

9 Installing Antenna Supports

About This Chapter

This part describes the procedure for installing the antenna support on a tower and the precautions for the installation.

Context

Huawei provides design requirements of the antenna support. You must install it on site. If the antenna support is installed on site, skip this part.

[9.1 Installing the Antenna Support on the Tower](#)

This part describes the procedure for installing the antenna support on a tower and the precautions for the installation.

[9.2 Installing the Antenna Support on the Rooftop](#)

This part describes the procedure for installing the antenna support on the rooftop and the precautions for the installation.

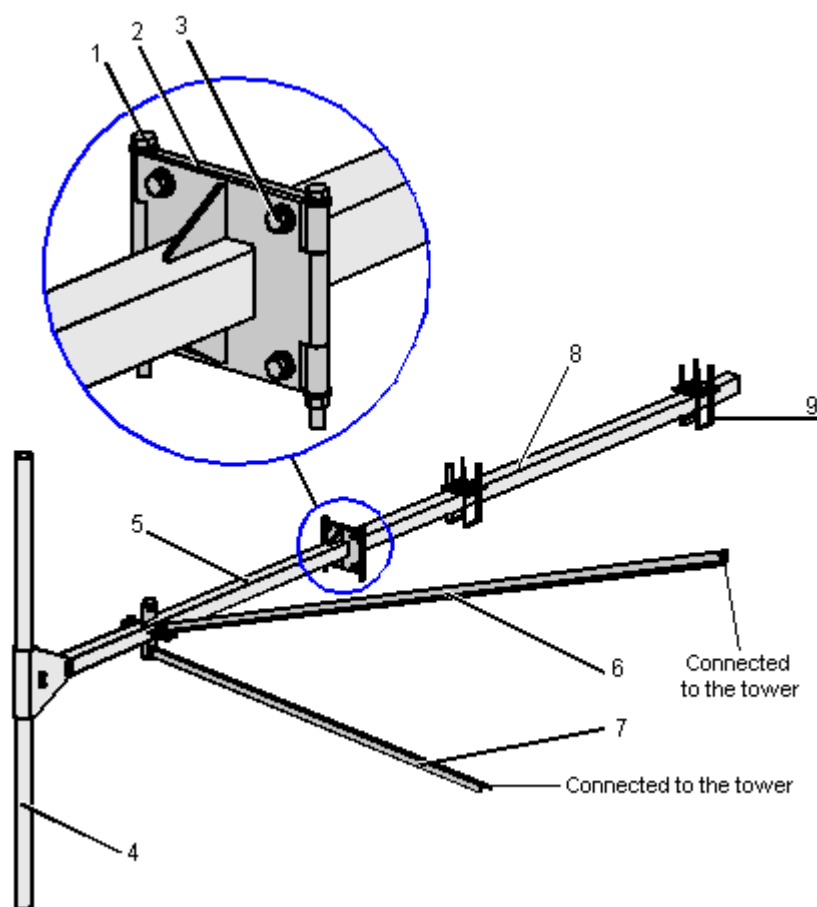
9.1 Installing the Antenna Support on the Tower

This part describes the procedure for installing the antenna support on a tower and the precautions for the installation.

Context

There are several types of antenna supports for the installation on the tower platform. This part takes one type of antenna support as an example. **Figure 9-1** shows the structure of the antenna support on the tower platform.

Figure 9-1 Structure of the antenna support on the tower platform



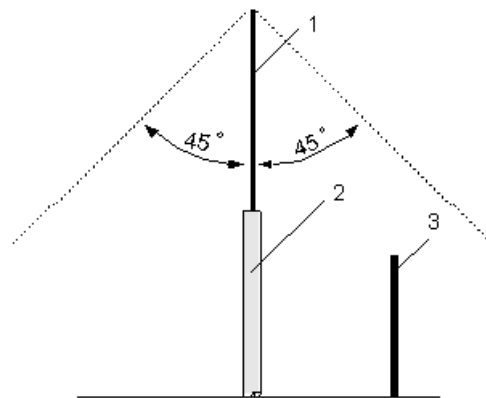
- | | | |
|--------------------|----------------------|-------------------|
| (1) M12 x 220 bolt | (2) Connecting plate | (3) M12 x 45 bolt |
| (4) Dead lever | (5) Rotating lever | (6) Stiffener |
| (7) Stiffener | (8) Expansion lever | (9) U-shape bolt |

