ZTE中兴

ZXSDR R8882 L708
LTE Remote Radio Unit
User Manual

Version: V2.00

FCC Statements

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

NOTE: Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Radiation Exposure Statement: This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 6.5m between the radiator & your body.

Chapter 1
Product Overview

Table of Contents

1.1 Distributed eNodeB Solution

To supply customers with more competitive communication equipment and solution in the market, ZTE develops and promotes ZTE SDR eBBU (baseband unit) and eRRU (remote radio unit) distributed eNodeB solution timely, which jointly perform LTE eNodeB service.

ZTE distributed eNodeB solution is shown in Figure 1-1.

Figure 1-1 ZTE Distributed eNodeB Solution
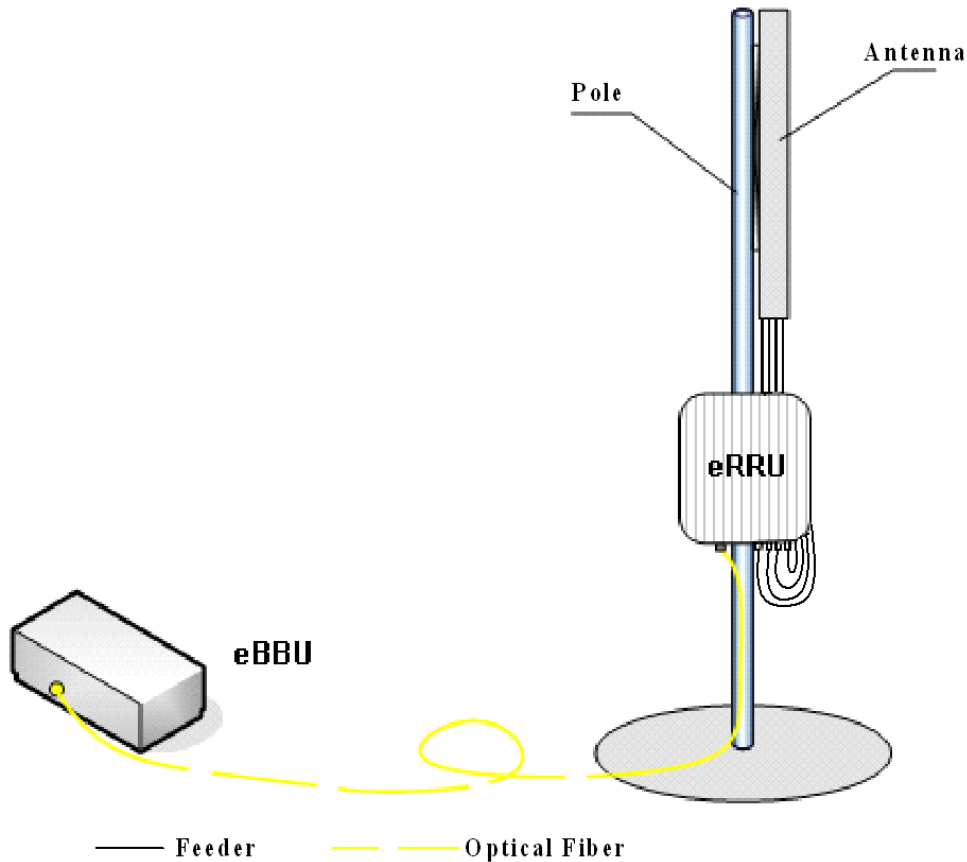
ZTE's LTE eBBU+eRRU distributed eNodeB solution has the following predominance:

1. Saving labor cost and engineering cost for networking.

    eBBU+eRRU distributed eNodeB equipment is small in size, light in weight, and easy for transportation and engineering construction.

2. Fast networking, also saving the fees of renting equipment room.

    eBBU+eRRU distributed eNodeB is applicable to various sites, such as mounted on steel tower, on building top, or on wall, etc. It's more flexible in selecting installation site, and not restricted by the space of equipment room. It can help operators to deploy network rapidly. It can also save the fees of renting equipment room, and the network operation cost.

3. Convenient in upgrade and capacity expansion; saving the initial stage cost of the network.

    eRRU can be mounted as close to antenna as possible, to save the cost of feed cable and decrease the loss of feed cable. It also can enhance the output power of eRRU and increase the coverage.

4. Low power consumption, power-saving.

Compared with traditional eNodeB, eBBU+eRRU distributed eNodeB has lower power consumption, which can greatly reduce the investment and cost on electric power, and thus save the network operation cost.

5. Distributed networking, making good use of operators' network resources supporting eBBU+eRRU distributed networking; supporting star networking mode between eBBU and eRRU.

6. Adopting a more perspective and generalized eNodeB platform.

eBBU adopts the platform designed for the future B3G and 4G. One hardware platform can realize different standard modes, and several standard modes can coexist in one eNodeB. In this way, operators' management can be simplified, and several eNodeBs to be invested can be integrated into one eNodeB (multimode eNodeB). The operators can select the evolution direction of the future network more flexibly.

1.2 Product Position in Network

ZXSDR R8882 L708 is a remote radio unit (eRRU) of distributed eNodeB. The signal is transmitted or received through ZXSDR R8882 L708 to and from base band processing unit for further processing through CPRI interface. By applying the distributed system, the feeder loss will be reduced when the remote radio unit is positioned close to the antenna. The coverage is enlarged with this solution.

Figure 1-2 Product Location
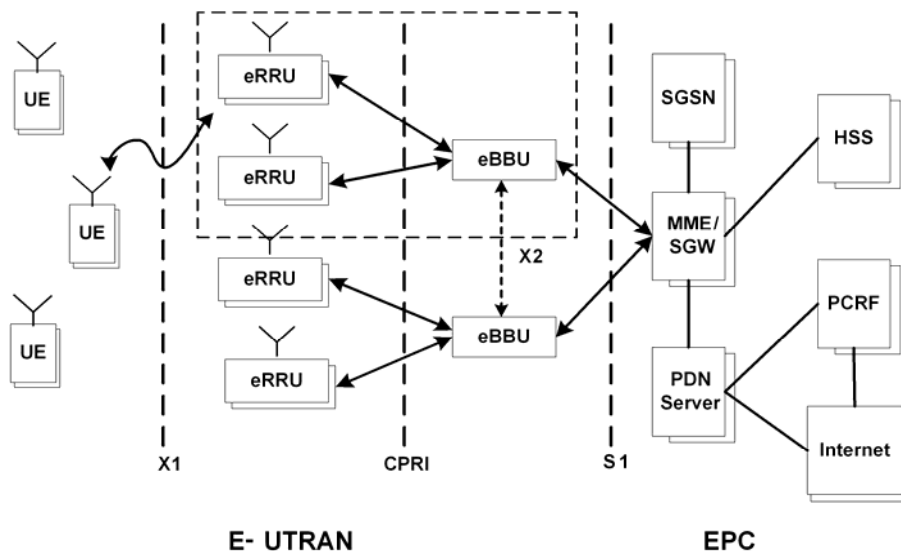
1.3 Product Features

Multi-Mode eRRU

ZXSDR R8882 L708 is fully software defined device. It supports multi-mode at the same frequency band simultaneously. Therefore, it fully satisfies operators' requirements of hybrid network deployment and long term evolution with the lowest cost.

MIMO Supported, Better Performance

R8882 L708 supports 2T2R, which can optimize spectrum efficiency greatly and improve network uplink performance. As a result, it brings better customer experience.

Higher Efficiency, Lower TCO

- ZXSDR R8882 L708's PA efficiency can reach up to 30% thanks to the most advanced Doherty PA, DPD linear technology.
- It supports dynamic adaptive PA power supply due to the output power, which reduces power consumption.

1.4 Product Functions

ZXSDR R8882 L708 is the remote radio unit of distributed base station. The signal is transmitted or received through ZXSDR R8882 L708 to/from base band processing unit for further processing via standard CPRI interface.

The product basic functions are listed below:

- Supports the configuration of 5 MHz, 10 MHz, and 15 MHz scalable bandwidth.
- R8882 L708 supports 698 MHz~716 MHz(uplink)/728 MHz~746 MHz(downlink).
- Supports 2x2 MIMO on downlink.
- Supports QPSK,16-QAM,64-QAM on downlink, QPSK and 16–QAM on uplink.
- Supports transmission and receive power detection.
- Supports overload power protection for power amplifier.
- Supports power amplifier switching on/off function.
- ZXSDR R8882 L708 software failure will not affect the running of eBBU and other ZXSDR R8882 L708s which are connected to it.
- Supports field strength scanning, temperature query, VSWR query, dry contact, hardware/software resetting.

1.5 Product Appearance

The appearance of ZXSDR R8882 L708 is as shown in Figure 1-3.
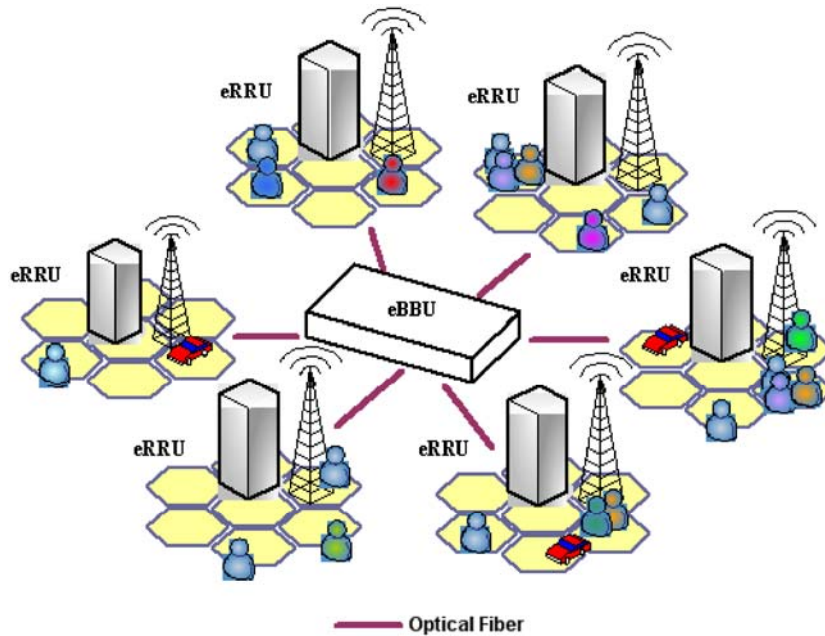
Figure 1-3 Product Overall Appearance
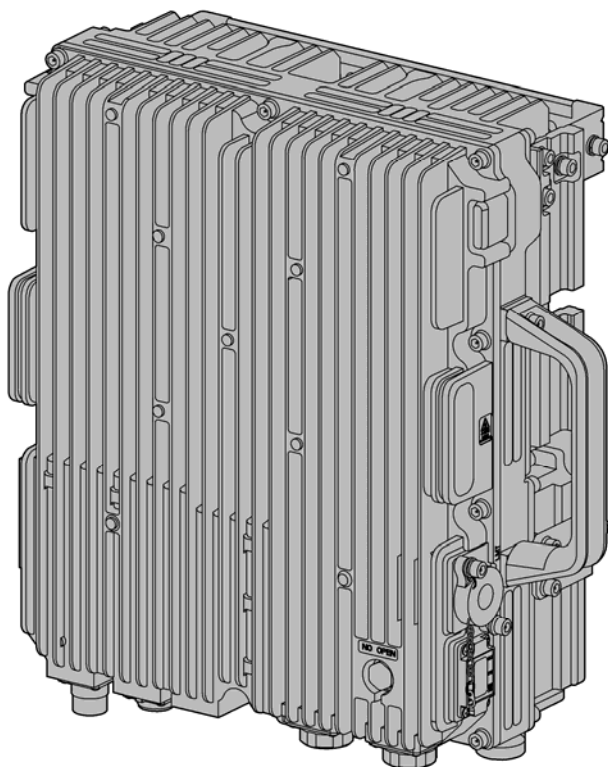
1.6 Installation Scenario

The ZXSDR R8882 L708 usually installed on wall or on pole or on gantry.

