

20 Checking the Installation of the RET Antenna System

About This Chapter

After the RET antenna system is installed, you must check the installation.

Procedure

- Step 1** Check the installation of the antenna by referring to the [20.1 Checklist for Antenna Installation](#).
- Step 2** Check the installation of the feeder by referring to the [20.2 Checklist for Feeder Installation](#).
- Step 3** Check the installation of the jumper by referring to the [20.3 Checklist for Jumper Installation](#).
- Step 4** Check the installation of the grounding bar by referring to the [20.4 Checklist for Grounding Bar Installation](#).
- Step 5** Check the installation of the feeder window by referring to the [20.5 Checklist for Feeder Window Installation](#).
- Step 6** Check the installation of the ALD by referring to the [20.6 Checklist for RET ALD Installation](#).
- Step 7** Check the installation environment of the antenna system by referring to the [20.7 Checklist for Field Cleanliness of the Antenna System](#).

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20.1 Checklist for Antenna Installation

This part provides the checklist for antenna installation.

Checklist for Omnidirectional and Directional Antennas

- The installation positions of the antennas are in compliance with the engineering design.
- The antenna lies within the protection coverage of tilt angle 45° under the lightning arrester.
- The antenna support is securely installed on the tower or on the rooftop.

Checklist for Omnidirectional Antennas

- The top of the antenna jacket is as high as or is slightly higher than the top of the support.
- The antenna stands upright with the error (if any) smaller than $\pm 2^\circ$.
- The distance of the antenna extending outside the tower platform is not less than 2 m.
- For the antenna installed on the rooftop, the horizontal spacing between the antenna and the antenna lightning arrester is not less than 2.5 m.
- The antenna isolation should be 30 dB for both Tx-Tx and Tx-Rx antennas.
- When antennas are installed horizontally, the horizontal spacing between the TX antenna and the RX antenna is not less than 3 m.
- When antennas are installed vertically, the vertical spacing between the TX antenna and the RX antenna is not less than 0.2 m.
- According to the diversity reception requirements for the omnidirectional antennas, the horizontal spacing between the RX antenna and the TX antenna is not less than 3 m.
- The Rx and Tx antennas can either share one antenna support or be installed separately, depending on the engineering design.

Checklist for Directional Antennas

- The error of the azimuth is not larger than $\pm 5^\circ$, and the error of the pitch angle is not larger than $\pm 0.5^\circ$.
- The antennas are free from any interference of the tower structure in the forward direction. The distance of the antenna extending out of the tower platform is not less than 1 m.
- The antenna isolation should be 30 dB for both Tx-Tx and Tx-Rx antennas.
- When antennas are installed horizontally, the horizontal spacing between the TX antenna and the RX antenna in the same sector is not less than 1 m.
- When antennas are installed vertically, the vertical spacing between the TX antenna and the RX antenna in the same sector is not less than 0.2 m.
- The horizontal spacing between the TX antenna and the RX antenna in different sectors is not less than 0.2 m.
- According to the diversity reception requirements for directional antennas, the horizontal spacing between the RX antenna and the TX antenna is not less than 3 m.

20.2 Checklist for Feeder Installation

This part provides the checklist for feeder installation.

Checklist for Feeder Arrangement

- The feeders are not broken or twisted. No copper wires are exposed.
- The bending radius of the feeder is at least 20 times larger than its diameter.
- The feeder clips are spaced evenly and arranged in one direction.
- The feeders are parallel to each other. They are arranged in neat and straight row and column at the entry to the equipment room. The degrees of their bending are the same.
- Labels on the feeders and jumpers are neatly attached in compliance with the standard and face the same direction.
- The feeders keep straight for at least 0.5 m in both directions from the point where they are led into the equipment room.
- When the front of the cabinets is parallel to the cabling direction of the feeder lead, the feeders in each sector are arranged in the same row. The arrangement sequences of all rows are the same. When the front of the cabinets is vertical to the cabling direction of the feeder lead, the feeders in each sector are arranged in the same column. The arrangement sequences of all columns are the same.
- The feeder connectors are correctly prepared and tightly fastened.
- The feeders are correctly connected and arranged in the right sectors.
- Waterproof curves are prepared for the feeders before the feeders are led into the equipment room.

Checklist for Feeder Grounding

- The grounding locations of the feeders meet the requirements described in [15.2.1 Grounding Locations of the Feeder Grounding Kits of the Mini Base Station](#) and [15.2.2 Grounding Locations of the Feeder Grounding Kits of the Macro Base Station](#).
- The grounding joints are securely bound and properly waterproofed.
- When the feeders from the rooftop are led into the equipment room through a downward cable ladder along the wall, the ladder is grounded.
- The grounding cables of the feeders are led from top to bottom. The angle between the feeders and the corresponding grounding cables is not larger than 15°.
- Terminals of the feeder grounding kits are fastened to the steel plate on the nearest tower.
- The antennas and feeders installed on the rooftop are grounded to the nearest lightning protection grounding grid.
- The exposed conductor of the feeder grounding kits is wrapped using waterproof tap or is coated by paint.

20.3 Checklist for Jumper Installation

This part provides the checklist for jumper installation.

- All outdoor jumper connectors are waterproofed.
- Waterproof curves are made for the jumpers.
- Jumpers connected to the antennas are bound through the crossbars of the antenna support onto the steel frame of the tower.
- A certain allowance is left at the cutting of the binding tapes.

- The bending radius of a jumper is not less than 20 times larger than the diameter of the jumper.

20.4 Checklist for Grounding Bar Installation

This part provides the checklist for grounding bar installation.

- The grounding bar is isolated from the wall. The grounding cable is as short as possible.
- The outdoor grounding bar is connected to the underground grounding net through a proper route.

20.5 Checklist for Feeder Window Installation

This part provides the checklist for feeder window Installation.

- The glue-adding holes in the sealing sleeve of the feeder window face upwards. The plates of the encapsulation window are installed indoors.
- The feeder window installed on the rooftop is sealed properly and securely.

20.6 Checklist for RET ALD Installation

After the ALD is installed, you must check the installation.

Check Items for RET ALD Installation

- Check whether the BT connectors are correctly connected. The DIN male connector of the BT is directly connected to the DIN female connector of the feeder instead of the connector on the RRU because the DC power and control signals are output from the DIN male connector on the BT.
- Check whether the SBT connectors are correctly connected. The DIN male connector on the SBT is directly connected to the DIN female connector on the antenna instead of the connector on the feeder.

20.7 Checklist for Field Cleanliness of the Antenna System

Check the items listed in the checklist. If the installation environment cannot meet the requirements, improve it until it meets the requirements.

- There are no sundries inside the cabinet or on the top of the cabinet. The surface of the cabinet is clean and free of dirt and finger prints.
- There is no extra tape or strap on the cables.
- There are no extra tape, binding ties, paper, or package bags left on the site.
- All the items are clean, clear, and intact.