to the mounting bracket using M4x30 screws. This prevents the AP from falling off due to vibrations. In normal scenarios, you do not need to install these screws.

2.2.4.2 Mounting on a Gypsum Board Ceiling

Background

Expansion screws are used for mounting APs on a paper gypsum board ceiling. Before installing an AP, select a proper installation position based on the structural features of the paper gypsum board ceiling. Then, select expansion screws of proper specifications based on the thickness of the gypsum board. The expansion screws need to be purchased by the customer as required.

Procedure

Step 1 Attach the mounting bracket against the paper gypsum board and mark positions of the mounting holes (group H) with a marker.
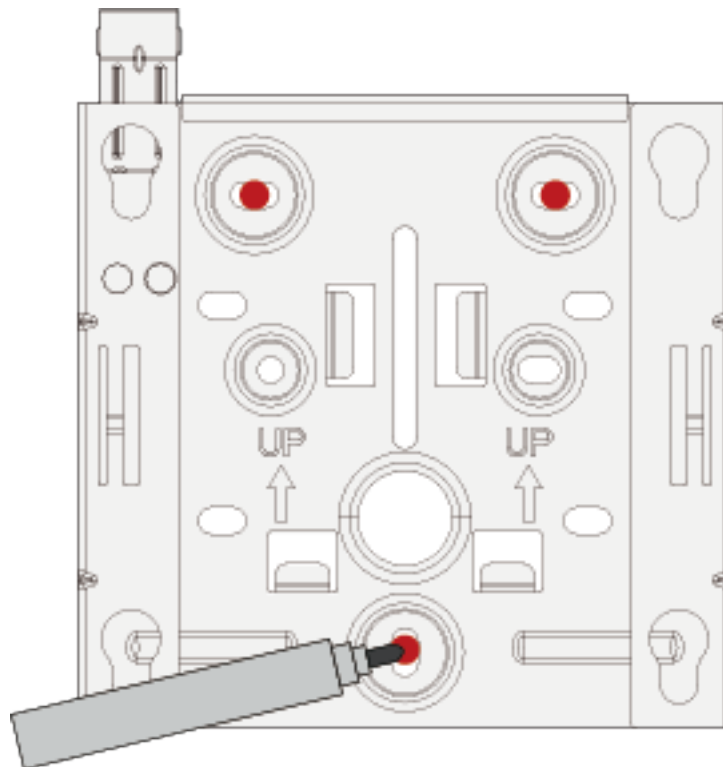
Step 2 Drill holes on the paper gypsum board upwards from bottom to top using a hand-held electric drill. Ensure that the hole diameters are not too large and just sufficient for the expansion screws of the selected model.

Step 3 Use a hollow wall anchor gun to fix the expansion screws to the paper gypsum board.
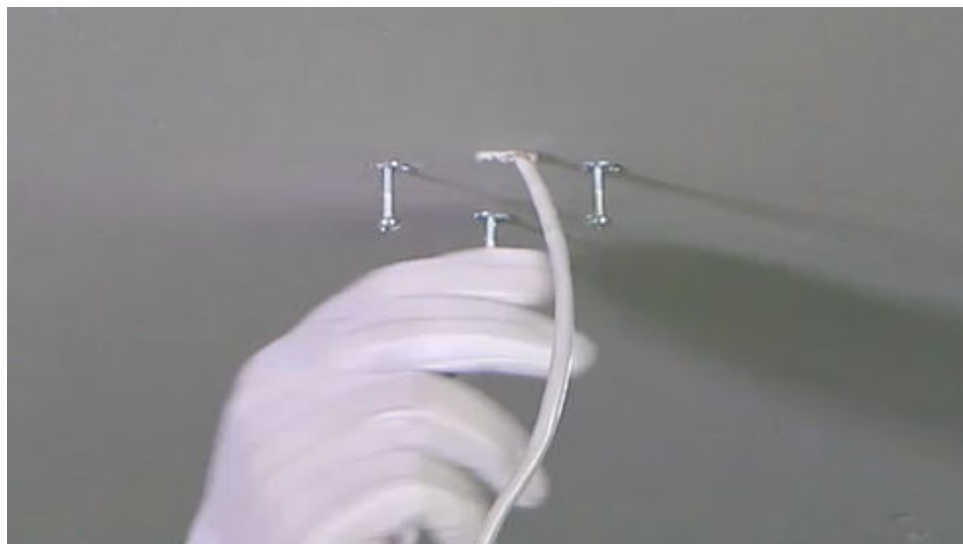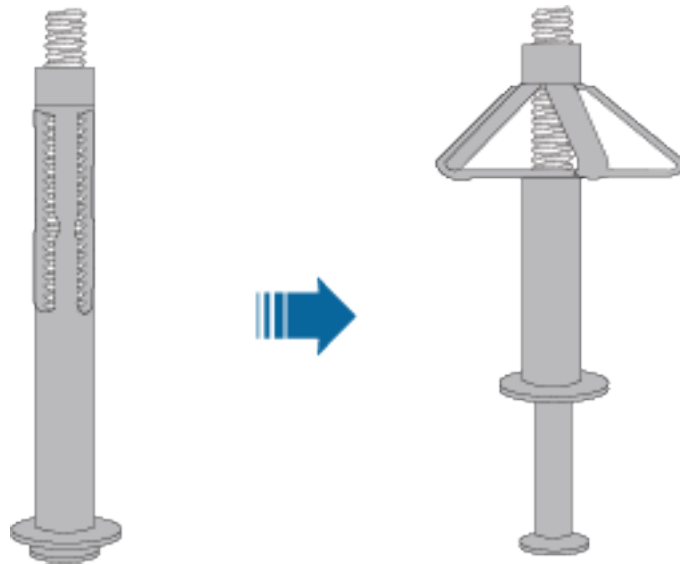
Step 4 Remove the expansion screws, route the screws through the holes in group H, and secure the mounting bracket to the paper gypsum board.

Step 5 Connect the Ethernet cable to the correct port on the AP and clamp the AP on the mounting bracket. Ensure that the four rubber feet fit into the mounting holes. Tighten the security screw.

----End

2.2.4.3 T-Rail Mounting

A T-rail needs to bear the weight of four times the total weight of the device and mounting bracket without damage. When the total weight of the device and mounting bracket is less than 1.25 kg, the load-bearing capability of the T-rail must be greater than or equal to 5 kg. **Figure 2-106** shows the T-rail dimensions requirements (t: thickness; w: width).

Figure 2-106 Section of a T-rail

$$0.6 \text{ mm } \leq \text{ t } \leq \text{ 1.0 mm}$$

$$24 \text{ mm} \leq \text{ w } \leq 29 \text{ mm}$$
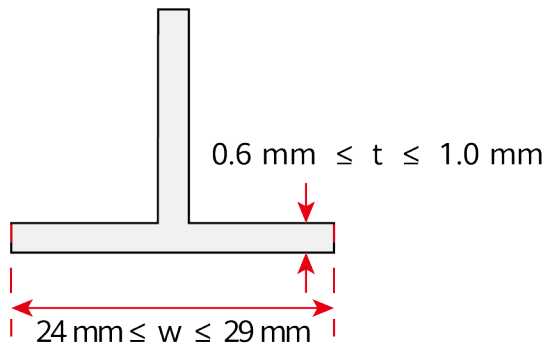
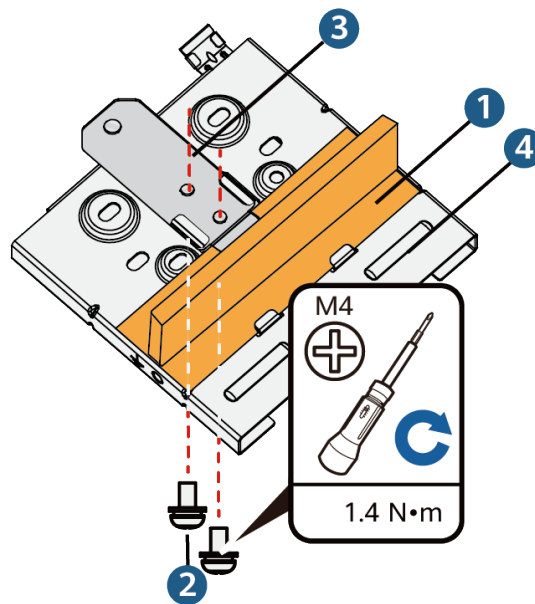1. Remove two ceiling tiles around the T-rail, use screws to fix the adjustable buckle to the mounting bracket, hook the adjustable buckle to the T-rail, and secure the screw on the adjustable buckle to fasten the mounting bracket and T-rail.

1. T-rail	2. M4x8 screw	3. Adjustable buckle	4. Sheet metal mounting bracket

2. Connect the cables.
3. Align the rubber feet of the device over the mounting slots on the mounting bracket and vertically push the AP to secure it. When the spring clip is popped up, push the AP horizontally until it snaps into place (you can hear a click).
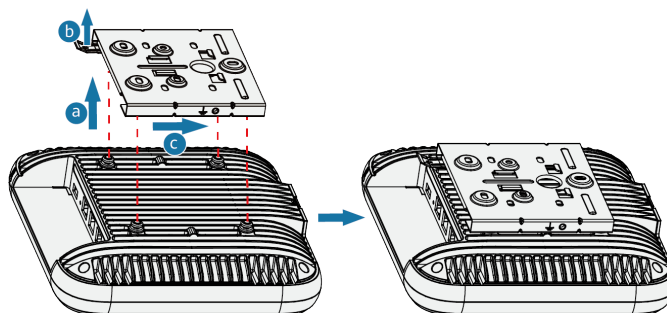
📖 **NOTE**

- Before fixing the adjustable buckle with a screw, adjust the buckle to a proper position based on the T-rail width.

- Ensure that the AP is correctly installed on the mounting bracket and there is at least 200 mm space above and around the AP for maintenance.

- In a scenario with heavy vibrations, tighten the AP to the mounting bracket using M4x30 screws. This prevents the AP from falling off due to vibrations. In normal scenarios, you do not need to install these screws.
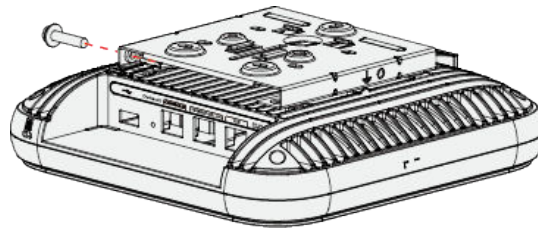
2.2.5 Installing an AP (With a 7 mm Mounting Bracket)

This section describes how to install an AP using a 7 mm mounting bracket.

2.2.5.1 Solid Wall Mounting

Background

A wall for installing the device needs to meet the following requirements:

- The wall can bear the weight of four times the total weight of the device and mounting bracket without damage. When the total weight of the device and mounting bracket is less than 1.25 kg, the load-bearing capability of the wall must be greater than or equal to 5 kg.

- When the tightening torque of a screw reaches 3.5 N·m, the screw still properly works, without crack or damage on the wall.

The following table lists the screws to be used.

Screw	Quantity	Description
ST3.5 expansion screw + expansion tube	3	Secure the mounting bracket to the wall.

Procedure

When fixing the mounting bracket, ensure that the arrows of **UP**⇧ point upwards.

Step 1 Attach the mounting bracket against the wall and adjust its position properly. Mark positions of the mounting holes with a marker, as shown in the following figure.

Step 2 Use a 6 mm drill bit to drill 40 mm to 45 mm deep holes in the marked positions. Hammer the expansion tubes into the holes until the expansion tubes are flush with the wall.

Step 3 Use the M3 screw delivered with the device to connect the equipotential cable at the rear of the mounting bracket to the ground bar. (The OT terminal needs to be prepared separately).