1.7 Product Networking

ZXSDR R8882 L708 supports star networking mode with eBBU, as shown in Figure 1-4.

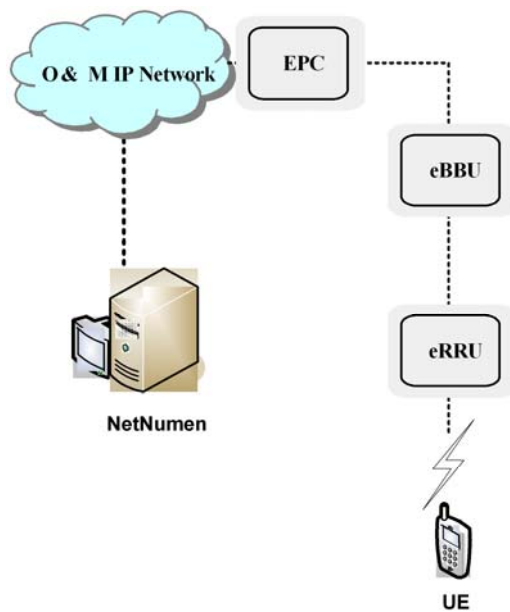**Figure 1-4 Star Networking Mode**

1.8 Operation and Maintenance Introduction

ZXSDR R8882 L708 supports system operation and maintenance remotely or locally.

Operate and Maintain System Remotely

Remotely operates and maintains system by using NetNumen management system, as shown in Figure 1-5.
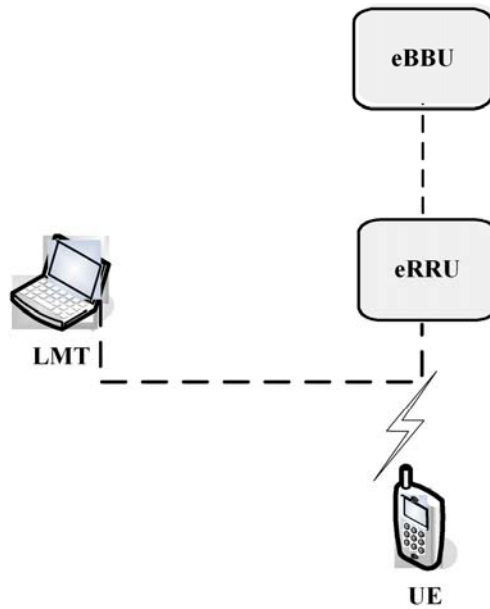
Figure 1-5 Operate and Maintain System Remotely

Operate and Maintain System Locally

locally operates and maintains system by using ZTE's Local Maintenance Terminal (LMT) software kit, as shown in Figure 1-6.

Figure 1-6 Operate and Maintain System Locally

1.9 Product External Interfaces

The ZXSDR R8882 L708 external interfaces are shown in Figure 1-7 and Figure 1-8.

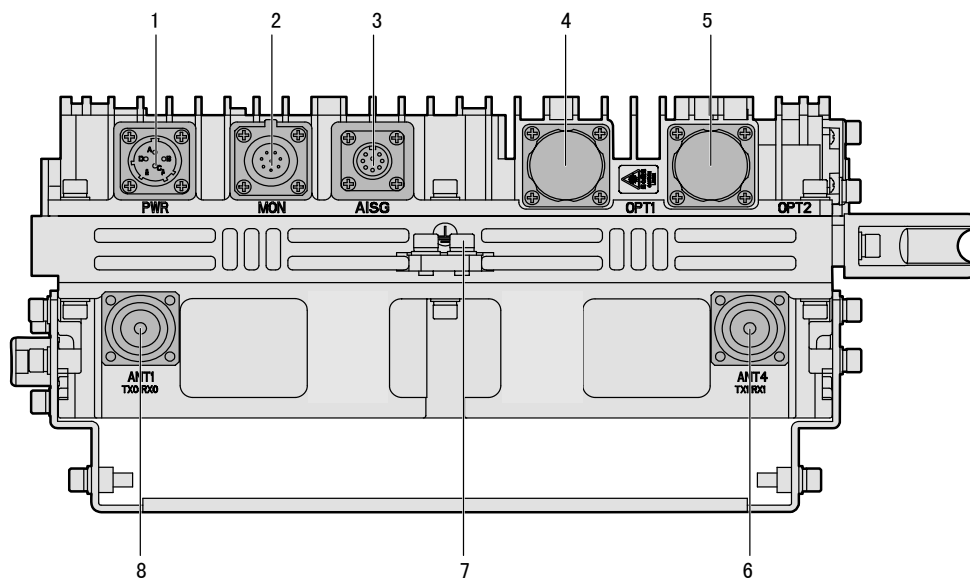**Figure 1-7 Product External Interfaces and Grounding Terminal**
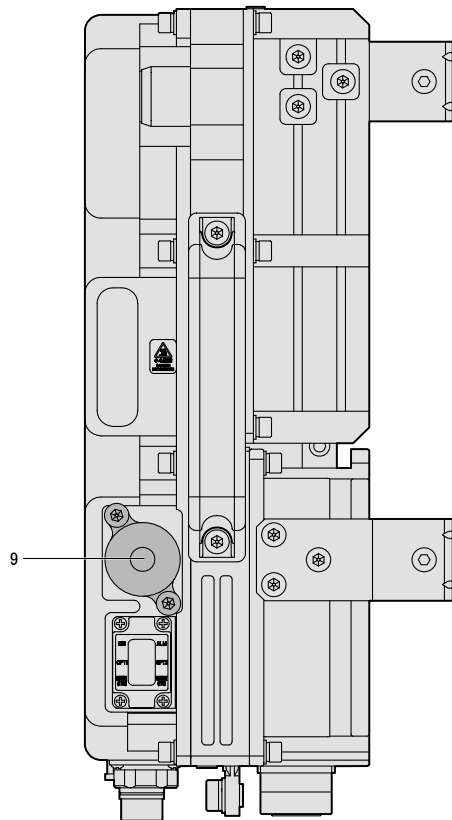
Figure 1-8 LMT Interface

Table 1-1 shows the detailed description of all the external interfaces.

Table 1-1 Product External Interfaces Description

No.	Label	Interface/Terminal	Interface type/connector
1	PWR	Power interface/1 dry contact	DC interface: Connector XCG18T4K1P1-01+XC18FJJP1-10.5 Section area of cable is 1.5 mm^2
2	MON	485 Serial /2 dry contacts	8-cores socket (IEC 60130-9-ED)
3	AISG	AISG device interface	8-cores aviation socket
4	OPT1	eBBU Interface	LC type optical interface
5	OPT2	Reserved	LC type optical interface
6	ANT4(TX1/RX1)	Antenna TX/RX interface on channel 1	50 Ohm DIN-7/16 Connector
7	⏚	Grounding Terminal	-
8	ANT1(TX0/RX0)	Antenna TX/RX interface on channel 0	50 Ohm DIN-7/16 Connector
9	LMT	Operation and Maintenance Interface	8P8C Ethernet interface

1.10 Product Indicators

ZXSDR R8882 L708 provides six LED indicators, which are located at the right bottom side of the device. The LED indicators are used to show product working status and alarm status, as shown in Figure 1-9.
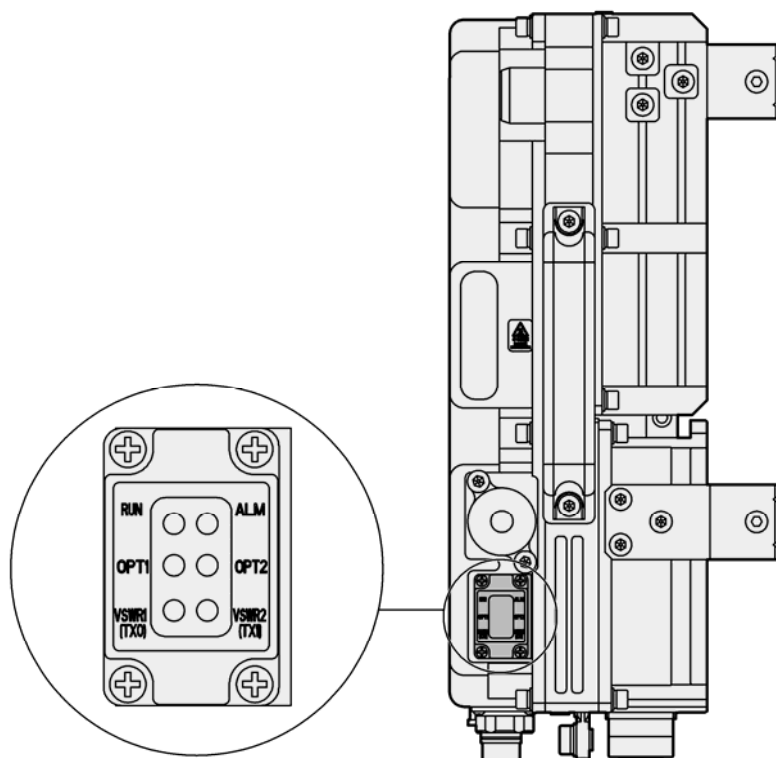
Figure 1-9 Product Indicators

Table 1-2 shows the detailed information of the indicators.

Table 1-2 Product Indicator Description

Name	Color	Meaning	Working Mode
RUN	Green	Running status	- Blinking every 1.5 second: physical link in the process of initialization - Blinking every 0.07 second: the link between eBBU and eRRU is in the process of establishment, or the link is broken

ZTE中兴

Name	Color	Meaning	Working Mode
ALM	Red	Alarm indicator	● Solid ON: there is alarm ● OFF: there is no alarm
OPT1	Green	Optical interface running indicator	● Solid ON: physical link is good, logical link is abnormal ● OFF: physical link is abnormal ● Blinking every 0.3 second: interface is in good state
OPT2	Green	Optical interface running indicator	● Solid ON: physical link is good, logical link is abnormal ● OFF: physical link is abnormal ● Blinking every 0.3 second: interface is in good state
VSWR1	Red	Transmission channel 1 VSWR indicator	● Solid ON: there are VSWR alarms ● OFF: there is no VSWR alarm
VSWR2	Red	Transmission channel 4 VSWR indicator	● Solid ON: there are VSWR alarms ● OFF: there is no VSWR alarm

Chapter 2

Product Installation

Table of Contents

2.1 Safety Description

2.1.1 Safety Specifications Introduction

In order to avoid accidents, before installing or maintaining the ZXSDR R8882 L708, please read this manual carefully for safety issues. If there are any local safety specifications, use the safety specifications described in this manual as a supplement. If there is any conflict between them, please follow the local safety specifications.

The personnel who install or maintain the ZXSDR R8882 L708 must be equipped with knowledge of safety operation, technical training, correct knowledge of equipment operation and maintenance, and corresponding qualifications.

When installing or maintaining the ZXSDR R8882 L708, the operator must follow the precautions of the equipment and special instructions provided by ZTE CORPORATION.

Furthermore, the security issues listed in this manual are only friendly reminders by ZTE CORPORATION from safety point of view. ZTE is not responsible for any accident caused by violations of general safety operating requirements, or by violations of the design, production and use of equipment safety standards.

2.1.2 Safety Symbols

Common safety symbols are shown in Table 3-1. These symbols are used to remind the user with safety matters when they maintain the equipment.