When installing the support on the tower platform, pay attention to the following points:

- The dead lever of the antenna support should be vertical to the horizontal plane.
- The mast of the tower lightning arrester should be installed separately. The height of the mast should meet the lightning protection requirements for all antennas. When the antenna

support is extended from the tower platform, the antenna should fall into the protection coverage within the 45° tilt angle from the top of the lightning arrester, as shown in [Figure 9-2](#).

Figure 9-2 Protection coverage of the lightning arrester



(1) Lightning arrester

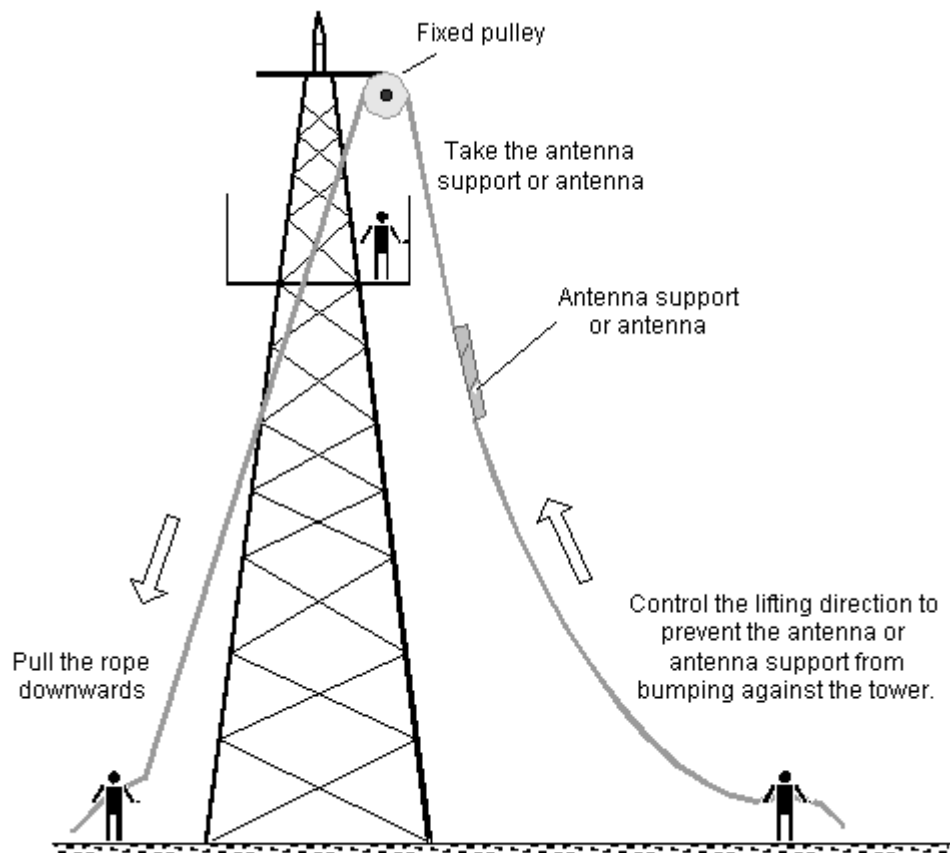
(2) Mast of the lightning arrester

(3) Antenna

- The antenna support should be installed in the direction that does not affect the transmit and receive performance of the antenna or the adjustment of antenna directions.
- If possible, the antenna support should be hung to avoid deformation.
- A stiffener should be used to fasten the rotating lever. The expansion lever and the rotating lever should be cut to a proper length. The cut-off edge should be welded with a cover to prevent entry of water.
- The welding joints should be solid. There should be no dry joints or open welding joints on the antenna support.
- The welding joints should be coated by anti-rust aluminum paint.
- A galvanized steel support should be used if possible. The antenna support should be coated with anti-rust aluminum paint.