Step 4 Fix the mounting bracket to the wall and use the Phillips screwdriver to fasten three expansion screws into the expansion tubes.
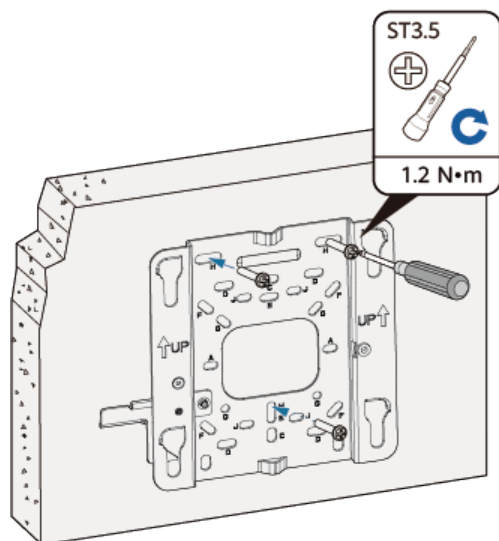
Step 5 Connect and properly sort cables.
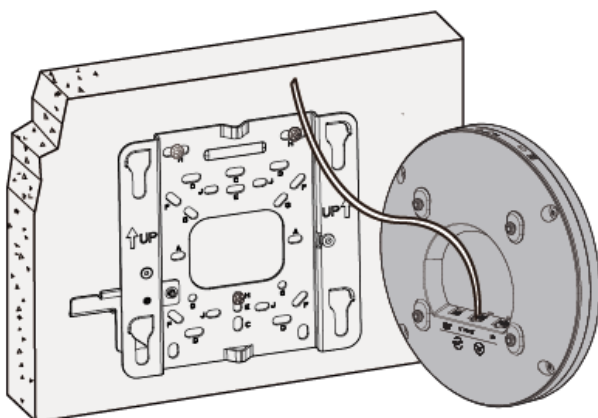
Step 6 Fasten the AP according to the figure. When you hear a click, the AP is secured to the lock position.
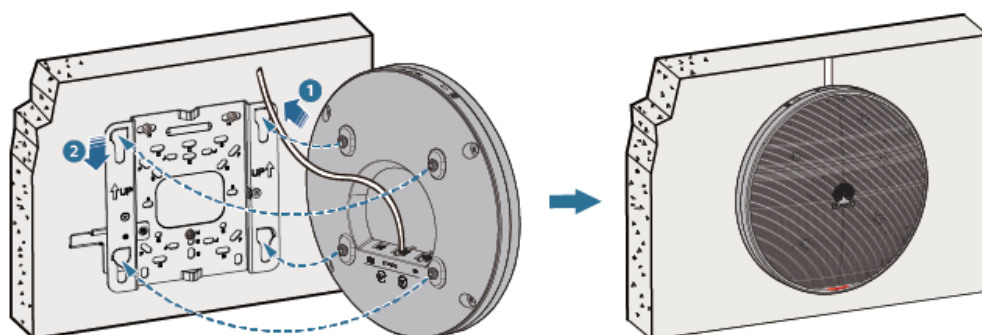
📖 **NOTE**

After the device is installed, ensure that the release lever springs back in place. Ensure that the installation space meets the specified requirements to facilitate future maintenance.

----End

2.2.5.2 Mounting on a Spring Tee Ceiling

Background

Spring tees are concealed within a ceiling and show only evenly distributed grid-shaped tiles seen from the bottom. This type of ceiling is made of aluminum panels, which do not have good load-bearing capacity. Therefore, APs cannot be directly fixed on such ceilings.

In this mounting mode, a spring tee for installing the device must be able to bear the weight four times the total weight of the device and mounting bracket without damage. When the total weight of the device and mounting bracket is less than 1.25 kg, the load-bearing capability of the spring tee must be greater than or equal to 5 kg.
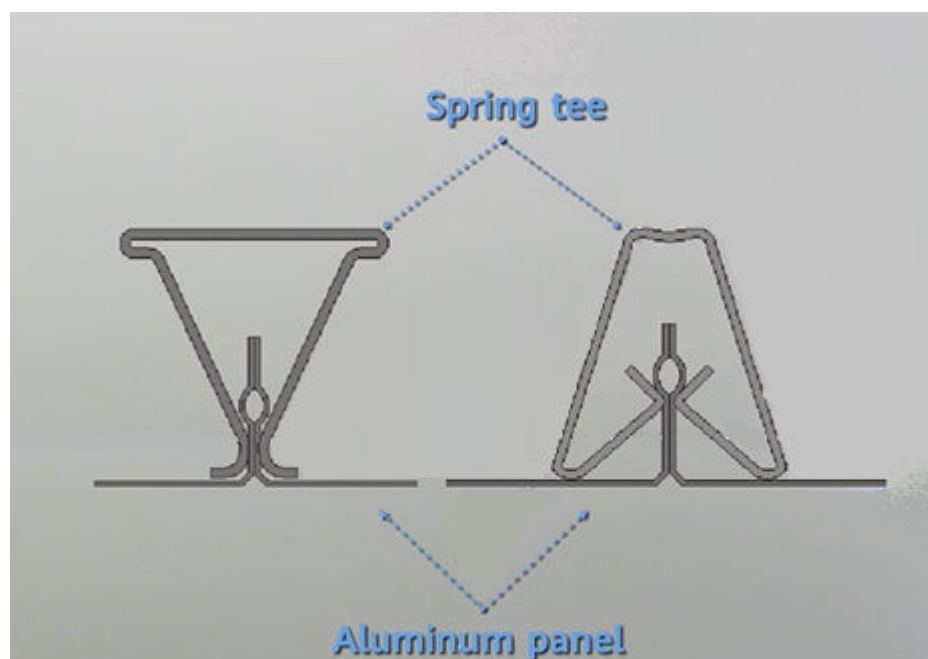
The following lists the materials required for installation.

Material	Quantity	Description
Steel wire rope (part number: 21154869)	2	Secure the mounting bracket to a spring tee.

Figure 2-107 Two typical structures of spring tee ceilings

Prerequisites

When installing an AP on a spring tee ceiling, it is recommended that self-locking steel ropes be used to mount the AP on spring tees. The steel ropes should pass through the aluminum panel and bind the AP. Before installing the AP, determine the position of the spring tee.

Remove one or two aluminum panels. The rails that clamp the two sides of the aluminum panel are the spring tees. Spring tees are distributed in parallel and in the same direction. They are not vertical to each other.

Therefore, the AP can only be mounted at the joint point between two aluminum panels where the spring tees are distributed, as shown in the following figure.

Procedure

Step 1   Before the installation, mark the mounting hole positions on the two sides of the joint point with a marker. Group J holes on the mounting bracket are recommended.

Step 2   Drill holes on the aluminum panels based on the marks. The diameters of holes should be slightly larger than those of steel wire ropes.

Step 3 Thread the steel rope across the two aluminum panels. It is recommended that two persons do this together. One person threads the rope from the top to the bottom, while the other threads it from the bottom to the top.

Step 4 Lock and tighten the rope above the spring tee. The bracket is installed successfully.

Step 5 Drill a cable hole on the ceiling in front of the mounting bracket.

Step 6 Connect the cable to the corresponding port on the AP as required.
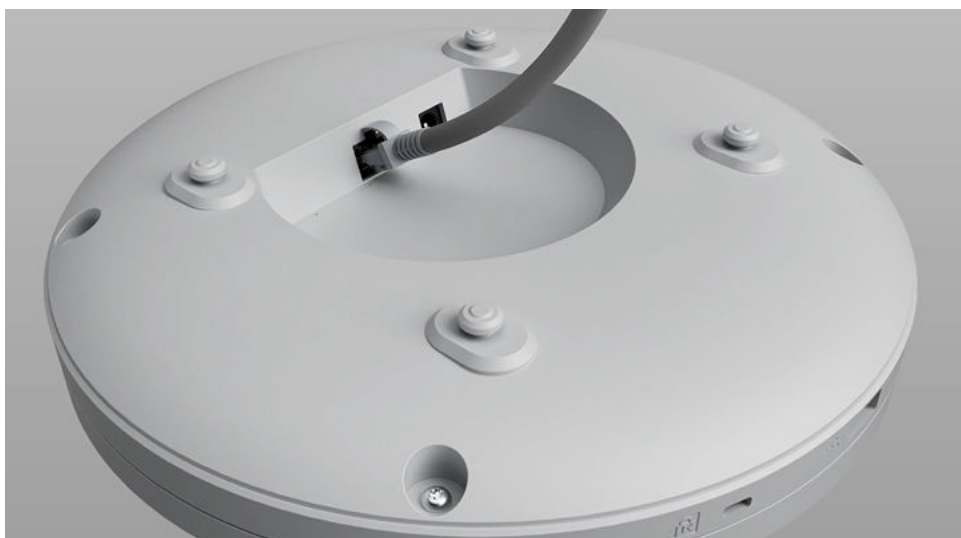
☐ NOTE

> If grounding is required, connect the ground cable to the position with the ground mark on the mounting bracket using the M3 ground screw delivered with the device. (The M3 OT terminal and ground cable need to be prepared separately.)

Step 7 Clamp the AP on the mounting bracket. Ensure that the four rubber feet fit into the mounting holes. When you hear a click sound from the release lever, the AP is properly installed.

Step 8 Install the ceiling plate.

----End

2.2.5.3 Mounting on a Gypsum Board Ceiling

Background

In this mounting mode, a gypsum board ceiling for installing the device must be able to bear the weight four times the total weight of the device and mounting bracket without damage. When the total weight of the device and mounting bracket is less than 1.25 kg, the load-bearing capability of the gypsum board ceiling must be greater than or equal to 5 kg.

Expansion screws are used for mounting APs on a paper gypsum board ceiling. Before installing an AP, select a proper installation position based on the structural features of the paper gypsum board ceiling. Then, select expansion screws of proper specifications based on the thickness of the gypsum board. The expansion screws need to be purchased by the customer as required.

Procedure

Step 1 After determining a proper installation position, drill a hole on the gypsum board from the top to the bottom for the Ethernet cable to pass through. Determine where the AP will be mounted based on the position of this hole.

Step 2 Ensure that the Ethernet cable hole is in front of the mounting bracket (The arrows on the mounting bracket point to the front end of the mounting bracket).

Step 3 Mark the positions for drilling holes for expansion screws using a marker. The holes should correspond to group H holes on the mounting bracket. Drill holes on the ceiling upwards from bottom to top using a hand-held electric drill. Ensure that the hole diameters are not too large and just sufficient for the expansion screws of the selected model.

Step 4 Use a hollow wall anchor gun to fix the expansion screws to the paper gypsum board. Remove the screws from the expansion screws.

Step 5 Install the mounting bracket and install the ground cable (prepared separately) as required.

Step 6 Connect the cable to the corresponding port on the AP as required. Clamp the AP on the mounting bracket. Ensure that the four rubber feet fit into the mounting holes.

Step 7 When you hear a click sound from the release lever, the AP is properly installed.

----End

2.2.5.4 T-Rail Mounting

Background

The mounting bracket must be installed on the main T-rail with a strong bearing capacity, which can bear the weight of four times the total weight of the device and mounting bracket without damage. When the total weight of the device and mounting bracket is less than 1.25 kg, the load-bearing capability of the T-rail must be greater than or equal to 5 kg.

The following lists the materials required for installation.

Material	Quantity	Description
Steel wire rope (part number: 21154869)	2	Secure the mounting bracket to a T-rail.

Procedure

Step 1 Attach the mounting bracket against the ceiling and adjust its position properly. Mark positions of the mounting holes (group J) with a marker, as shown in the following figure.

Step 2 Use an electric drill to drill holes on the ceiling based on the marked positions. It is recommended that the hole diameter be greater than or equal to 3 mm.

Step 3 Lead the steel wire ropes through the group J holes on the mounting bracket and the holes on the ceiling in sequence, tighten the ropes, and use a hex key to tighten the heads of ropes. The mounting bracket is secured to the ceiling.
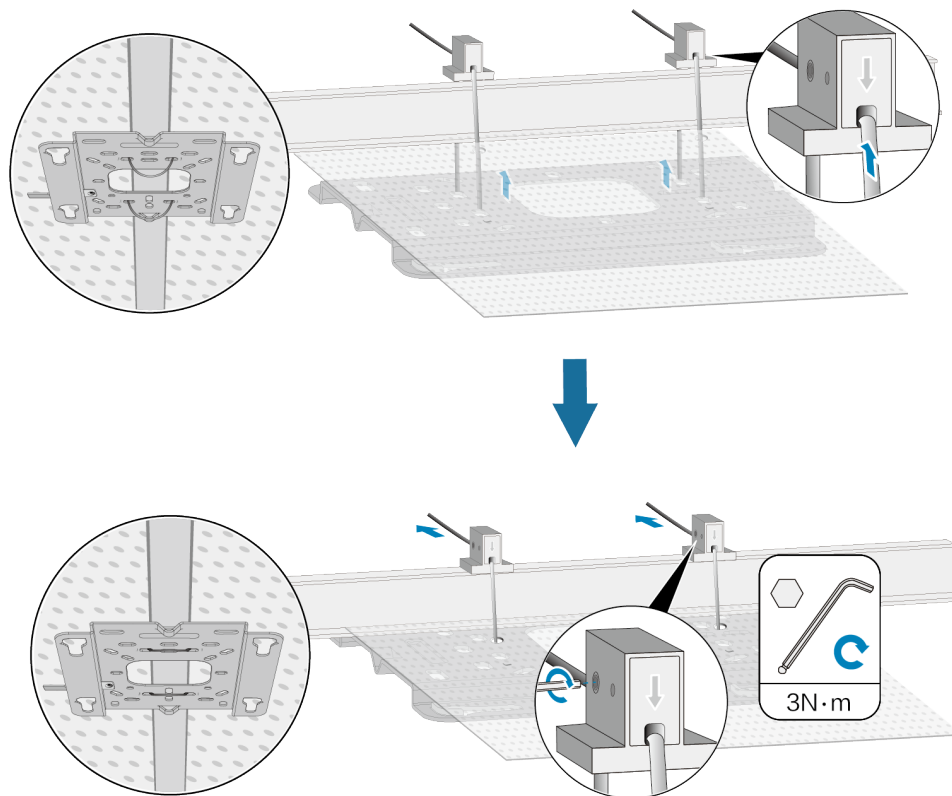
Step 4 Drill a cable hole on the ceiling in front of the mounting bracket. Take cable protection measures for the cable hole.
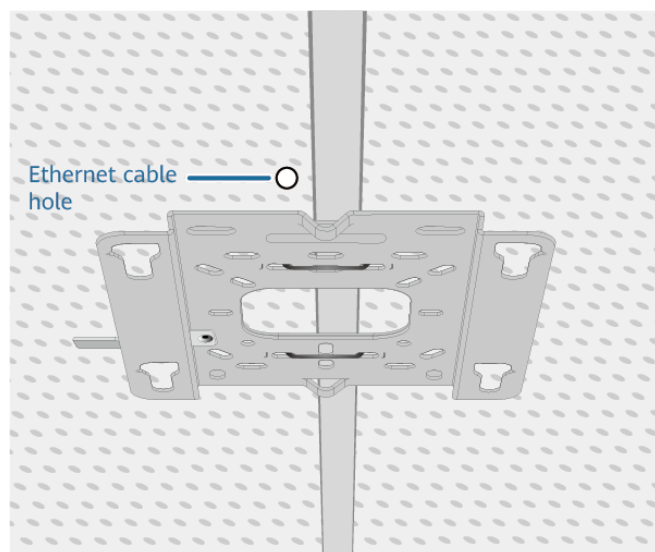
Step 5 Connect the cables. Arrange the cables and route them through the cable hole.