Table 3-1 Symbol type and meanings

Symbols	Meanings
	No Touch Sign: DO NOT touch
	General Warning Sign: General security issues

Symbols	Meanings
	Electric Shock Warning Sign: Beware of high voltage
	Antistatic Sign: The device is sensitive to electrostatic charge or static electricity
	Microwave Warning Sign: Be careful of strong electromagnetic fields
	Laser Warning Sign: Be careful of intense laser beam
	Burn Warning Sign: Be careful of high temperature

The general warning sign falls into three safety severities: Danger, Warning and Caution, from major to minor. The severity is marked on the right of the symbol and detailed descriptions are placed under the symbol. Their formats and descriptions are shown as below.

 Danger!

Ignoring the safety warning may cause death or serious personal injuries, or equipment damage or breakdown.

 Warning!

Ignoring the safety warning may cause major serious injuries, equipment damage or service interruption.

 Caution!

Ignoring the safety warning may cause serious injuries, equipment damages or interruption of some services.

2.1.3 Safety Operation Guidance

Electrical Safety

1. Tool

   When operating in the case of high voltage, use special tools. Do not use general tools.

2. Power Cable
   - Cut off the power before installing or removing the power cable.
   - Before connecting the power cable, make sure the cable connection and labels on the cable comply with the actual installation situation.

   ⚠ Danger!
   - Do not install or remove the power cable when the power is ON.
   - Sparks or electric arc may happen when the power cable touches the conductor, which may cause fire or eye injury.

3. Drilling
   - Unqualified drilling will damage the lines and cables in the cabinet. The metal splashes may enter the cabinet and cause the short circuit on the circuit board.
   - When drilling on the cabinets is needed, wear insulating gloves and remove the cables inside the cabinet before the operation. Take care of your eyes when drilling, because metal splashes may hurt your eyes. Clean up the metal filings once the drilling is done.

   ⚠ Warning!

   Do not drill on the cabinet at will.

4. Thunderstorm

   During thunderstorm, strong electromagnetic field will be produced in the atmosphere. Thus, to avoid lightning strike, take lightning grounding measures on the equipment immediately.

   ⚠ Danger!

   During thunderstorm, do not perform operations of high voltage, and do not perform operations on the iron tower or mast.

Antistatic

● The friction caused by human activities is the reason to produce the accumulation of electrostatic charge. In dry climates, electrostatic voltage carried by the human body can be accumulated up to 30 kV, which will be kept in the body for couple of hours. Operators carrying electrostatic charge will be discharged through the device, causing equipment damage.

● To avoid damaging sensitive components by human static electricity, before touching the devices, such as boards, circuit boards, IC chips, operators should wear antistatic wristband, and make sure the other end of wristband touches the ground.

● To protect people from accidental electric shock, a resistance over 1 MΩ should be added between the antistatic wristband and the ground.

● The antistatic wristband should be inspected periodically. Do not replace the electric wires on the wristband by any other unqualified ones.

● Those electrostatic sensitive boards or modules should not have any contact with the objects of electrostatic charge or which carries static electricity easily. For example, friction between the packages of insulating materials and transmission belt could make the components carrying static electricity. Damages may happen when it is discharged by contacting human body.

● Those electrostatic sensitive boards can be only contacted with qualified discharged materials, such as antistatic bag. Equipment components need to be stored or transported in the antistatic bags.

● Before the testing equipment is wired with boards or modules, it should be connected to ground for discharging.

● Do not place the boards or modules near strong DC magnetic field. For example, those monitors with Cathode-ray tube, safety distance is over 10 cm.

Caution!

Electrostatic charge produced by human body will damage the electrostatic sensitive components on the circuit board, such as Integrated Circuit (IC), etc.

Lifting Weights

● The adequate facilities with lifting capacity must be used for assembling, moving or replacing the heavy equipments.

● The staff for lifting operations is required to have qualified training. Lifting tools must have periodic inspection, and must be used when it is a complete tool kit. Ensure that the lifting tool can be firmly fixed on the fixture or load-bearing wall before any lifting operations. Use simplified commands to prevent misoperation.

⚠️ Warning!

During lifting operations, do not walk at the bottom of any crane or lifting objects.

Plugging/Unplugging Boards or Modules

- To avoid crooking the pin on backplane, plug the boards or modules gently.
- Plug the boards or modules along the slot to prevent any short circuit.
- When carrying the boards or modules, do not touch the circuits, as well as the components, connection heads, slots on the boards.

Others

- Replacing the components or modifying the equipments may cause extra dangers.
- Do not replace the components or modify the equipments without authorization.
- From safety point of view, please contact ZTE CORPORATION for any queries.

⚠️ Caution!

Do not perform maintenance or debugging inside the device, unless there is another qualified engineer working with you.

2.2 Device Unpacking and Inspection

2.2.1 Unpacking and Checking ZXSDR R8882 L708

Unpacking the Carton

ZXSDR R8882 L708 is transported in a carton.
1. Check the packaging for damage. If it is damaged, make an immediate complaint to the transport company.
2. Unpack the equipment and check if it is complete according to the packing list.

Inspecting the Device

Check the Device and make sure:

- There are no dents, protrusions, bendings, peelings, or marks on the surface.
- Fastening bolts are properly tightened in place.
- The fittings and accessories required for installation are matched and complete.
- Connector links are not broken or missing.

The supplier should be responsible for inspecting the devices and instruments that are easy to be damaged.

Separate the inspected parts by category.

2.2.2 Goods Handover

After equipment inspection both the parties should sign the Unpacking and Inspection Report with each party keeping a copy, with the top copy returned within seven days to the vendor.

⚠ Caution!

If any goods are found to be wrong, missing, or damaged, record the details on the form and ask for replacements.

2.3 Device Installation

2.3.1 Mounting Device on Wall

Prerequisites

Before installing ZXSDR R8882 L708, you should at least leave the following space for product future maintenance.

- Front side: 600 mm
- Back side: 40 mm
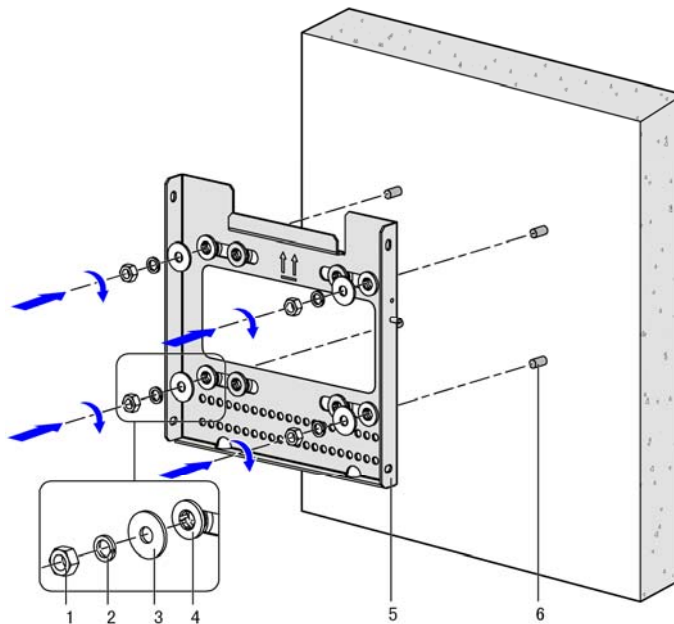- left and right side: 100 mm
- UP and down side: 250 mm

Steps

1. Mark on installation positions based on layout marking template on wall, as shown in Figure 3-1, and then drill holes.

3-6

Figure 3-1 Template Hole Position
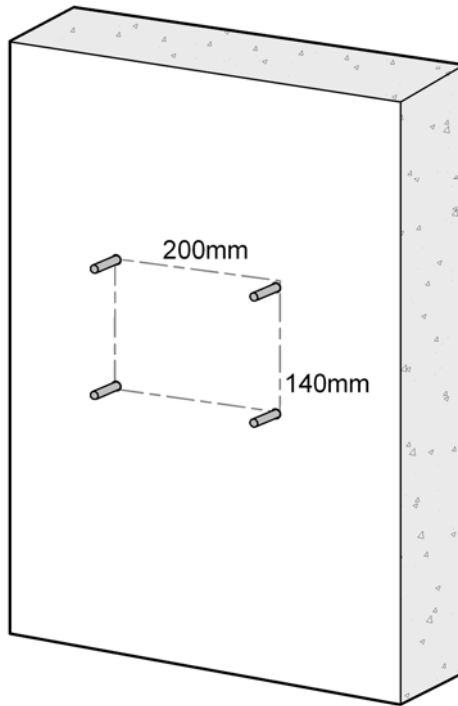
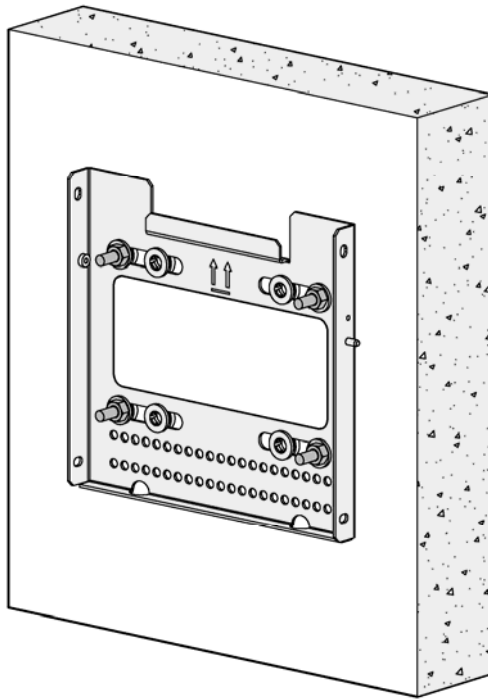2. Fix the wall-mounting components onto the wall firmly with the bolts, as shown in Figure 3-2.

Figure 3-2 Installing Wall-mounting Components

|		
1. Hex Bolt	4. Insulation Washer	6. Expansion Bolt
2. Spring Washer	5. Wall-Mounting	
3. Flat Washer	components	

The wall-mounting components is installed on the wall, as shown in Figure 3-3.

3-7

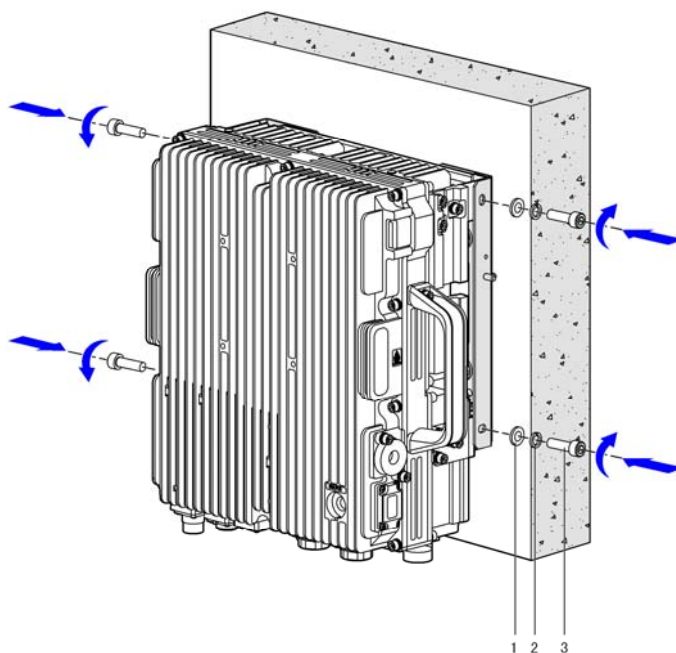**Figure 3-3 Wall-mounting Components Fixed on Wall**

3. Hang the device on the wall-mounting components on the notch department, as shown in Figure 3-4.

Figure 3-4 Hang the Device on the Wall-mounting Components
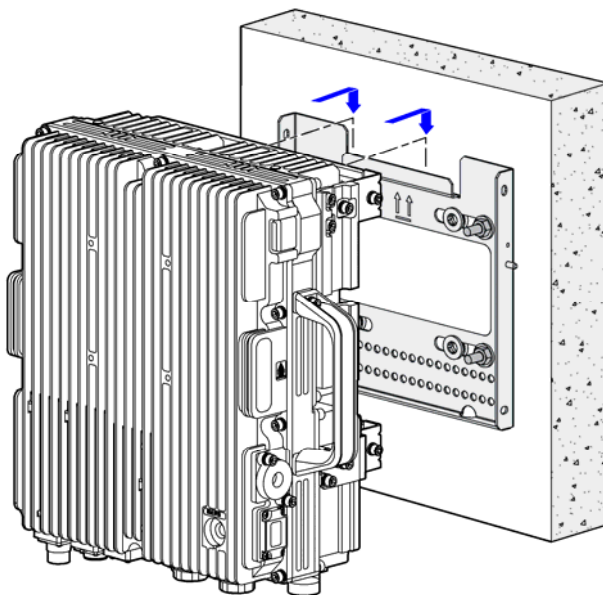
4. Mount the ZXSDR R8882 L708 onto the wall-mounting components, and then fasten it with the M6x20 bolts, as shown in Figure 3-5.
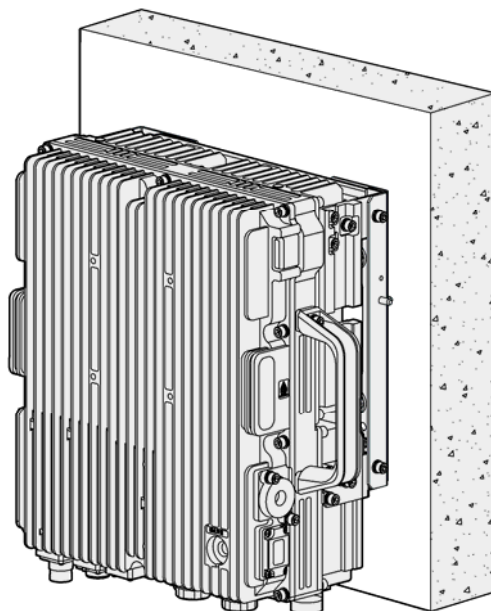
Figure 3-5 Fasten Device

1. Insulation washer   2.   Spring washer   3 . Bolt The ZXSDR

R8882 L708 is installed on wall, as shown in Figure 3-6. **Figure 3-6**

ZXSDR R8882 L708 Is Installed on Wall
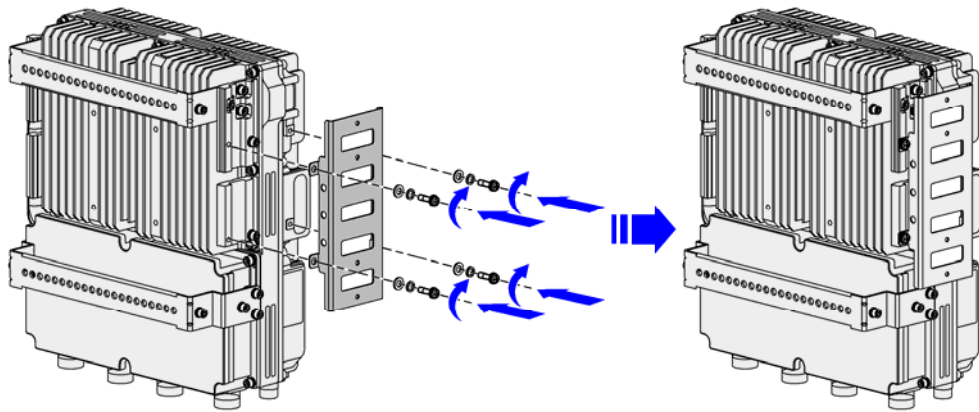

– End of Steps –

2.3.2 Mounting Device on Pole

2.3.2.1 Mounting One Device on Pole

Context

The installation accessory for the lightning protection box is needed to be attached in advance, as shown in Figure 3-7.
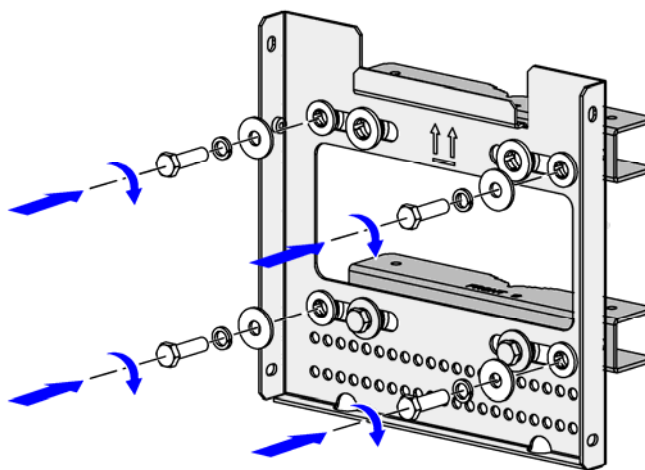
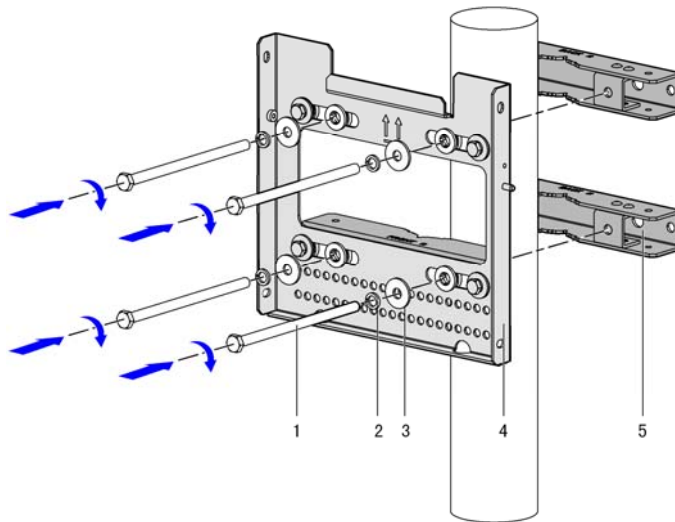**Figure 3-7 Attach Installation Accessory for Lightning Protection Box**

Steps

1. Fix the wall-mounting components and pole clip together, as shown in Figure 3-8.

Figure 3-8 Fix Wall-mounting Components and Pole Clips

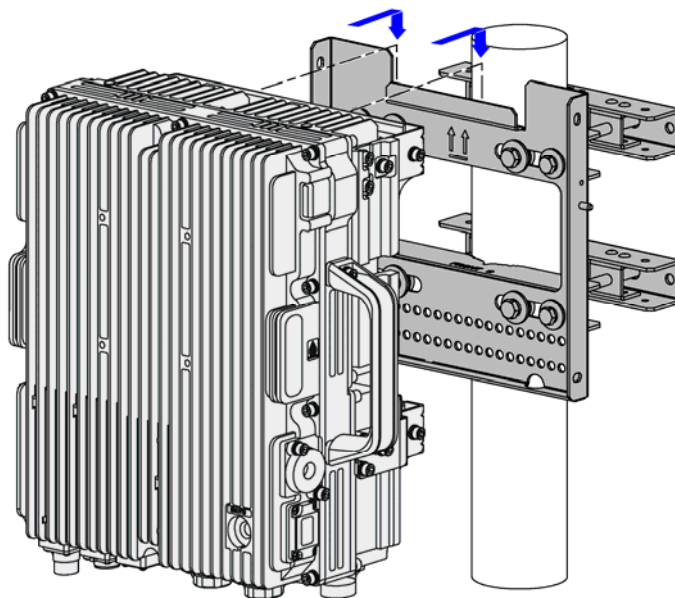2. Fix the wall-mounting components and pole clips on the pole, as shown in Figure 3-9.

Figure 3-9 Fix Wall-mounting Components and Pole Clips on Pole

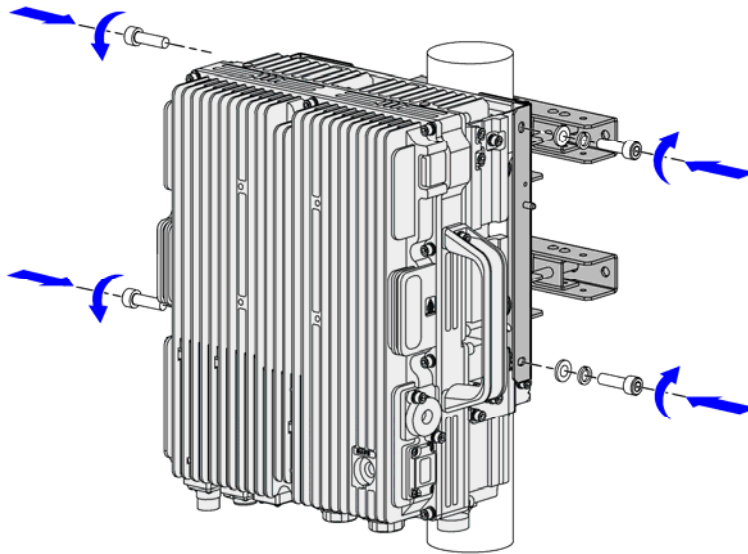| 1.	Bolt	4.	Wall-mounting components
2.	Spring washer	5.	Pole Clips
3.	Flat washer		

3. Hang the device on the notch part of the wall-mounting components, as shown in Figure 3-10.

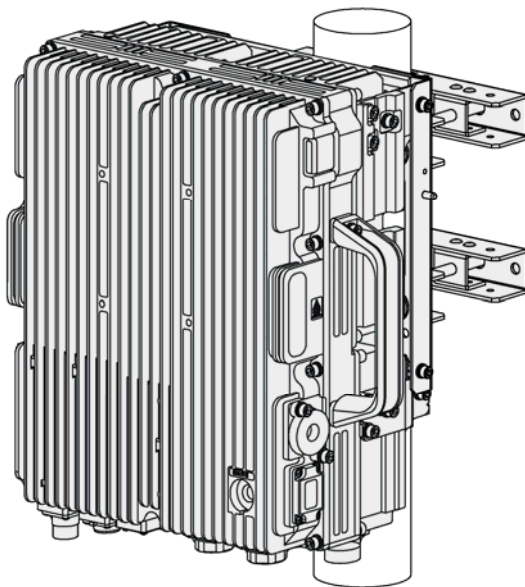**Figure 3-10 Hang the Device on the Wall-mounting Components**

4. Fix the device on the wall-mounting components, as shown in Figure 3-11.

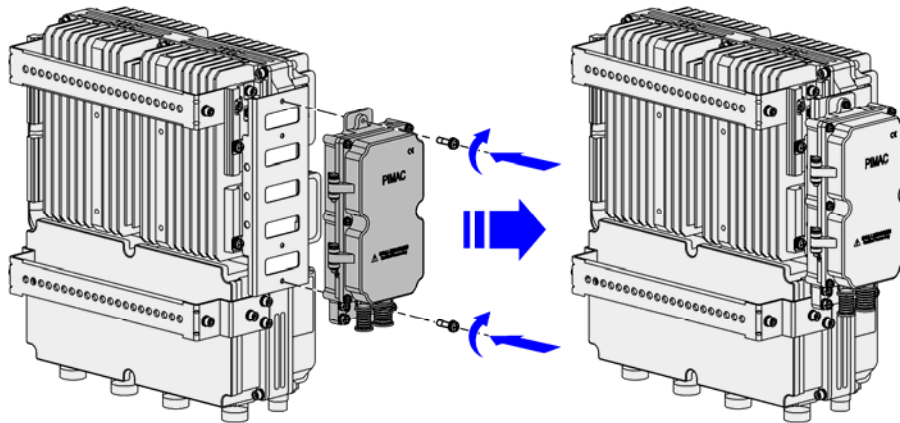**Figure 3-11 Fix the Device on the Wall-mounting Components**

ZXSDR R8882 L708 is installed firmly on the pole, as shown in Figure 3-12.