Step 6 Fasten the AP according to the figure. When you hear a click, the AP is secured to the lock position.
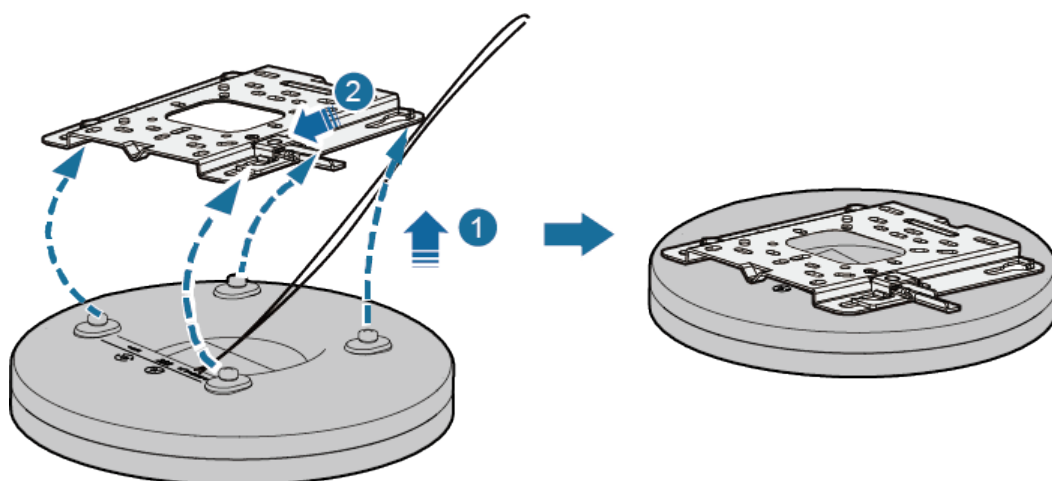
 NOTE

> After the device is installed, ensure that the release lever springs back in place. Ensure that the installation space meets the specified requirements to facilitate future maintenance.

----End

2.2.5.5 Beam Mounting

Background

In scenarios such as airports, stations, and factories, steel structures are typically used. In these scenarios, APs can be mounted on the steel beams beneath a building's roof.

In this mounting mode, a beam for installing the device must be able to bear the weight four times the total weight of the device and mounting bracket without

damage. When the total weight of the device and mounting bracket is less than 1.25 kg, the load-bearing capability of the beam must be greater than or equal to 5 kg.
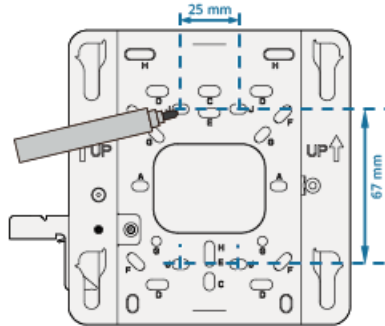
The following lists the materials required for installation.

Material	Quantity	Description
Steel wire rope (part number: 21154869)	2	Secure the mounting bracket to a beam.

Procedure

Step 1 Fix the mounting bracket on the beam by using two steel ropes. The group J holes are recommended. Tighten the steel ropes.

Step 2 Use the M3 screw delivered with the device to connect the equipotential cable at the rear of the mounting bracket to the ground bar. (The OT terminal needs to be prepared separately).

Step 3 Connect the cable to the corresponding port on the AP as required. Clamp the AP on the mounting bracket. Ensure that the four rubber feet fit into the mounting holes. When you hear a click sound from the release lever, the AP is properly installed.

Step 4 Bundle the cable on the beam by using plastic ties to keep it orderly.
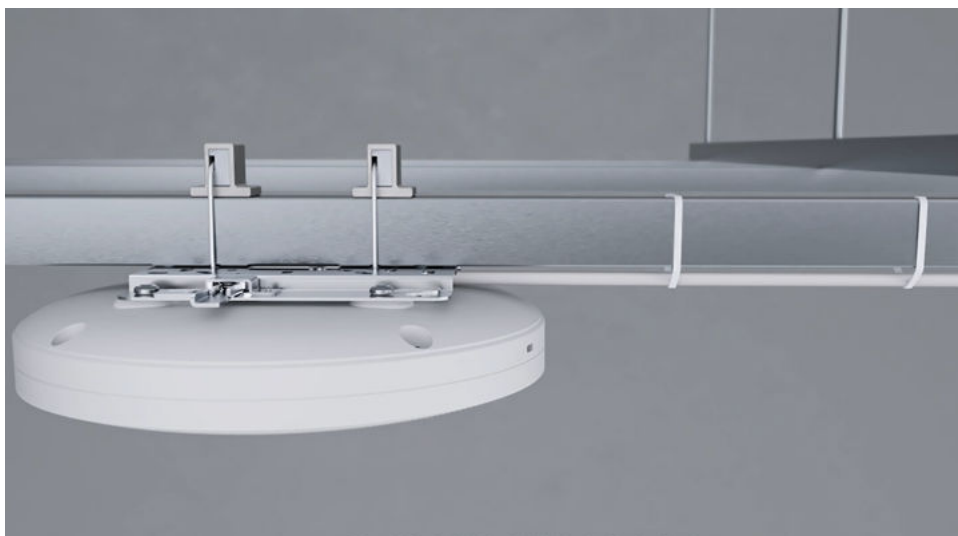
----End

2.2.5.6 Junction Box Mounting

Background

An electric junction box is used for embedding cables in electrical engineering. Electric junction boxes are offered in 86 mm, 118 mm, 120 mm, and octagonal dimensions. The following uses an 86 mm junction box as an example to describe how to mount an AP on a standard junction box.

In this mounting mode, a junction box for installing the device must be able to bear the weight four times the total weight of the device and mounting bracket without damage. When the total weight of the device and mounting bracket is less than 1.25 kg, the load-bearing capability of the junction box must be greater than or equal to 5 kg.

Procedure

Step 1 Deploy the Ethernet cable and junction box in advance. Thread the Ethernet cable through the oval cable hole on the mounting bracket. Secure the mounting bracket on the junction box with screws.
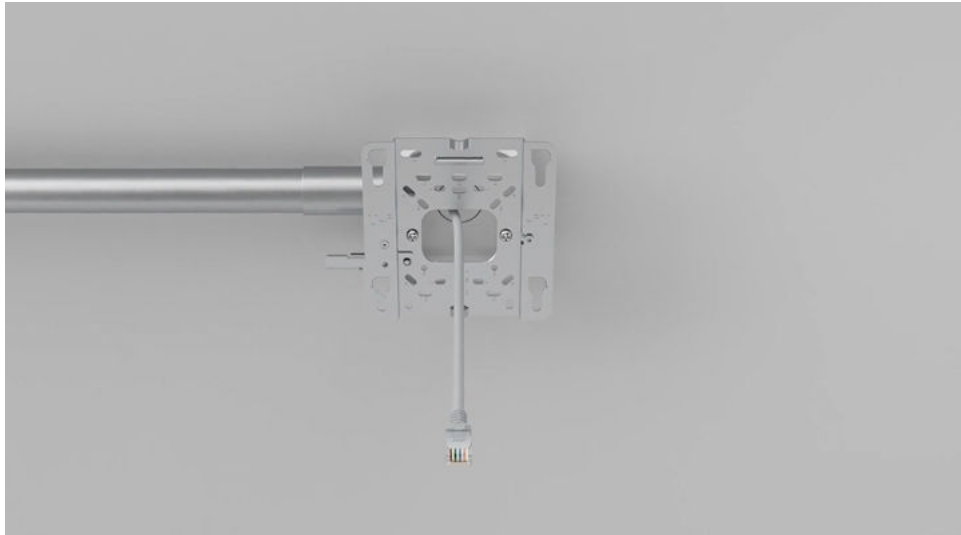
📖 **NOTE**

The junction box type determines which mounting holes on the bracket. Group A holes are used for mounting an AP on the 86 mm junction box.

Step 2 Connect the cable to the corresponding port on the AP as required.
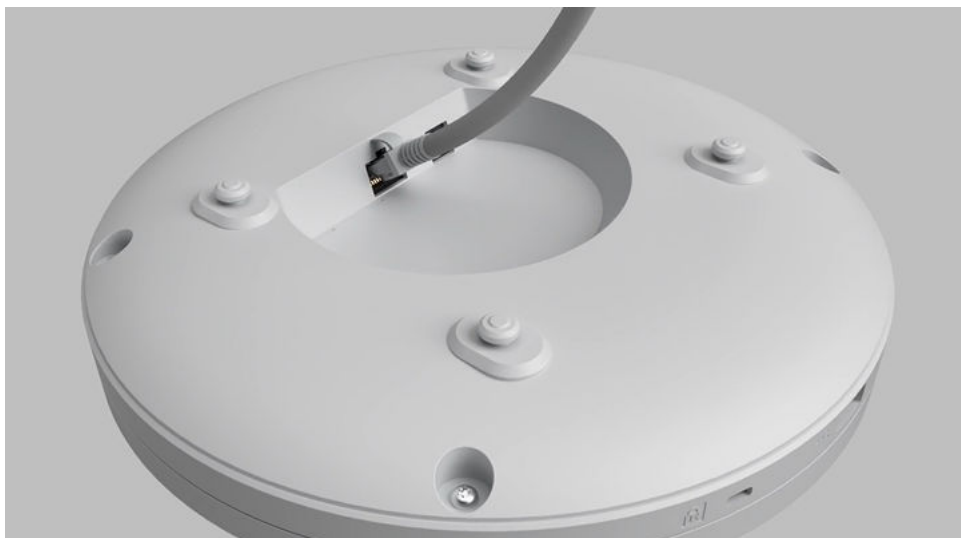
Step 3 Clamp the AP on the mounting bracket. Ensure that the four rubber feet fit into the mounting holes. When you hear a click sound from the release lever, the AP is properly installed.

----End

2.2.5.7 Threaded Rod Mounting on a Ceiling

Background

Some scenarios do not have suspended ceilings, such as warehouse supermarkets, factory buildings, and garages. Various metal pipes for fire protection, ventilation, and wiring are densely deployed beneath the building top. These metal pipes block AP signals. As such, threaded rod mounting is recommended.

In this mounting mode, a threaded rod for installing the device must be able to bear the weight four times the total weight of the device and mounting bracket without damage. When the total weight of the device and mounting bracket is less than 1.25 kg, the load-bearing capability of the threaded rod must be greater than or equal to 5 kg.

Prerequisites

Before the installation, ensure that the network cable has been deployed at a proper position and the threaded rod cut to the required length has been installed on the concrete ceiling where the cable ends.

Procedure

Step 1 Secure the Ω-shaped fixing bracket to the mounting bracket, install the mounting bracket to the end of the threaded rod, and tighten the screw.