Figure 3-12 ZXSDR R8882 L708 Is Installed on Pole

5. Align the lightning protection box to the hole of the installation accessory, and the fasten the screws, as shown in Figure 3-13.

Figure 3-13 Attach Lightning Protection Box

– End of Steps –

2.3.2.2 Mounting Two Devices on Pole

Context

The installation accessory for the lightning protection box is needed to be attached in advance, as shown in Figure 3-14.

Figure 3-14 Attach Installation Accessory for Lightning Protection Box
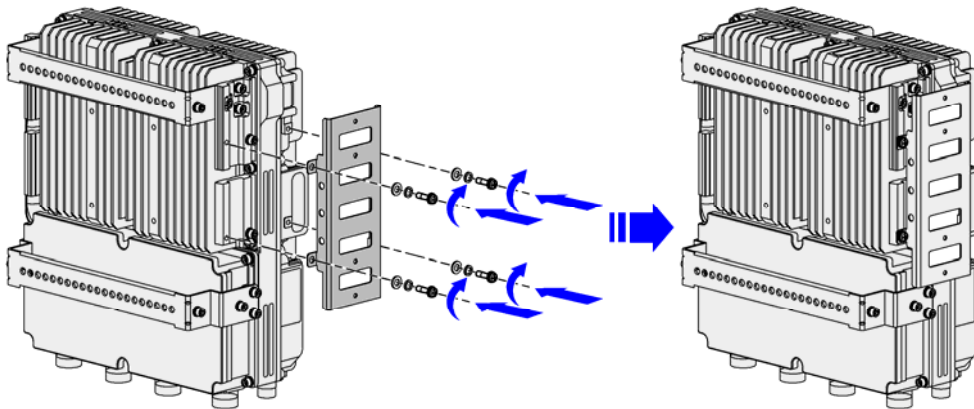
Steps

1. Fix the wall-mounting components and pole clip together, as shown in Figure 3-15.

3-13

Figure 3-15 Fix Wall-mounting Components and Pole Clips
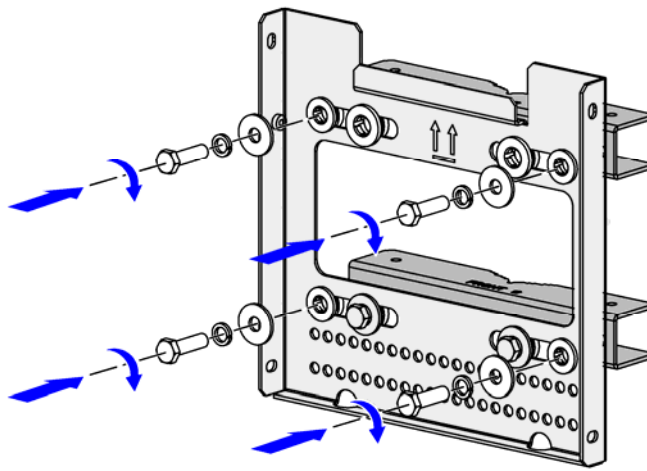
2. Fix the wall-mounting components and pole clips on the pole, as shown in Figure 3-16.

Figure 3-16 Fix Wall-mounting Components and Pole Clips on Pole

1. Bolt
2. Spring washer
3. Flat washer
4. Wall-mounting components
5. Pole Clips

3. Hang the devices on the notch part of the wall-mounting components respectively, as shown in Figure 3-17.

Figure 3-17 Hang the Devices on the Wall-mounting Components

4. Fix the devices on the wall-mounting components, as shown in Figure 3-18.

Figure 3-18 Fix the Devices on the Wall-mounting Components
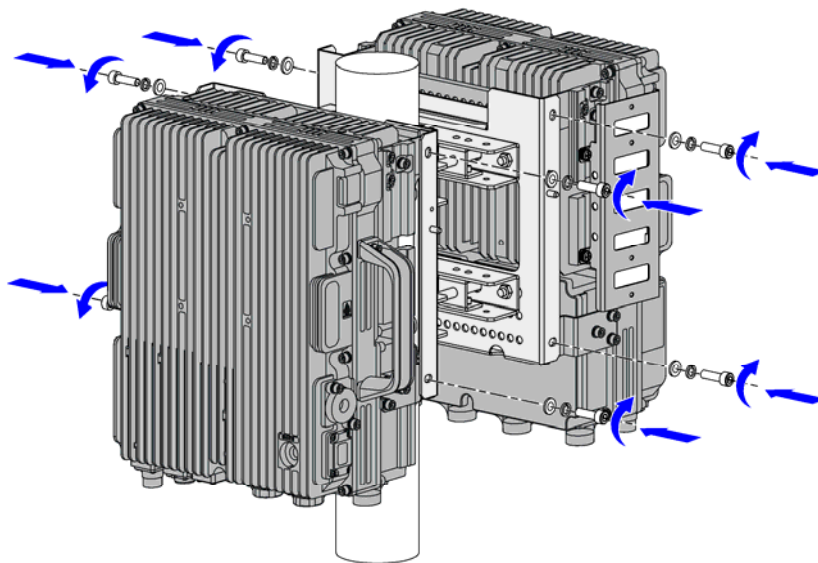
5. Align the lightning protection box to the hole of the installation accessory, and the fasten the screws, as shown in Figure 3-19.

**Figure 3-19 Attach Lightning Protection Box**
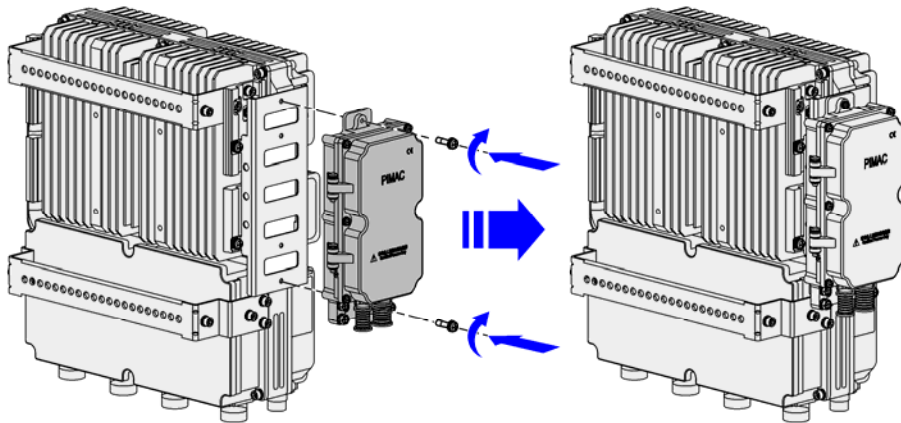
– End of Steps –

2.3.2.3 Mounting Three devices on Pole

Context

The installation accessory for the lightning protection box is needed to be attached in advance, as shown in Figure 3-20.

Figure 3-20 Attach Installation Accessory for Lightning Protection Box
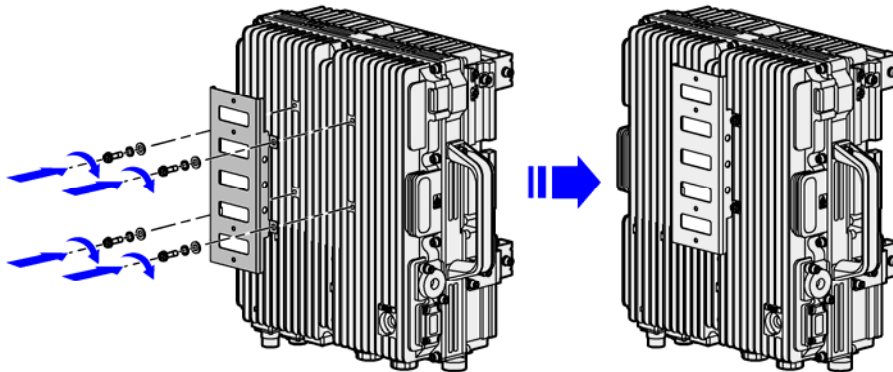
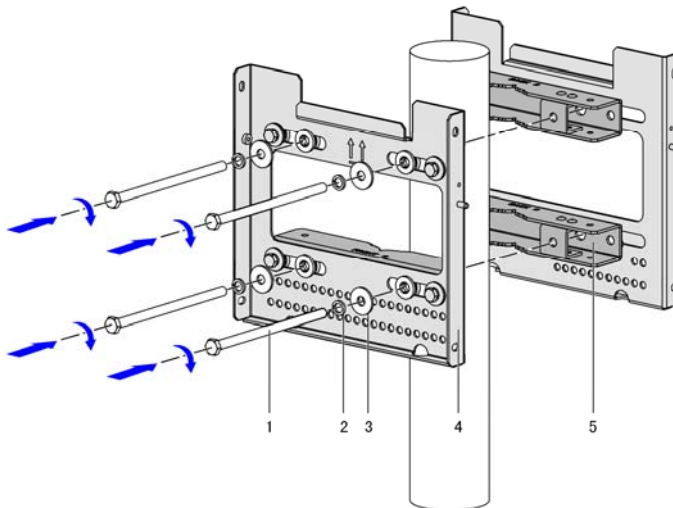### Steps

1. Fix the wall-mounting components and pole clip together, as shown in Figure 3-21.
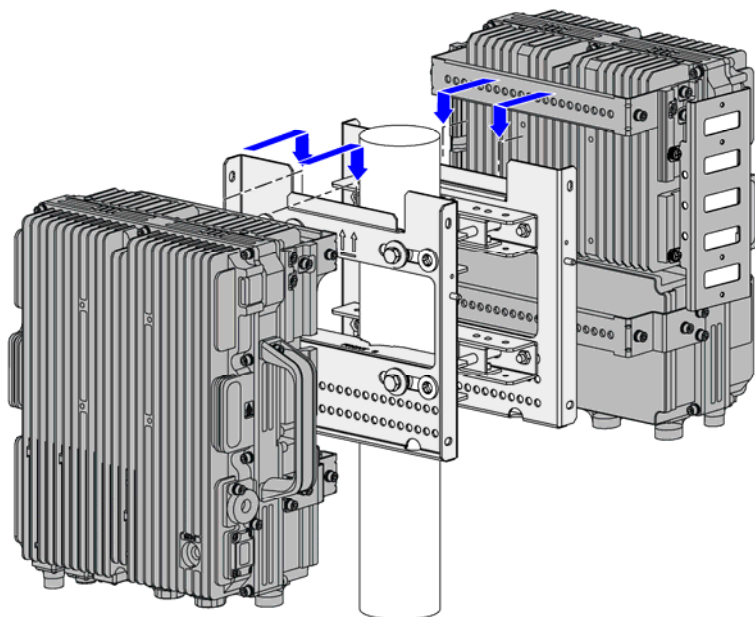
Figure 3-21 Fix Wall-mounting Components and Pole Clips
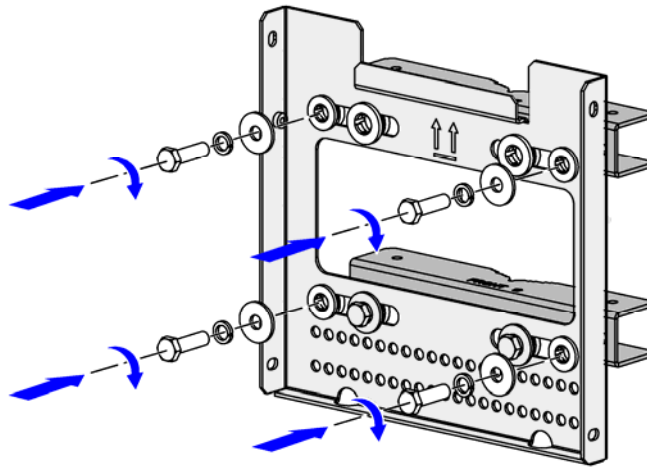
2. Fix the wall-mounting components and pole clips on the pole, as shown in Figure 3-22.

**Figure 3-22 Fix Wall-mounting Components and Pole Clips on Pole**
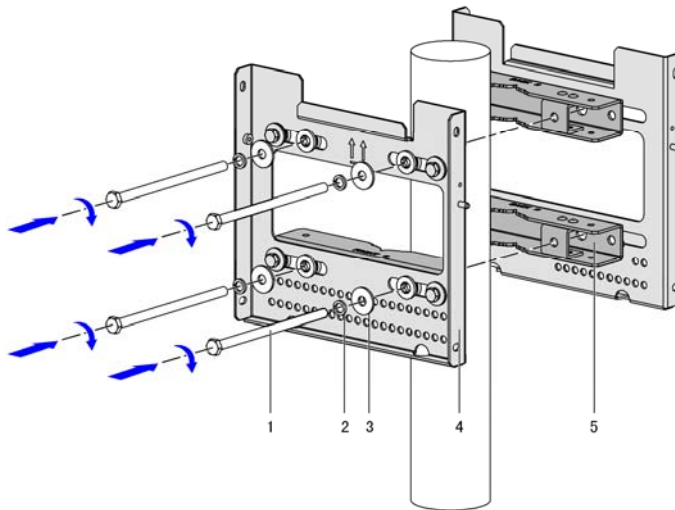
1. Bolt	4.	Wall-mounting
2. Spring washer		components
3. Flat washer	5.	Pole Clips

3. Fix the third wall-mounting components by using the expansion components to the other two ones, as shown in Figure 3-23.

3-17

Figure 3-23 Fix the Third Wall-mounting Components
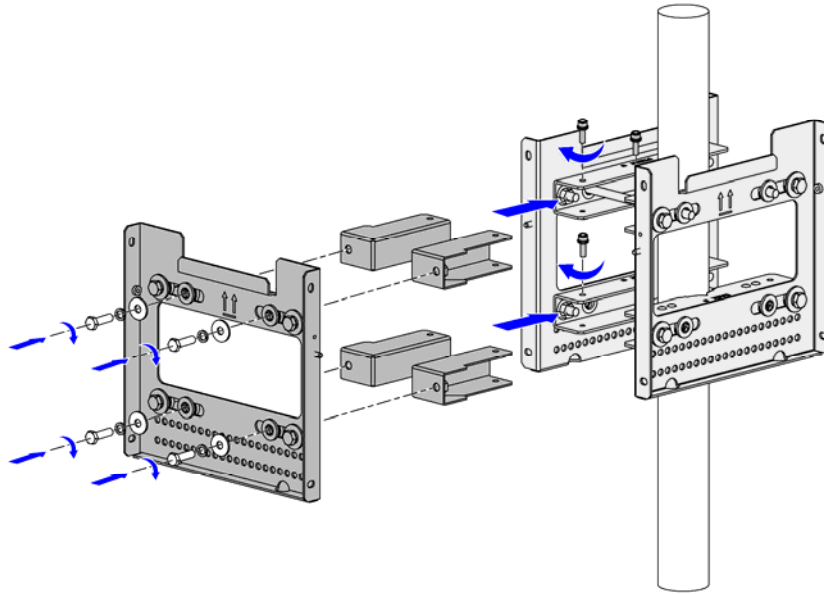
4. Hang devices on the notch part of the wall-mounting components respectively, as shown in Figure 3-24.

Figure 3-24 Hang the Devices on the Wall-mounting Components
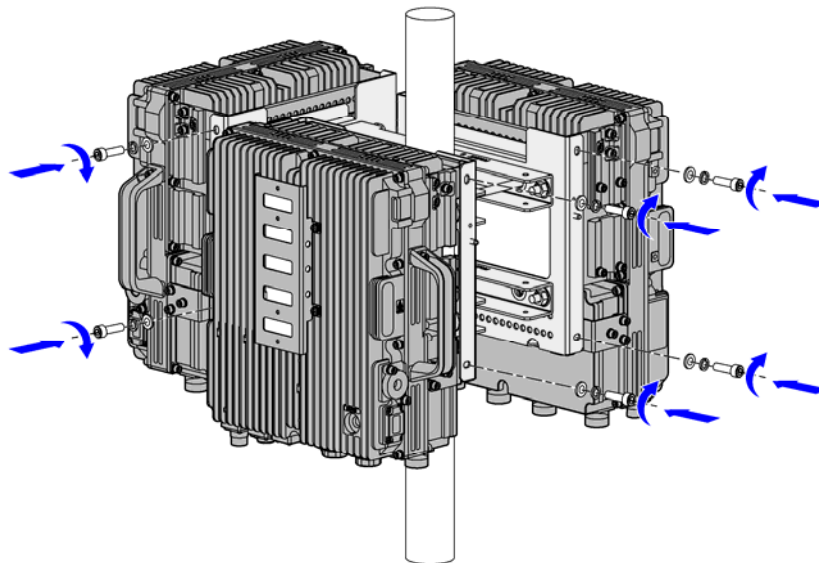
5. Align the lightning protection box to the hole of the installation accessory, and the fasten the screws, as shown in Figure 3-25.

Figure 3-25 Attach Lightning Protection Box
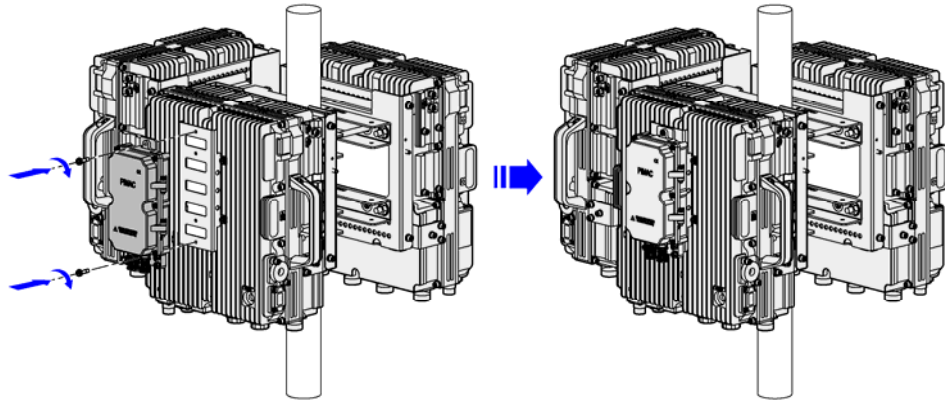
– End of Steps –

2.3.3 Mounting Device on Gantry

Steps

1. Assemble the gantry.

   a. Install the vertical shaft and the bottom plate by using the M5x16 screw, as shown in Figure 3-26.

   Figure 3-26 Install the Vertical Shaft and the Bottom Plate
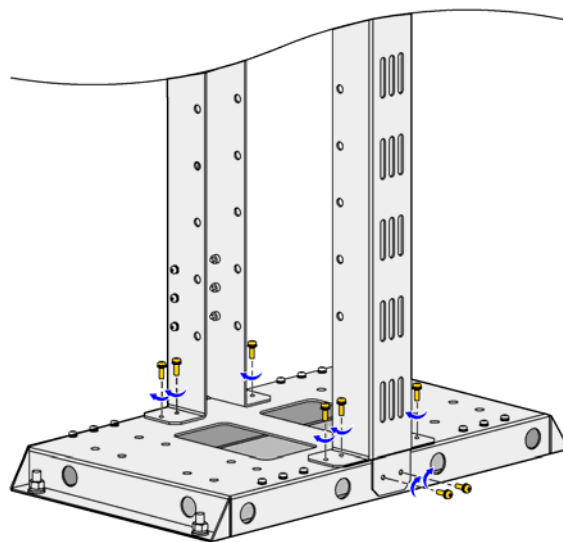
   b. Fasten the vertical shaft and the cover plate by using the M5x16 screw, as shown in Figure 3-27.

Figure 3-27 Fasten the Vertical Shaft and the Cover Plate
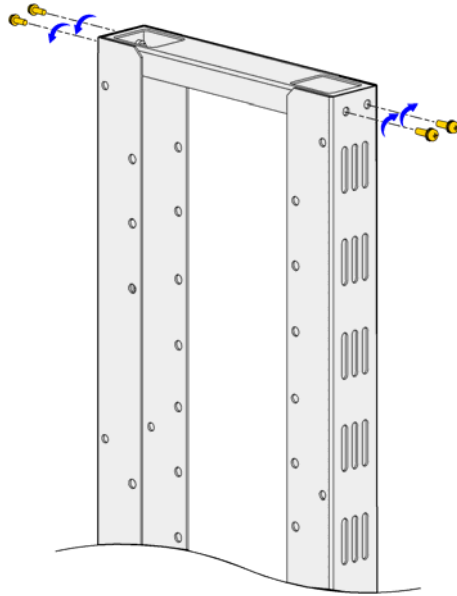
c. Install the slanted rack by using the M5x16 screw, as shown in Figure 3-28.

Figure 3-28 Install the Slanted Rack
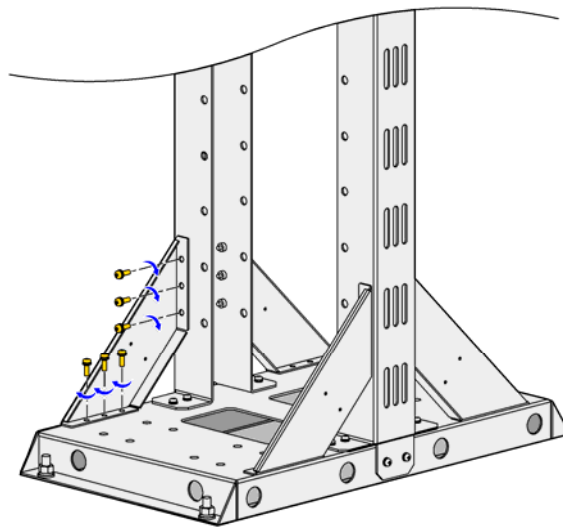
2. Drill holes

a. According to the engineering design drawing, determine the installation position of the gantry and mark installation holes by using the marking pen.Figure 3-29 shows the installation holes of the gantry.

3-20

Figure 3-29 Mark the Drilling Holes Position
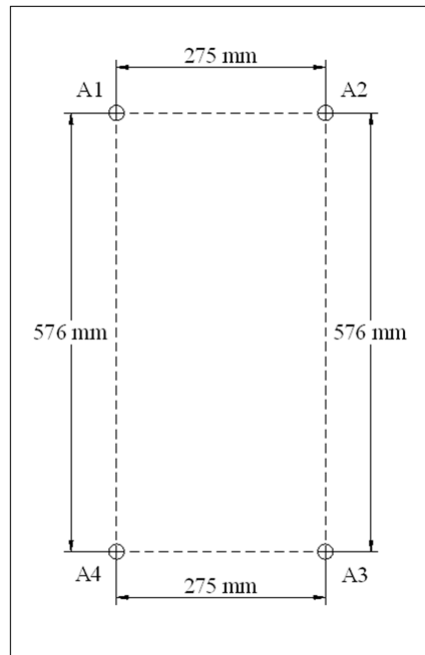
b. Drill holes by using the electric percussion drill (drill bit: φ12) at the places where installation holes are marked. At the same time, use the vacuum cleaner to remove the dust generated during the drilling of holes.

c. Put the expansion sleeve onto the metal cone of the expansion bolt, fasten the nut slightly, strike the expansion bolt into the installation hole by using the rubber hammer, fasten the nut tightly to make the bolt fully expanded, and then remove the nut, as shown in Figure 3-30.