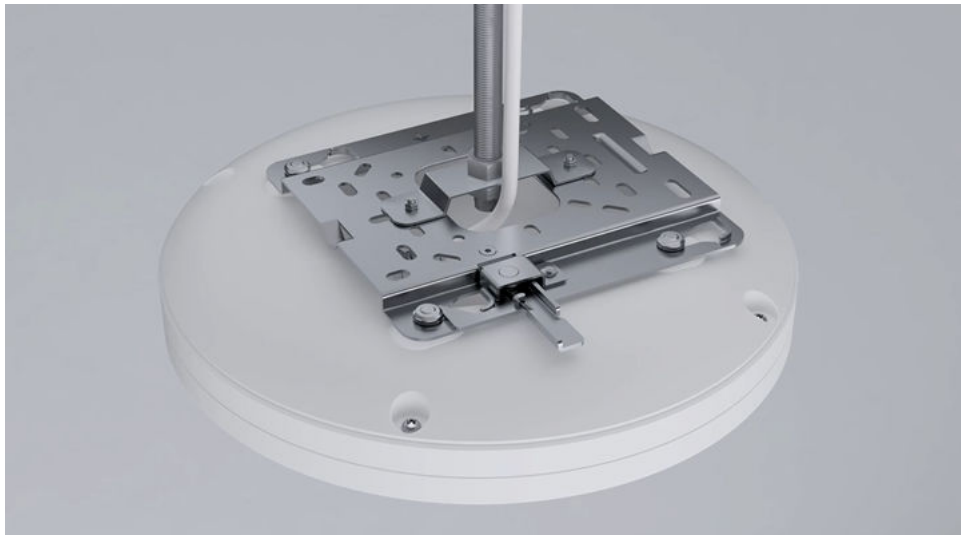**Step 2** Install the ground cable as required.

Step 3 Connect the cable to the corresponding port on the AP as required.

Step 4 Clamp the AP on the mounting bracket. Ensure that the four rubber feet fit into the mounting holes. When you hear a click sound from the release lever, the AP is properly installed.

Step 5 Bundle the cable on the beam by using plastic ties to keep it orderly.

----End

2.2.5.8 Anti-Theft and Removal

Anti-Theft Lock Mode

There is a security slot on the device. You can lock the device to an immovable object to prevent theft. The detailed procedure is as follows:

1. Fasten the cable of the security lock to an immovable object around.

2. Insert the security lock into the security slot and lock it.

Lock hole
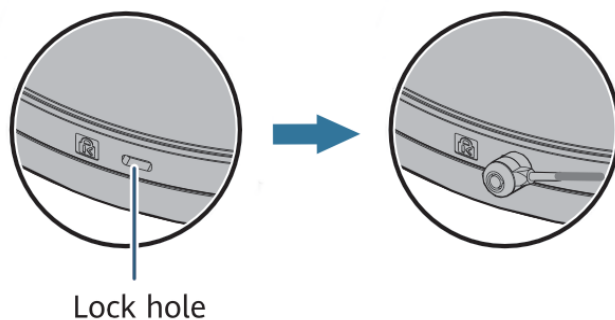
📖 **NOTE**

You need to purchase the security lock separately. The security slot is 7 mm long and 3 mm wide. The maximum radius of its four round corners is 1 mm.

Removing an AP

Hold the AP tightly, push the release lever on the mounting bracket upwards using a screwdriver, and slide the AP downwards to unlock the AP.

Figure 2-108 Removing an AP

◫ **NOTE**

When removing an AP, do not pull out the AP directly. Otherwise, the device may fall down, or the cables and connectors may be damaged.
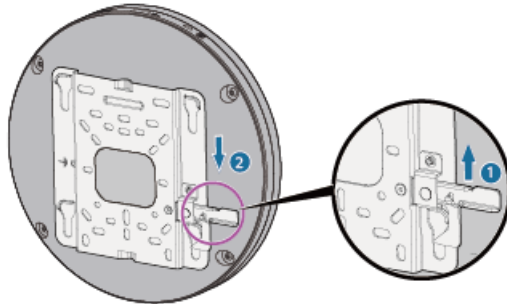
2.2.6 Installing an AP (With a Small Mounting Bracket)

This section describes how to install an AP using a small mounting bracket.

2.2.6.1 Solid Wall Mounting

Background

A wall for installing the device needs to meet the following requirements:

- The wall can bear the weight of four times the total weight of the device and mounting bracket without damage. When the total weight of the device and mounting bracket is less than 1.25 kg, the load-bearing capability of the wall must be greater than or equal to 5 kg.

- When the tightening torque of a screw reaches 3.5 N·m, the screw still properly works, without crack or damage on the wall.

The following table lists the screws to be used.

Screw	Quantity	Description
ST3.5 expansion screw + expansion tube	3	Secure the mounting bracket to the wall.

Procedure

When fixing the mounting bracket, ensure that the arrows of **UP⇧** point upwards.

Step 1 Attach the mounting bracket against the wall and adjust its position properly. Mark positions of the mounting holes (group H) with a marker, as shown in the following figure.

Step 2 Use a 6 mm drill bit to drill 40 mm to 45 mm deep holes in the marked positions. Hammer the expansion tubes into the holes until the expansion tubes are flush with the wall.

Step 3 Fix the mounting bracket to the wall and use the Phillips screwdriver to fasten three expansion screws into the expansion tubes.

Step 4 Connect and properly sort cables.

Step 5 Fasten the AP according to the figure. When you hear a click, the AP is secured to the lock position.
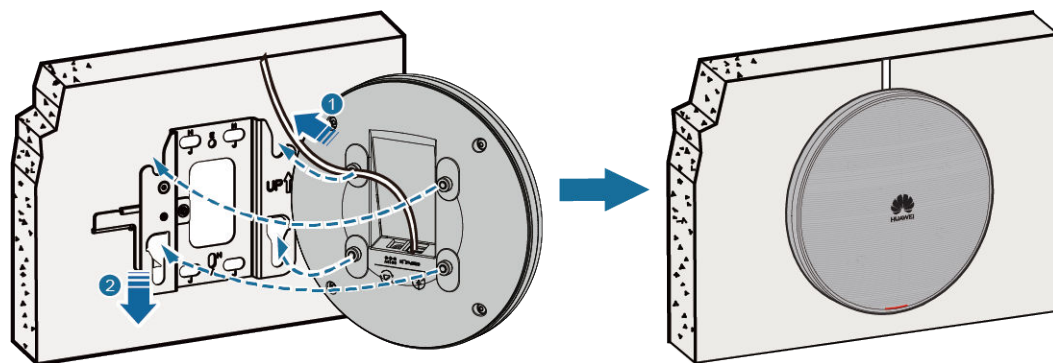
> 📖 **NOTE**
>
> After the device is installed, ensure that the release lever springs back in place. Ensure that the installation space meets the specified requirements to facilitate future maintenance.

----End

2.2.6.2 Mounting on a Spring Tee Ceiling

Background

Spring tees are concealed within a ceiling and show only evenly distributed grid-shaped tiles seen from the bottom. This type of ceiling is made of aluminum panels, which do not have good load-bearing capacity. Therefore, APs cannot be directly fixed on such ceilings.

In this mounting mode, a spring tee for installing the device must be able to bear the weight four times the total weight of the device and mounting bracket without damage. When the total weight of the device and mounting bracket is less than 1.25 kg, the load-bearing capability of the spring tee must be greater than or equal to 5 kg.

The following lists the materials required for installation.

Material	Quantity	Description
Steel wire rope (part number: 21154869)	2	Secure the mounting bracket to a spring tee.

Figure 2-109 Two typical structures of spring tee ceilings

Prerequisites

When installing an AP on a spring tee ceiling, it is recommended that self-locking steel ropes be used to mount the AP on spring tees. The steel ropes should pass through the aluminum panel and bind the AP. Before installing the AP, determine the position of the spring tee.

Remove one or two aluminum panels. The rails that clamp the two sides of the aluminum panel are the spring tees. Spring tees are distributed in parallel and in the same direction. They are not vertical to each other.

Therefore, the AP can only be mounted at the joint point between two aluminum panels where the spring tees are distributed, as shown in the following figure.

Procedure

Step 1 Before the installation, mark the mounting hole positions on the two sides of the joint point with a marker. Group J holes on the mounting bracket are recommended.

Step 2 Drill holes on the aluminum panels based on the marks. The diameters of holes should be slightly larger than those of steel wire ropes.

Step 3 Thread the steel rope across the two aluminum panels. It is recommended that two persons do this together. One person threads the rope from the top to the bottom, while the other threads it from the bottom to the top.

Step 4 Lock and tighten the rope above the spring tee. The bracket is installed successfully.

Step 5 Drill a cable hole on the ceiling in front of the mounting bracket.

Step 6 Route the cable and connect it to the corresponding port on the AP as required.

Step 7 Clamp the AP on the mounting bracket. Ensure that the four rubber feet fit into the mounting holes. When you hear a click sound from the release lever, the AP is properly installed.

Step 8 Install the ceiling plate.

----End

2.2.6.3 Mounting on a Gypsum Board Ceiling

Background

In this mounting mode, a gypsum board ceiling for installing the device must be able to bear the weight four times the total weight of the device and mounting bracket without damage. When the total weight of the device and mounting bracket is less than 1.25 kg, the load-bearing capability of the gypsum board ceiling must be greater than or equal to 5 kg.

Expansion screws are used for mounting APs on a paper gypsum board ceiling. Before installing an AP, select a proper installation position based on the structural features of the paper gypsum board ceiling. Then, select expansion screws of proper specifications based on the thickness of the gypsum board. The expansion screws need to be purchased by the customer as required.

Procedure

Step 1 After determining a proper installation position, drill a hole on the gypsum board from the top to the bottom for the Ethernet cable to pass through. Determine where the AP will be mounted based on the position of this hole.

Step 2 Ensure that the Ethernet cable hole is in front of the mounting bracket (The arrows on the mounting bracket point to the front end of the mounting bracket).

Step 3 Mark the positions for drilling holes for expansion screws using a marker. The holes should correspond to group H holes on the mounting bracket.

Step 4 Drill holes on the ceiling upwards from bottom to top using a hand-held electric drill. Ensure that the hole diameters are not too large and just sufficient for the expansion screws of the selected model.
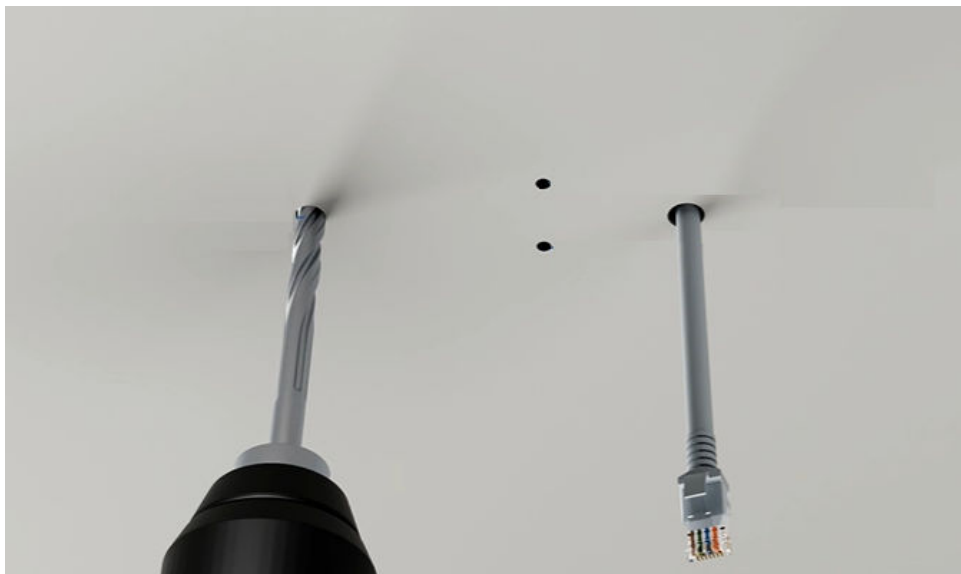
Step 5 Use a hollow wall anchor gun to fix the expansion screws to the paper gypsum board. Remove the screws from the expansion screws.

Step 6 Install the mounting bracket.

Step 7 Route the cable and connect it to the corresponding port on the AP as required.

Step 8 Clamp the AP on the mounting bracket. Ensure that the four rubber feet fit into the mounting holes.

Step 9 When you hear a click sound from the release lever, the AP is properly installed.

       ----End

2.2.6.4 T-Rail Mounting

Background

The mounting bracket must be installed on the main T-rail with a strong bearing capacity, which can bear the weight of four times the total weight of the device and mounting bracket without damage. When the total weight of the device and mounting bracket is less than 1.25 kg, the load-bearing capability of the T-rail must be greater than or equal to 5 kg.

The following lists the materials required for installation.

Material	Quantity	Description
Steel wire rope (part number: 21154869)	2	Secure the mounting bracket to a T-rail.

Procedure

Step 1 Attach the mounting bracket against the ceiling and adjust its position properly. Mark positions of the mounting holes (group J) with a marker, as shown in the following figure.

Step 2 Use an electric drill (with a 3 mm drill bit) to drill holes on the ceiling based on the marked positions. It is recommended that the hole diameter be greater than or equal to 3 mm.