Figure 3-30 Install the Expansion Bolt
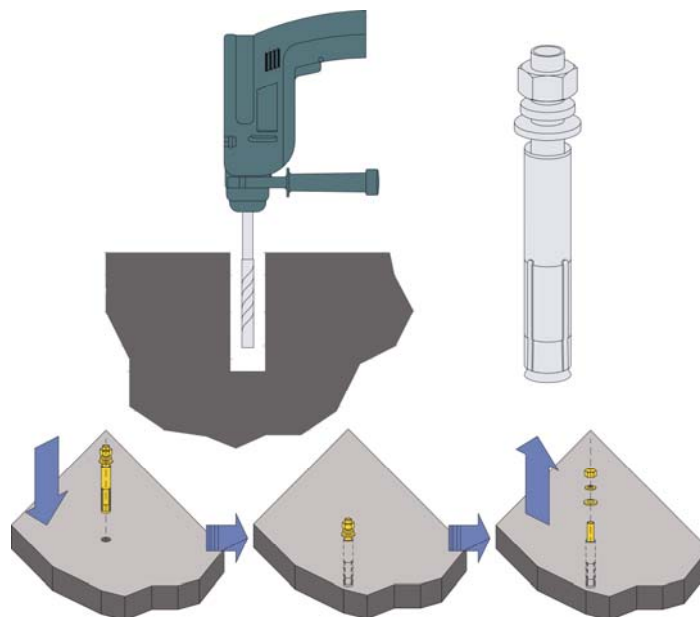
3. Install the gantry.

3-21

If the gantry is installed on the concrete floor, use the M10x100 expansion bolt, as shown in Figure 3-31; if the gantry is installed on the wooden floor, use the M10x40 tapping screw, as shown in Figure 3-32.

Figure 3-31 Install the Gantry on Concrete Floor
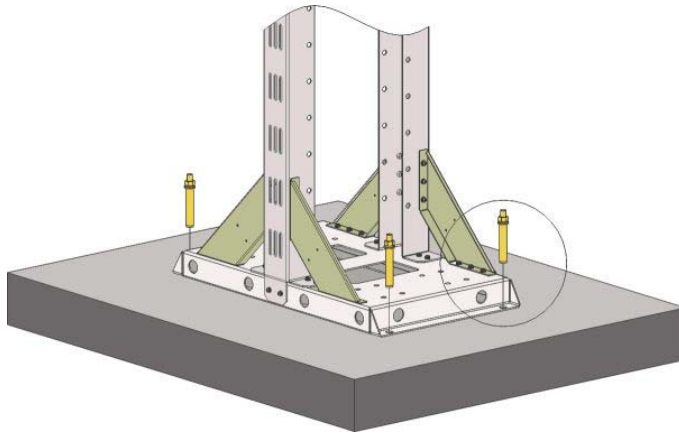
Figure 3-32 Install the Gantry on Wooden Floor
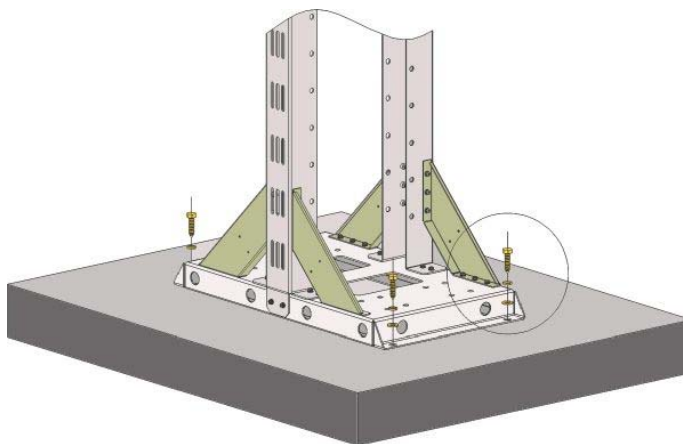
4. Install the wall-mounting components on the gantry.

5. Install the ZXSDR R8882 L708 on the wall-mounting components. The device is installed firmly on the gantry, as shown in Figure 3-33.

3-22

Figure 3-33 ZXSDR R8882 L708 Is Installed on Gantry
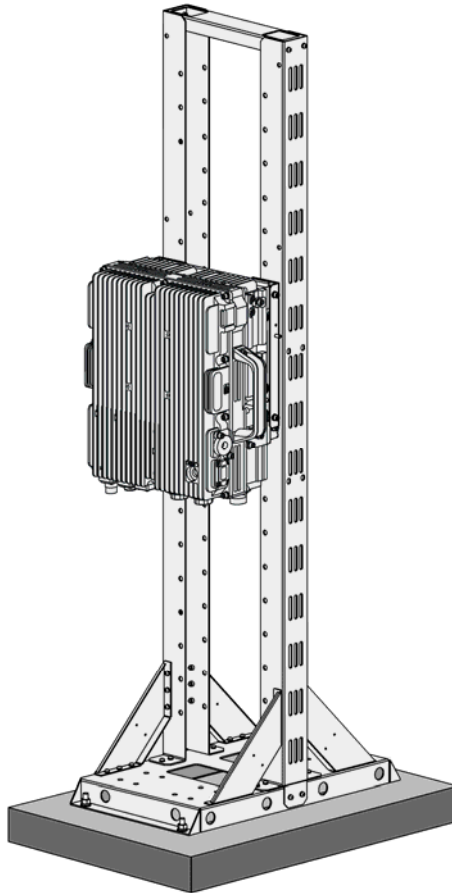
NOTE
Note:

A copper bar is needed to attach at the side of the gantry to connect to the grounding bar.

– End of Steps –

2.4 Cables Connection

2.4.1 Connection of External Cables

Table 3-2 describes the connection of ZXSDR R8882 L708 external cables.

Table 3-2 Connection of ZXSDR R8882 L708 External Cables

Cable type	Connection relation	Description

Power cable	Connects the ZXSDR R8882 L708 power interface to the power supply equipment interface	One end is circular 6-core cable connector (hole) with plastic cover, the other end is reserved for power cable and dry contact cable. The length of cable is based on the engineering survey.
Grounding cable	Connects one ZXSDR R8882 L708 ground bolt to the copper bar	The grounding cable is made up of strands of flame-retardant wire. The cross sectional area of ZXSDR R8882 L708 grounding cable is 16 mm^2. Copper lugs are crimped at both ends of the grounding cable.
Fiber	Connects to eBBU	-
Environment monitor cable	Connects the ZXSDR R8882 L708 environment monitor interface to the external monitor components or the dry contact.	For the environment monitor cable, end A is PIN header. End B, with 3m length in total, is made depending on the field engineering conditions.
AISG control cable	Connects the ZXSDR R8882 L708 debugging interface (AISG) to the control interface of electrical-adjustment antenna.	AISG is used to control the electrical-adjustment antenna.
Antenna jumper	Connects ZXSDR R8882 L708 to main feeder	The RF jumper usually uses the finished 1/2″ jumper with 2m length. The jumper can be customized depending on actual conditions. One end of the jumper is N connector (male) and the other end is DIN connector (female).

2.4.2 External Cable Installation Flow

Figure 3-34 lists the installation flow of external cable. This flow can be adjusted based on actual conditions.

Figure 3-34 External Cable Installation Flow

```
        ┌─────────────────┐
        │      Start      │
        └────────┬────────┘
                 │
                 ▼
     ┌───────────────────────┐
     │ Install external power │
     │         cable         │
     └───────────┬───────────┘
                 │
                 ▼
     ┌───────────────────────┐
     │ Install grounding cable│
     └───────────┬───────────┘
                 │
                 ▼
     ┌───────────────────────┐
     │     Install fiber     │
     └───────────┬───────────┘
                 │
                 ▼
     ┌───────────────────────┐
     │  Install environment  │
     │    monitoring cable   │
     └───────────┬───────────┘
                 │
                 ▼
     ┌───────────────────────┐
     │  Install AISG control │
     │         cable         │
     └───────────┬───────────┘
                 │
                 ▼
     ┌───────────────────────┐
     │ Install frequency point│
     │ extension cable (based │
     │      on the real-time  │
     │        condition)     │
     └───────────┬───────────┘
                 │
                 ▼
     ┌───────────────────────┐
     │ Install antenna, feeder│
     │       and jumper      │
     └───────────┬───────────┘
                 │
                 ▼
        ┌─────────────────┐
        │      End        │
        └─────────────────┘
```
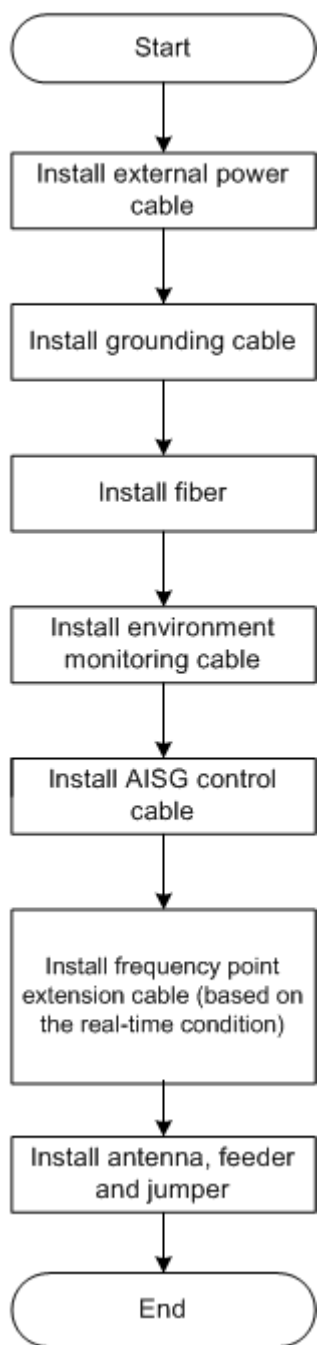
2.4.3 Connecting Power Cable

Context

Figure 3-35 shows power cable connection of PIMDC.

Figure 3-35 PIMDC Power Cable Connection
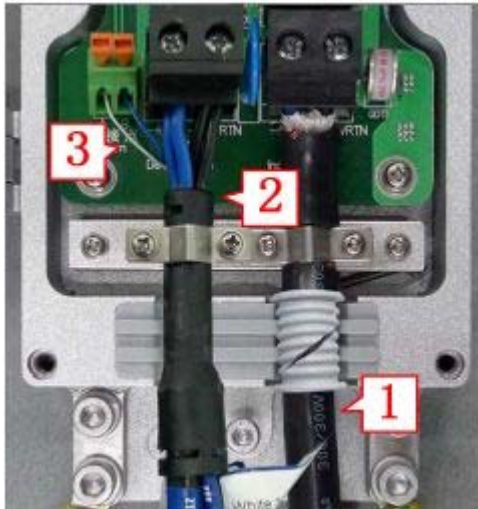
| 1. | Power input cable of the PIMDC | 2. | Power input cable of the R8882 | 3. | Dry contact cable |

Figure 3-36 shows the power cable of ZXSDR R8882 L708.

Figure 3-36 Power Cable

Table 3-3 describes the color and definition of inner core of the power cable.

Table 3-3 Color and Definition of Inner Core of the Power Cable

Core color	Definition	Signal Description
Blue	-48V	-48V
Blue	-48V	-48V
Black	-48 V GND	-48V ground
Black	-48 V GND	-48V ground
White	NODE_IN+	Dry contact
Brown	NODE_IN-	Dry contact

NOTE
Note:

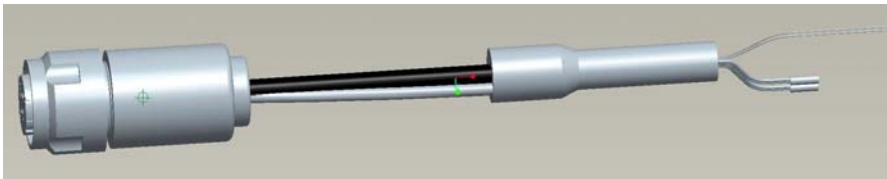1. If the two-core cable is adopted, the blue core cable stands for -48 V and the black core cable stands for -48 V GND.
2. If the four-core cable is adopted, the two blue core cables connected in parallel stand for -48 V and the black core cables connected in parallel stand for -48 V GND.