Step 3 Lead the steel wire ropes through the clips fixed on the rail or beam, holes on the ceiling, and group J holes on the mounting bracket in sequence from one side, and lead the ropes back in the opposite direction. Tighten the ropes, and use a hex key to tighten the clips. The mounting bracket is secured to the ceiling.
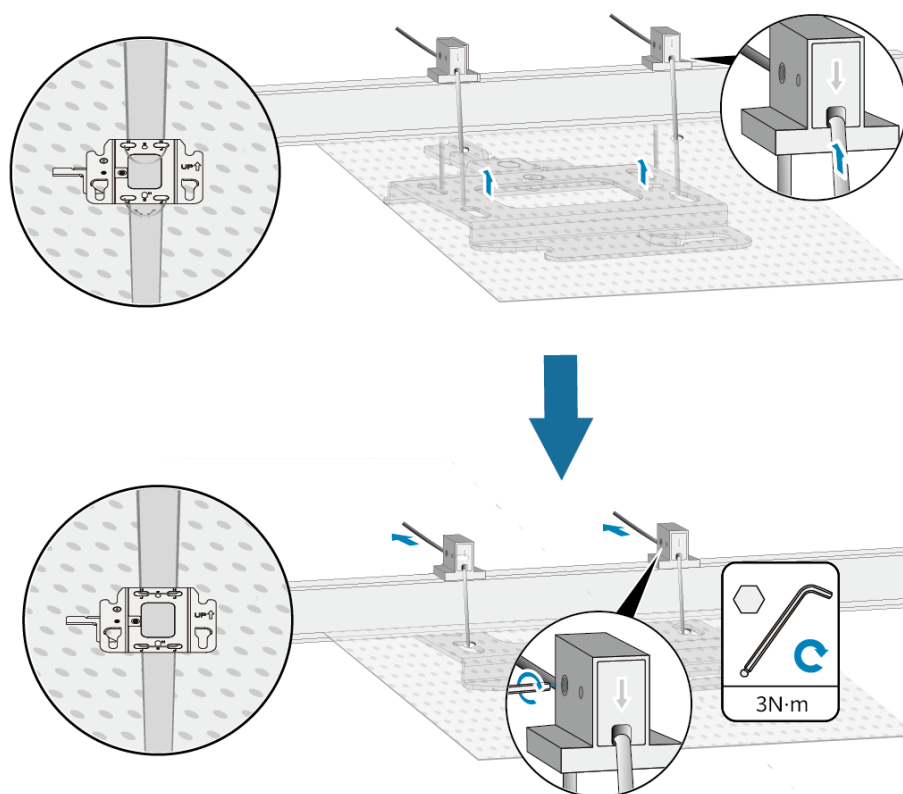
□ NOTE

> The steel wire rope set needs to be purchased separately.

Step 4 Drill a network cable hole at a proper position on the ceiling in front of the mounting bracket. Take protection measures for cables threading the hole.
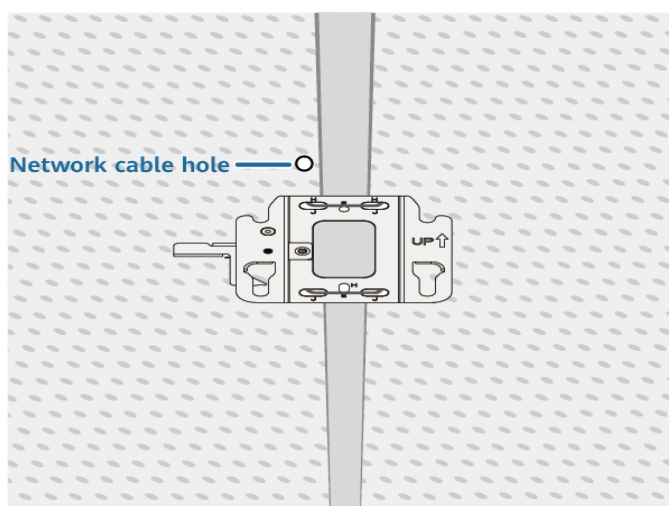
Step 5 Connect the cables. Arrange the cables and route them through the cable hole.

Step 6 Fasten the AP according to the figure. When you hear a click, the AP is secured to the lock position.
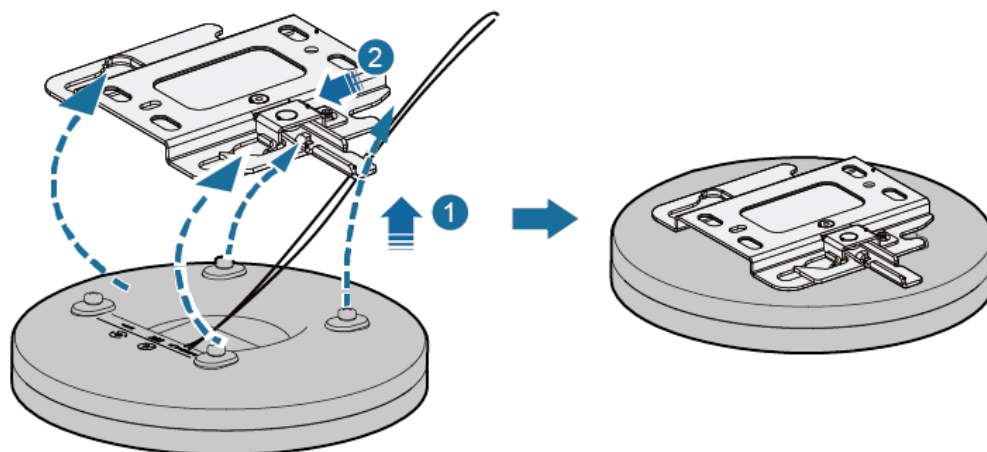
 📖 **NOTE**

> After the device is installed, ensure that the release lever springs back in place. Ensure that the installation space meets the specified requirements to facilitate future maintenance.

----End

2.2.6.5 Beam Mounting

Background

In scenarios such as airports, stations, and factories, steel structures are typically used. In these scenarios, APs can be mounted on the steel beams beneath a building's roof.

In this mounting mode, a beam for installing the device must be able to bear the weight four times the total weight of the device and mounting bracket without damage. When the total weight of the device and mounting bracket is less than 1.25 kg, the load-bearing capability of the beam must be greater than or equal to 5 kg.

The following lists the materials required for installation.

Material	Quantity	Description
Steel wire rope (part number: 21154869)	2	Secure the mounting bracket to a beam.

Procedure

Step 1 Fix the mounting bracket on the beam by using two steel ropes. The group J holes are recommended. Tighten the steel ropes.

Step 2 Connect the cable to the corresponding port on the AP as required.

Step 3 Clamp the AP on the mounting bracket. Ensure that the four rubber feet fit into the mounting holes. When you hear a click sound from the release lever, the AP is properly installed.

Step 4 Bundle the cable on the beam by using plastic ties to keep it orderly.
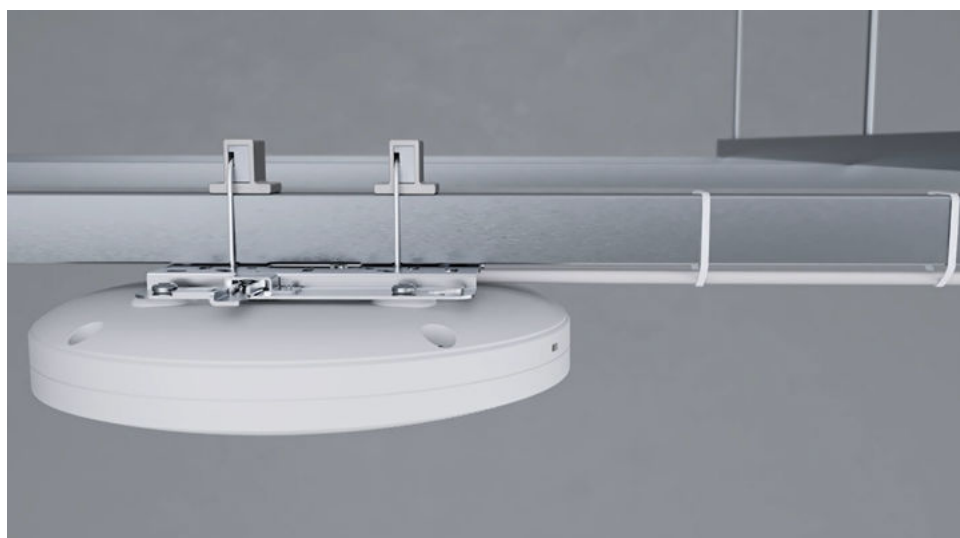
----End

2.2.6.6 Threaded Rod Mounting on a Ceiling

Background

Some scenarios do not have suspended ceilings, such as warehouse supermarkets, factory buildings, and garages. Various metal pipes for fire protection, ventilation, and wiring are densely deployed beneath the building top. These metal pipes block AP signals. As such, threaded rod mounting is recommended.

In this mounting mode, a threaded rod for installing the device must be able to bear the weight four times the total weight of the device and mounting bracket without damage. When the total weight of the device and mounting bracket is less than 1.25 kg, the load-bearing capability of the threaded rod must be greater than or equal to 5 kg.

Prerequisites

Before the installation, ensure that the network cable has been deployed at a proper position and the threaded rod cut to the required length has been installed on the concrete ceiling where the cable ends.

Procedure

Step 1 Secure the Ω-shaped fixing bracket to the mounting bracket, install the mounting bracket to the end of the threaded rod, and tighten the screw.


Step 2 Connect the cable to the corresponding port on the AP as required.

Step 3 Clamp the AP on the mounting bracket. Ensure that the four rubber feet fit into the mounting holes. When you hear a click sound from the release lever, the AP is properly installed.

Step 4 Bundle the cable on the beam by using plastic ties to keep it orderly.

----End

2.2.6.7 Anti-Theft and Removal

Anti-Theft Lock Mode

There is a security slot on the device. You can lock the device to an immovable object to prevent theft. The detailed procedure is as follows:

1. Fasten the cable of the security lock to an immovable object around.

2. Insert the security lock into the security slot and lock it.

Lock hole
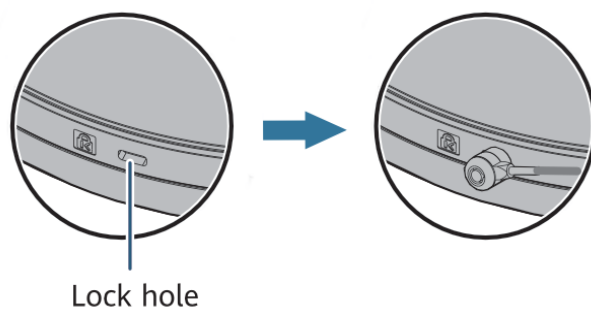
 NOTE

You need to purchase the security lock separately. The security slot is 7 mm long and 3 mm wide. The maximum radius of its four round corners is 1 mm.

Removing an AP

Hold the AP tightly, push the release lever on the mounting bracket upwards using a screwdriver, and slide the AP upwards to unlock the AP.

Figure 2-110 Removing an AP
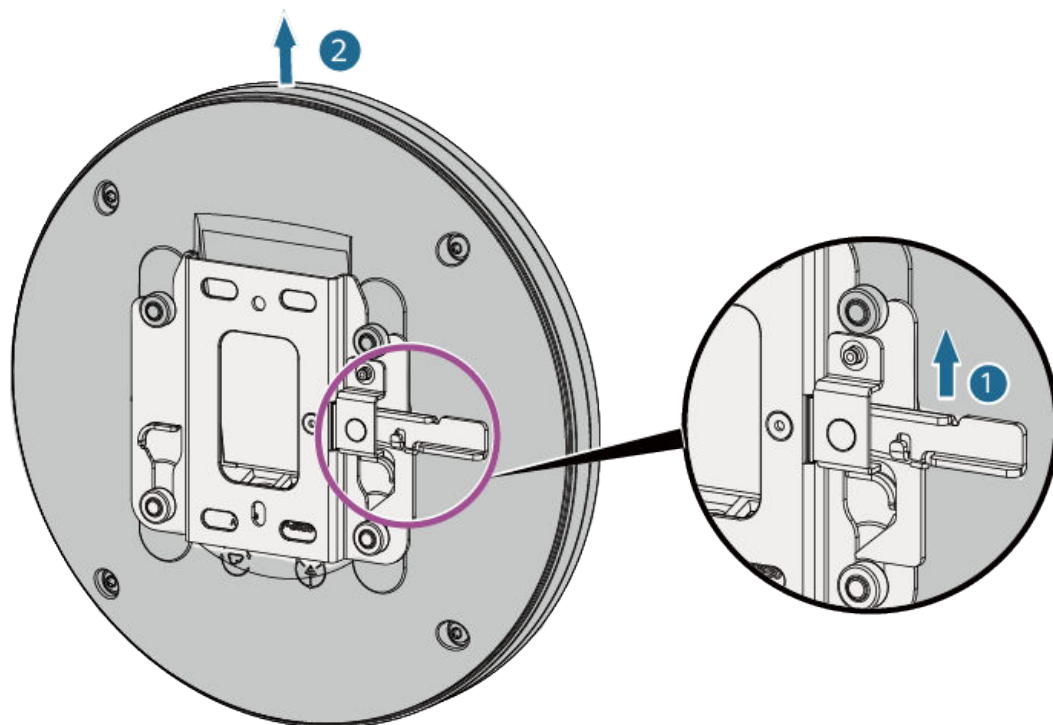
📖 NOTE

When removing an AP, do not pull out the AP directly. Otherwise, the device may fall down, or the cables and connectors may be damaged.