Steps

1. Connect power cable from PIMDC to ZXSDR R8882 L708

   a. Connect end A of power cable to the **PWR** interface of the ZXSDR R8882 L708.

   b. Strip the protective coat of end B, and then connect the blue wires to **-48V** terminal and the black wires to **-48VRTN** terminal. Connect the white and blue dry contact wires to the **Alarm** terminals, as shown in Figure 3-37.

   Figure 3-37 PIMDC Connection (to R8882)

2. Connect power cable from PIMDC to lightning protection box

   a. Peel off an appropriate length of insulating layer of the PIMDC power input cable.

   b. Lead the end A of the cable through the waterproof plastic ring of the PIMDC, and then connect the blue wires to the **-48V** terminal and the black wires to the **-48VRTN** terminal. Fasten the power cable with a latch, as shown in Figure 3-38.

Figure 3-38 PIMDC Connection (to Lightning Protection Box)

NOTE
⟶ Note:

This latch should be fully contacted with the shielded layer of the PIMDC input power cable.

c. Connect the end B of the PIMDC input power cable to the output port of the indoor DC lightning protection box. Connect the blue wires to the **-48V** terminal and the black wires to the **-48VRTN** terminal.

NOTE
⟶ Note:

Power for sectors α, β, and γ are connected to SPD-1, SPD-2, and SPD-3 terminals respectively.

– End of Steps –

2.4.4 Connecting Grounding Cable

Context

The grounding cable of ZXSDR R8882 L708 is made up of strands of flame-retardant wire. Copper lugs are needed to be crimped at both ends of the grounding cable in advance
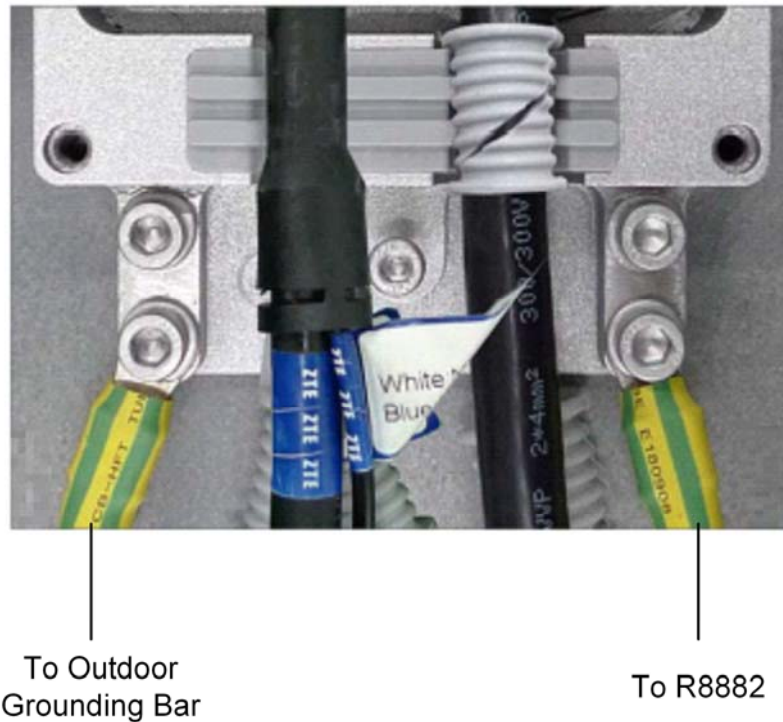
Steps

1. Connect one end of grounding cable to the grounding terminal of the device, as shown in Figure 3-40.

   Figure 3-40 R8882 Grounding Bar Connection

2. Connect the other end of the ground cable to PIMDC, and then connection the PIMDC to outdoor grounding bar, as shown in Figure 3-41.

Figure 3-41 PIMDC Grounding Bar Connection

To Outdoor
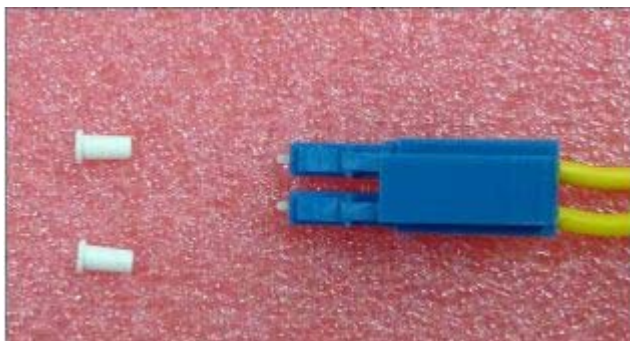Grounding Bar   To R8882

3. Attach the label on the grounding cable.

4. Measure the grounding resistance and make sure it is less than 5 ohms.

    – End of Steps –

2.4.5 Connecting Fiber Between eBBU and eRRU

Steps

1. Remove the protection cap from the optical fiber, and then detach the outer protection cover

2. Remove two white covers, as shown in Figure 3-43.

Figure 3-43 Remove Covers

3. Insert the optical fiber into the **OPT1** port until it locks into place with a snap, as shown in Figure 3-44.
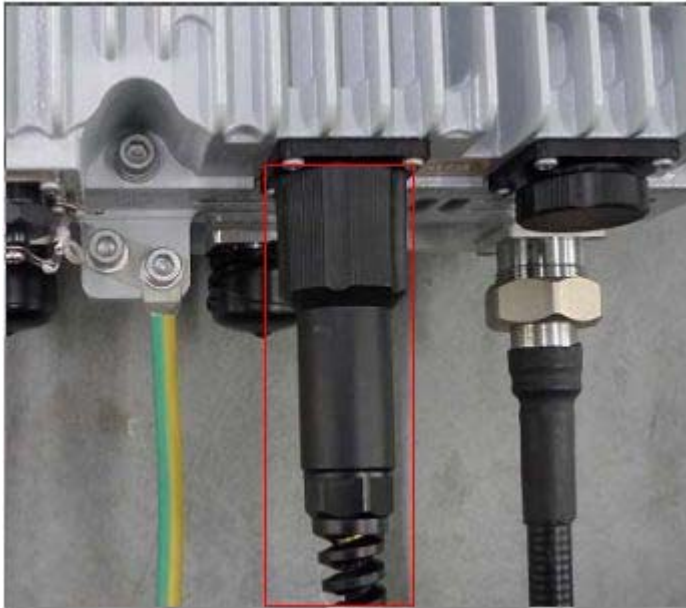
Figure 3-44 Insert Optical Fiber

4. Insert the transparent sleeve into the OPT port fully, as shown in Figure 3-45.

Figure 3-45 Insert Transparent Sleeve

5. Tighten the outer protection cover fully.

Figure 3-46 Tighten Connection

6. Connect the optical fibers of sectors α, β, and γ to the **TX0/RX0**, **TX1/RX1**, and **TX2/RX2** ports of the BPL board located in the eBBU.

    – End of Steps –

2.4.6 Connecting Environment Monitor Cable

Context

The environment monitor cable provides a 485 interface, used for ZXSDR R8882 L708 environment monitor. It also provides four extension accesses for external dry contact monitor.

End A is circular 8-core plug and end B is made depending on actual conditions. The total length is 3m. Figure 3-47 shows the structure of environment monitor cable.

Figure 3-47 Environment Monitor Cable
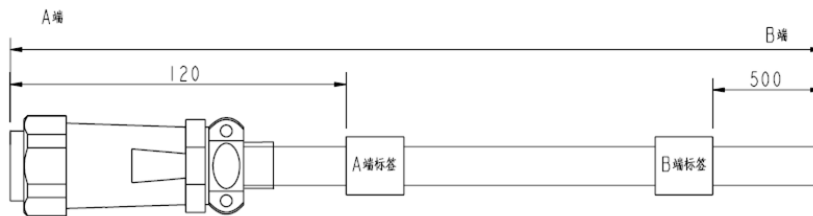
The connector, connecting the environment monitoring cable to ZXSDR R8882 L708, is 8-core straight welded connector (pin) mounted on panel. The connector appearance is shown in Figure 3-48.

Figure 3-48 Appearance of Environment Monitor Cable

The cable connector pins and connection are shown in Table 3-4.

Table 3-4 Cable Pin Description

Pin	Core color	Signal Description
PIN1	Brown	Dry contact input, positive polarity
PIN2	Yellow	Dry contact input, negative polarity
PIN3	Blue	Dry contact input, positive polarity
PIN4	White	Dry contact input, negative polarity
PIN5	Green	Positive RS485 bus signal
PIN6	Grey	Negative RS485 bus signal
PIN7	Red	Positive RS485 bus signal
PIN8	Black	Negative RS485 bus signal

Note:

Connect the first dry contact of eRRU to outdoor DC lightning protection box.

Steps

1. Connect end A of environment monitor cable to environment monitor interface of ZXSDR R8882 L708 cabinet.

2. Connect end B of environment monitor cable to external monitor part or dry contact.

3. Attach the labels on end B.

   – End of Steps –

2.4.7 Connecting AISG Control Cable

Context

AISG is used to control the electrical-adjustment antenna.

Figure 3-49 shows the structure of AISG control cable.
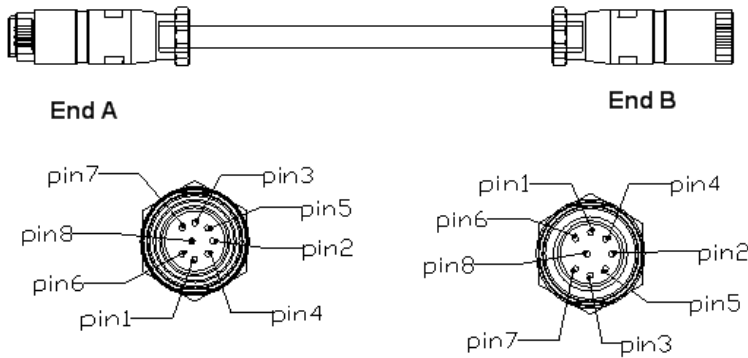
Figure 3-49 Structure of AISG Control Cable

End A　　　　　　　　　　　End B

Table 3-5 describes the meaning of sequence number of AISG control cable.

Table 3-5 Meaning of Sequence Number of AISG Control Cable

Pins at end A	Pins at End B	Name	Meaning
PIN3	PIN1	RS485B	RS485-
PIN5	PIN2	RS485A	RS485+
PIN6	PIN3, PIN4	DC	DC output
PIN7	PIN5, PIN6	DC RTN	DC RTN
PIN1, PIN2, PIN4, PIN8		NC	Null

Steps

1. Connect end A to ZXSDR R8882 L708 debugging interface (AISG) and screw down the bolt.

2. Connect end B to the control interface of electrical adjustment antenna and screw down the bolt.

   – End of Steps –

2.4.8 Connecting the RF Jumpers

Steps

1. Connect the A-ends of two RF jumpers to the **ANT1** and **ANT4** ports of the ZXSDR R8882 L708. Connect the B-end to the corresponding port of the main antenna.

2. Spiral-wrap two-layer ultraviolet-proof adhesive tape around the **ANT2** and **ANT3** ports, and then tighten them fully by using black ultraviolet-proof cable ties.

   – End of Steps –

Glossary

AISG
  - Antenna Interface Standards Group

CPRI
  - Common Public Radio Interface

IC
  - Integrated Circuit

LED
  - Light Emitting Diode

MTBF
  - Mean Time Between Failures

MTTR
  - Mean Time To Repair

QAM
  - Quadrature Amplitude Modulation

QPSK
  - Quadrature Phase Shift Keying

SDR
  - Software Defined Radio

VSWR
  - Voltage Standing Wave Ratio

eRRU
  - evolved Remote Radio Unit