2.2.7 Connecting Cables

Table 2-172 shows cable connections for a settled AP.

Figure 2-111 Appearance

Table 2-172 Cable connections

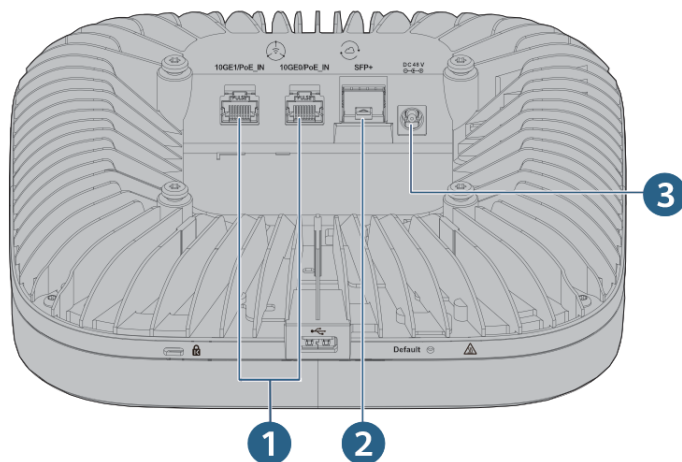| No.	Cable or Device	Description
1	Ethernet cable	- For the supported Ethernet cable types and length requirements, see **Table 2-173**. - If the AP needs to connect to the Ethernet, ensure that the Ethernet cable is working properly. If the Ethernet cable is not working properly, for example, RJ45 connectors are short-circuited, the AP may fail to be powered on or fail to work properly. Before connecting an Ethernet cable to the AP, use the cable test tool to check whether the cable is qualified. If not, replace it.
2	Optical fiber	Install an optical module on the SFP+ port and connect it to the corresponding port of the peer device using an optical fiber.
3	DC power adapter	When the device uses the DC power supply, use a power adapter for power supply; otherwise, the device may be damaged.

 NOTE

- The AP is powered by either the DC power supply or PoE power supply. Power hot backup is not supported.
- Both Ethernet electrical ports support PoE input. When PoE power supply is used:
  - When the power supply types of the two ports are different, the power supply in compliance with a later standard is used.
  - When the power supply types of the two ports are the same, the power supply is superimposed by default.

When installing a cable, you must make a drip loop to prevent water from flowing into devices along the cable. For details, see **13.9 Guide to Making Drip Loops**.

Pay attention to the following points when bundling the cables:

- Different types of cables must be separately routed with the minimum spacing of 30 mm and cannot be entangled or crossed. Cables should be parallel or separated using dedicated separators.
- The cables must be bound tightly and neatly, and the cable sheaths must not be damaged.
- Cable ties are bound neatly facing the same direction, and those at the same horizontal line must be in a straight line. Cable tie tails should be cut smoothly and evenly.
- Labels or nameplates must be attached to the cables after they are installed.

2.2.7.1 Connecting Ethernet Cables

Table 2-173 Ethernet cable types supported by Ethernet interfaces and maximum transmission distances

Interface Rate	Ethernet Cable Type	Maximum Transmission Distance
GE	CAT5E or higher	100 m
2.5GE	CAT5E or higher unshielded twisted pair (UTP)	100 m
	CAT5E or higher shielded twisted pair (STP)	100 m
5GE	CAT5E UTP	• 100 m (Only the first 30 m of cables is bundled in 6-a-1 mode.) • 55 m (All cables are bundled.) Not recommended due to high risks
	CAT5E STP	100 m
	CAT6 or higher	100 m Connecting UTP network cables to 5GE interfaces poses high risks and is not recommended.
10GE	CAT6A F/UTP	100 m
	CAT6A STP	100 m
	CAT7	100 m

📖 **NOTE**

- 6-a-1 stands for the six-around-one cable bundle mode, with one cable in the center and six cables bundled evenly around it.
- Connecting UTP network cables to 5GE interfaces poses high risks and is not recommended. The causes are as follows:
  - 802.3bz requires that the ALSNR value for alien crosstalk between network cables be greater than 0, but the standards for CAT5E and CAT6 unshielded twisted pairs do not specify the required ALSNR value. Therefore, such cables may not meet the crosstalk requirement in 802.3bz, causing severe problems such as continuous packet loss.
  - According the cabling specification TIA TSB-5021, using CAT5E and CAT6 cables for 5G poses medium and high risks.
  - Currently, no clear onsite testing or evaluation method is available for checking whether ALSNR of cables conforms to 802.3bz.
- If a network cable does not meet the preceding requirements, replace it with a compliant one or reduce the interface speed.
  - For a switch that supports rate decrease auto-negotiation, it is recommended that this function be enabled. The **set ethernet speed down-grade** command is used to enable rate decrease auto-negotiation on Huawei switches.
  - For a switch that does not support rate decrease auto-negotiation, it is recommended that a fixed port rate be configured based on the network cable type.

2.2.7.2 Connecting Optical Fibers

NOTICE

- Before the installation, take ESD protection measures, for example, wear ESD gloves or an ESD wrist strap.
- When installing an optical module, do not touch the edge connector of the optical module without wearing gloves.
- Do not insert the optical module with optical fibers directly into the optical interface. You need to install the optical module first and then the optical fibers.
- Cover idle optical interfaces with dust plugs.

Tools and Accessories

ESD wrist strap or ESD gloves

Procedure

1. Wear an ESD wrist strap. Ensure that the ESD wrist strap is grounded and in a close contact with your wrist.
2. Take out an optical module from the ESD bag and verify that the optical module is the model you need.
3. Remove the dust plug from an optical port.

   📖 **NOTE**

   - Install dust plugs on optical modules not connected to optical fibers.
   - Keep the dust plugs properly for future use.

4. Insert the optical module into the optical interface smoothly until you hear a crack sound.

> **NOTICE**
>
> If an optical module cannot be completely inserted into an optical interface, do not push it with force. Turn the optical module over and try again.

Figure 2-112 Installing an optical module
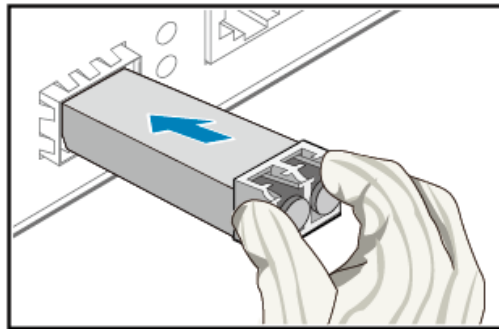
5. Check that the optical module is installed correctly.

   Keep the release handle closed and try pulling the optical module by pressing the optical module with your forefinger and thumb to see if the optical module can be removed.

   – If not, the optical module is installed correctly.
   – If so, the optical module is installed incorrectly and must be reinstalled.

2.2.7.3 Connecting Hybrid Cables 2.0

Procedure

1. Assemble and test a hybrid cable 2.0 by referring to **13.2.5 Assembling a Hybrid Cable 2.0**.
2. Remove dust plugs from the optical ports on a switch and an AP, and install optical modules by referring to **2.2.7.2 Connecting Optical Fibers**.
3. Connect a hybrid cable 2.0 to the switch and AP through the optical modules.

> **CAUTION**
>
> When connecting optical fibers, ensure that the bending of optical fibers at the end does not exceed 180°.
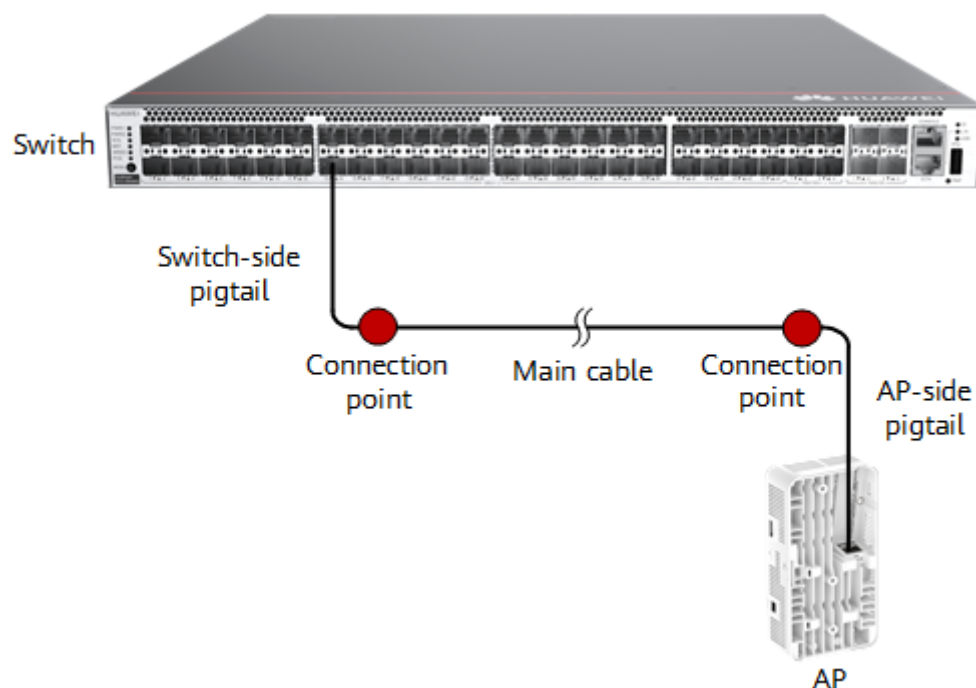
4. Route the cable according to the cabling requirements in **13.2.5 Assembling a Hybrid Cable 2.0**, and bundle the cable using cable ties.

   > **NOTE**
   >
   > In a splicing scenario, minimize the pigtail length and reserve sufficient cabling space based on the pigtail length.
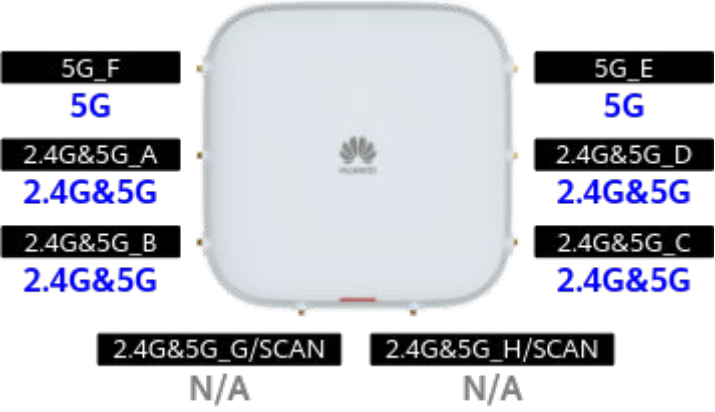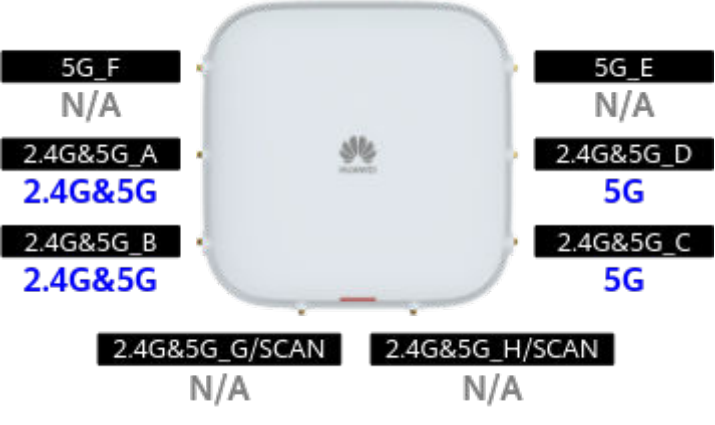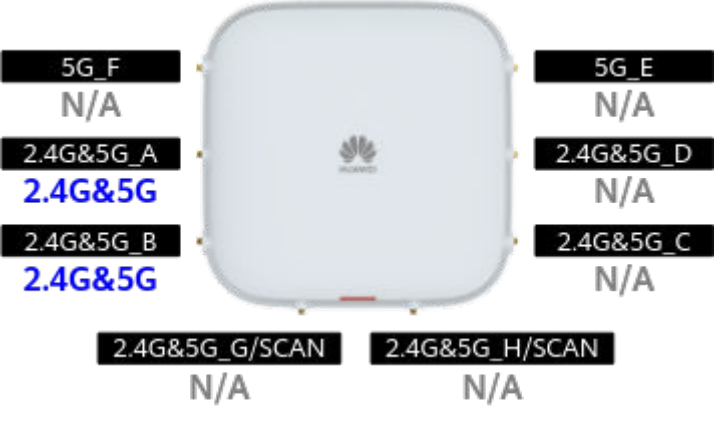
5. Attach a label to the cable.
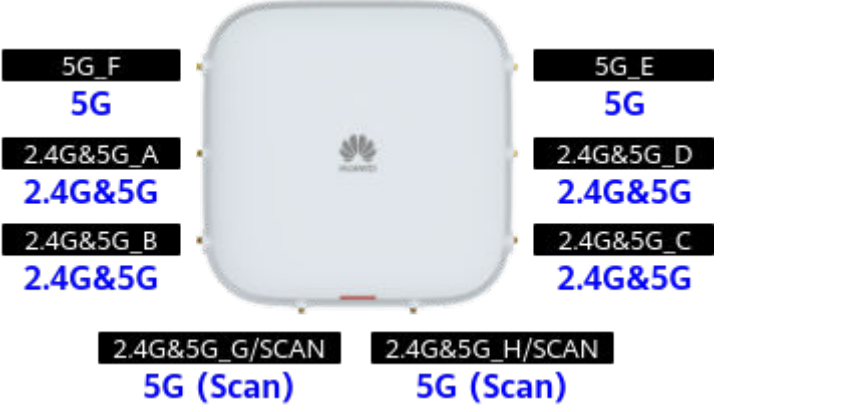
Figure 2-113 Connections of a hybrid cable 2.0
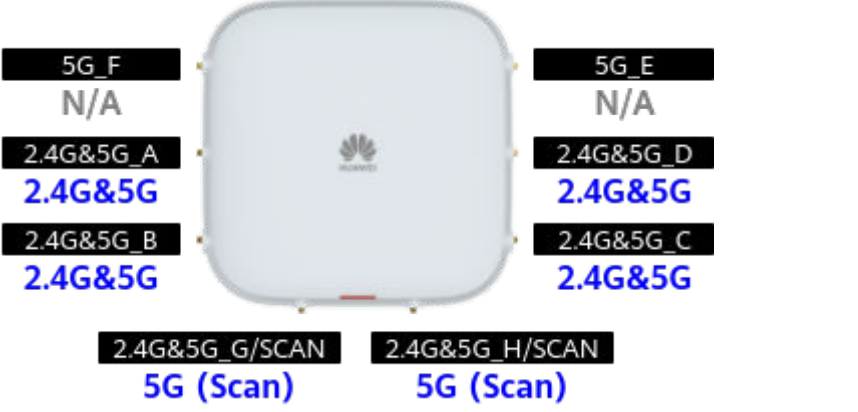
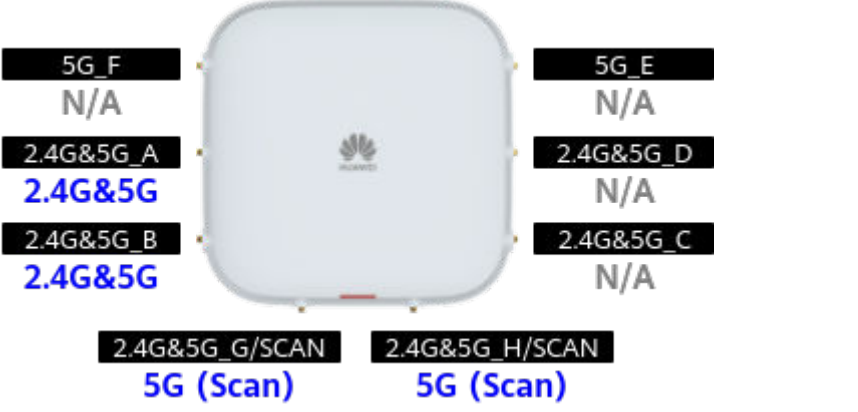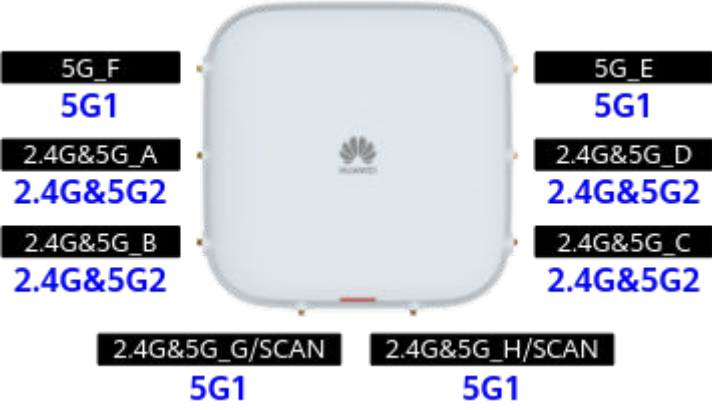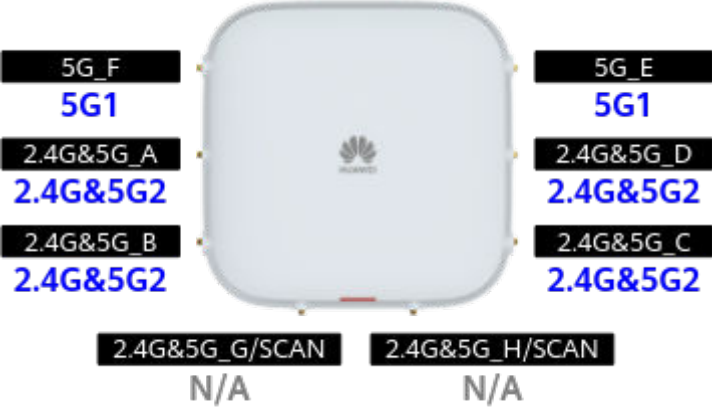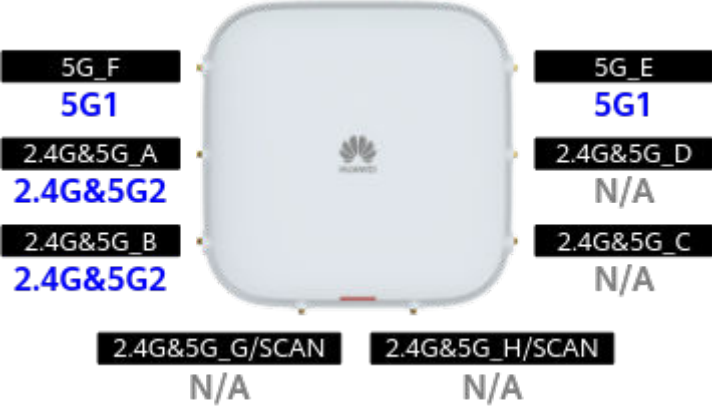## 2.2.7.4 Connecting RF Cables (AirEngine 6760-X1E)

Table 2-174 Signal frequency bands supported by each RF port on an AirEngine 6760-X1E

Radio Mode	Effective Radio on Each RF Port (Note: White Words on Black Background and Blue Words Indicate Silk Screen and Signals, Respectively.)
4+8	

| Radio Mode	Effective Radio on Each RF Port (Note: White Words on Black Background and Blue Words Indicate Silk Screen and Signals, Respectively.)
4+6	5G_F **5G** — 5G_E **5G** — 2.4G&5G_A **2.4G&5G** — 2.4G&5G_D **2.4G&5G** — 2.4G&5G_B **2.4G&5G** — 2.4G&5G_C **2.4G&5G** — 2.4G&5G_G/SCAN N/A — 2.4G&5G_H/SCAN N/A
2+4	5G_F N/A — 5G_E N/A — 2.4G&5G_A **2.4G&5G** — 2.4G&5G_D **5G** — 2.4G&5G_B **2.4G&5G** — 2.4G&5G_C **5G** — 2.4G&5G_G/SCAN N/A — 2.4G&5G_H/SCAN N/A
2+2	5G_F N/A — 5G_E N/A — 2.4G&5G_A **2.4G&5G** — 2.4G&5G_D N/A — 2.4G&5G_B **2.4G&5G** — 2.4G&5G_C N/A — 2.4G&5G_G/SCAN N/A — 2.4G&5G_H/SCAN N/A

Radio Mode	Effective Radio on Each RF Port (Note: White Words on Black Background and Blue Words Indicate Silk Screen and Signals, Respectively.)
4+6+5G scanning	5G_F / 5G — 5G_E / 5G 2.4G&5G_A / 2.4G&5G — 2.4G&5G_D / 2.4G&5G 2.4G&5G_B / 2.4G&5G — 2.4G&5G_C / 2.4G&5G 2.4G&5G_G/SCAN / 5G (Scan) — 2.4G&5G_H/SCAN / 5G (Scan)
4+4+5G scanning	5G_F / N/A — 5G_E / N/A 2.4G&5G_A / 2.4G&5G — 2.4G&5G_D / 2.4G&5G 2.4G&5G_B / 2.4G&5G — 2.4G&5G_C / 2.4G&5G 2.4G&5G_G/SCAN / 5G (Scan) — 2.4G&5G_H/SCAN / 5G (Scan)
2+2+5G scanning	5G_F / N/A — 5G_E / N/A 2.4G&5G_A / 2.4G&5G — 2.4G&5G_D / N/A 2.4G&5G_B / 2.4G&5G — 2.4G&5G_C / N/A 2.4G&5G_G/SCAN / 5G (Scan) — 2.4G&5G_H/SCAN / 5G (Scan)

Radio Mode	Effective Radio on Each RF Port (Note: White Words on Black Background and Blue Words Indicate Silk Screen and Signals, Respectively.)
4+4+4	
4+2+4	
2+2+2	

📖 **NOTE**

- When whip antennas are used, it is recommended that a maximum of eight antennas be configured. If antennas are not fully configured, connect the antennas to RF ports in the sequence of A to H.

- If antennas with four RF ports are used, it is recommended that two such antennas be configured. In this full configuration, connect RF ports A to D of the AP to one antenna and RF ports E to H to the other. If only one such antenna is used, connect the antenna to RF ports A to D. Install RF loads on the idle RF ports.

- To use the independent scanning radio, ensure that RF ports G and H are connected to an antenna.

- In 802.3at power supply mode, ensure that RF ports A, B, E, and F are connected to antennas. If 2x2 antennas are used, connect RF ports A and B to one antenna and RF ports E and F to the other.

- Connect the antennas based on the power supply, IoT card, and USB usage of the AP and whether an RTU license is available. For details, see **Table 2-174**.

- When connecting an RF feeder, use a torque wrench with an open end size of 8 mm to tighten the SMA connector of the feeder. For example, when a mechanical torque wrench is used, if the head of the wrench pivots as shown in the following figure, the set torque is achieved.
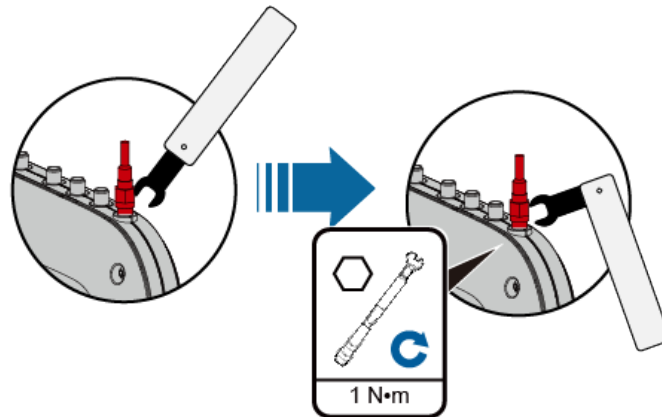
- If directional antennas are connected to an AirEngine X760 series AP requiring external antennas, ensure that the number of antennas used to cover the same area is not less than half of the total number of antennas on a single radio of the AP. Otherwise, issues such as a long service delay will occur. 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.
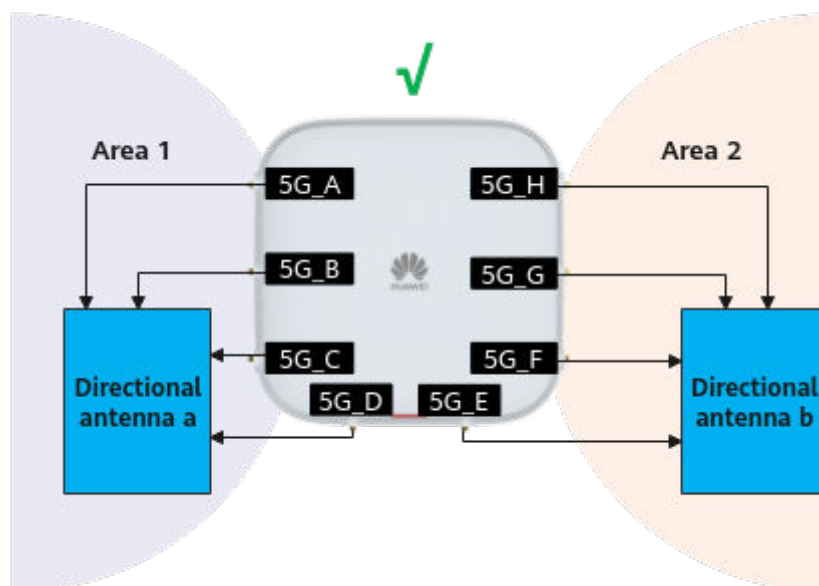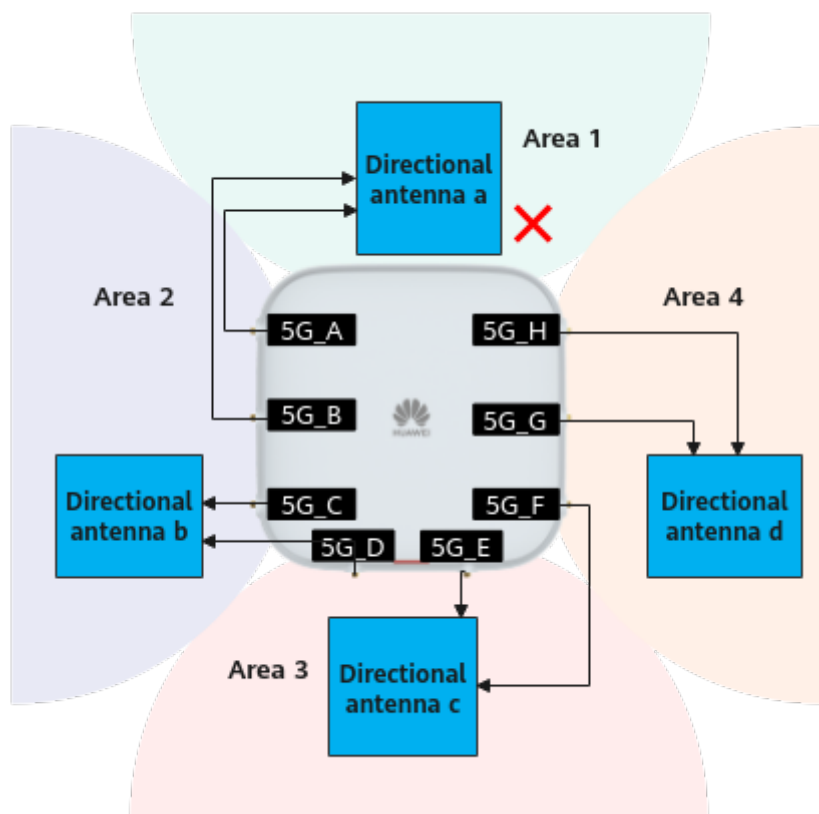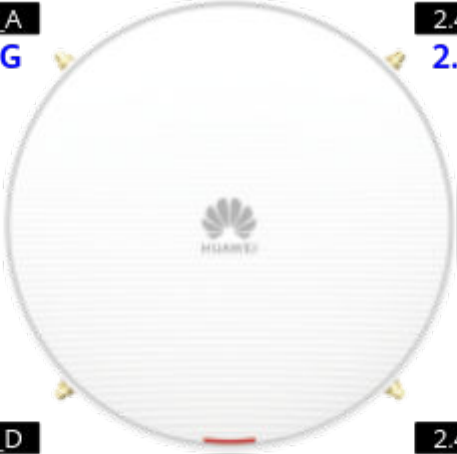
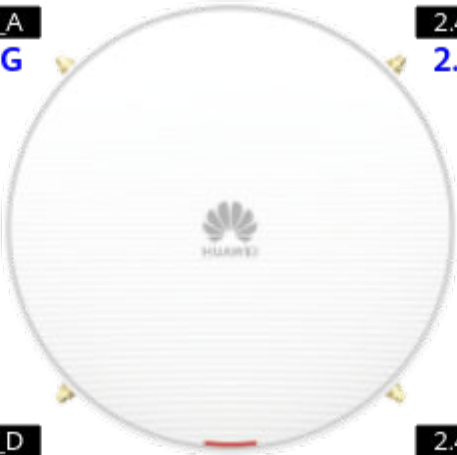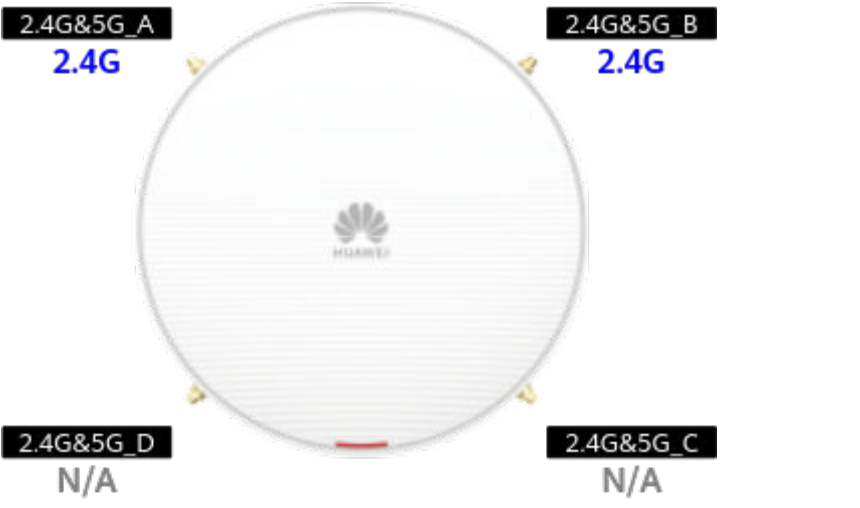**Figure 2-114** Correct example

Figure 2-115 Incorrect example

## 2.2.7.5 Connecting RF Cables (AirEngine 6761-21E)

Table 2-175 Signal frequency bands supported by each RF port on an AirEngine 6761-21E

Radio Mode	Effective Radio on Each RF Port (Note: White Words on Black Background and Blue Words Indicate Silk Screen and Signals, Respectively.)
4+4	
2+4	
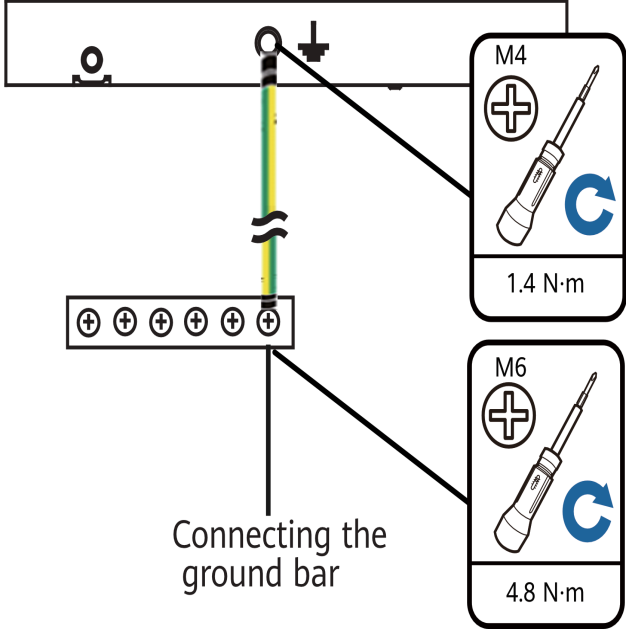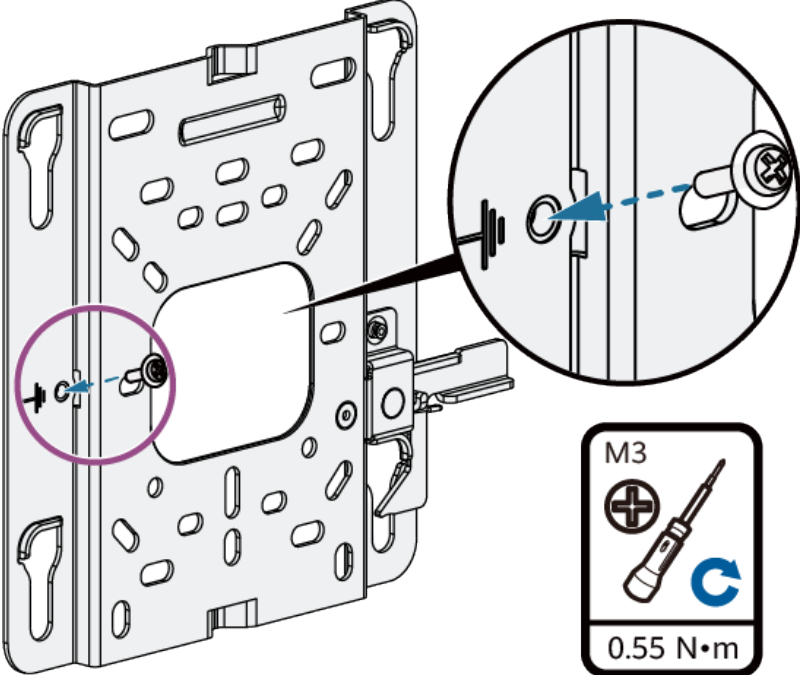
Radio Mode	Effective Radio on Each RF Port (Note: White Words on Black Background and Blue Words Indicate Silk Screen and Signals, Respectively.)
2+0	

 NOTE

- To fully leverage radio resources, it is recommended that a maximum of four antennas be configured. Install RF loads on the idle RF ports without antennas installed. Connect the antennas based on the power supply and USB usage of the AP. For details, see **Table 2-175**.

- When connecting an RF feeder, use a torque wrench with an open end size of 8 mm to tighten the SMA connector of the feeder. For example, when a mechanical torque wrench is used, if the head of the wrench pivots as shown in the following figure, the set torque is achieved.
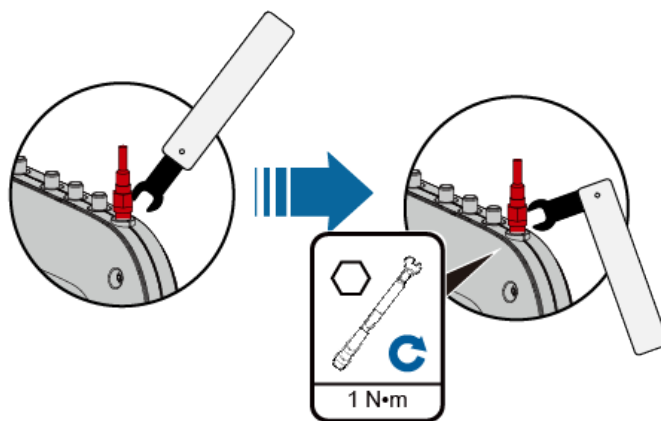
2.2.7.6 Connecting Ground Cables

Mounting Bracket	Grounding Diagram
15 mm mounting bracket	 Connecting the ground bar M4 1.4 N·m M6 4.8 N·m
7 mm mounting bracket	 M3 0.55 N•m
Small mounting bracket	Grounding is not supported.

Use ground screws and ground cables to ground the mounting bracket. Make the ground cable on site. Use an M4 OT terminal on a 15 mm mounting bracket or an

M3 OT terminal on a 7 mm mounting bracket. Use an M6 OT terminal on the ground bar, and the terminal selection can also be determined based on site requirements. Cut the cables into the required length based on site requirements.

Tighten the screws on the ground bar with the following torque settings:

- M4: 1.4 N m
- M6: 4.8 N m
- M8: 12 N m

Ground cable deployment requirements are as follows:

- Connect the ground cables to the same ground bar.
- Ensure that the bend radius of a ground cable is greater than or equal to five times the cable diameter.
- Bury ground cables underground or arrange them indoors. Do not route ground cables overhead outdoors.
- Ensure that the external conductor of the coaxial cable and both ends of the shield layer of the shielded cable are in good electric contact with the metal shell of the connected device.
- Separate the ground cable from signal cables to reduce interference between them.
- Do not add any switch or fuse on the ground cable.
- Do not use another device for an electrical connection with the ground cable.
- Ensure that all conductive metal components inside the enclosure properly connect to protection ground terminals.

2.2.8 Verifying the Installation

Table 2-176 shows the items to be checked after installation is complete. For more details, see **13.8 Installation Checklist** in the appendix.

Table 2-176 Installation checklist

No.	Check Item
1	The device is installed by strictly following the design draft. The installation position meets space requirements, with maintenance space reserved.
2	The device is securely installed.
3	Power cables are intact and not spliced.
4	Terminals of power cables are welded or cramped firmly.
5	All power cables are not short-circuited or reversely connected and must be intact with no damage.
6	Power cables and ground cables are separated from other cables and bundled separately.

No.	Check Item
7	The working grounding, protection grounding, and surge protection grounding share the same group of grounding bars.
8	Connectors of signal cables are complete, intact, and tightly connected, and the signal cables are not damaged or broken.
9	Labels are correct, legible, and complete. Labels at both ends of cables, feeders, and jumpers are correct.

After an AP is powered on, observe indicators on the AP to determine the system running status. For details, see the indicator description.

◻ **NOTE**

Do not frequently power on and off the device.