Procedure

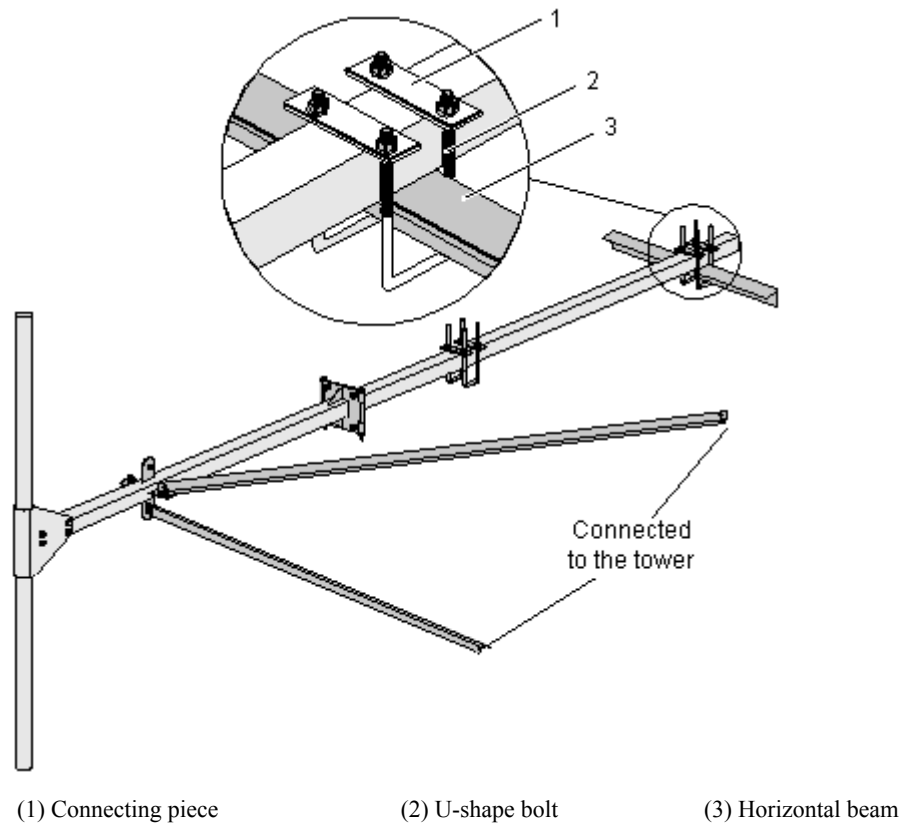
Step 1 Mount a fixed pulley on the top of the tower, as shown in [Figure 9-3](#).

Figure 9-3 Hoisting the antenna support or the antenna

- Step 2** Lead a rope through the fixed pulley.
- Step 3** Bind the antenna support to the rope at one side.
- Step 4** Pull the rope at the other side to lift the antenna support up to the tower. Control the lifting direction by holding the end of the rope to which the antenna support is bound, as shown in [Figure 9-3](#).
- Step 5** Connect the dead lever, the rotating lever, and the expansion lever of the antenna support. You can perform this step on the ground or on the tower platform.
- Step 6** Determine the installation position of the antenna support on the tower according to the engineering design.
- Step 7** Fasten the antenna support.

Extend the antenna support from the tower platform. Fasten the antenna support onto the tower using a U-shape fixing clip, including the connecting piece and U-shape bolt, as shown in [Figure 9-4](#).

Figure 9-4 Installing the antenna support on the tower platform



Step 8 Use M12 x 45 bolts to connect the guardrail on the tower platform to the connection base plate.

Step 9 Fasten the dead lever on the tower.

If it is difficult to connect the antenna support to the guard rail, weld the guard rail and the base plate. Ensure that the welding joints are solid and that there are no dry or open joints. Coat the antenna support and all the welding joints using anti-rust paint.

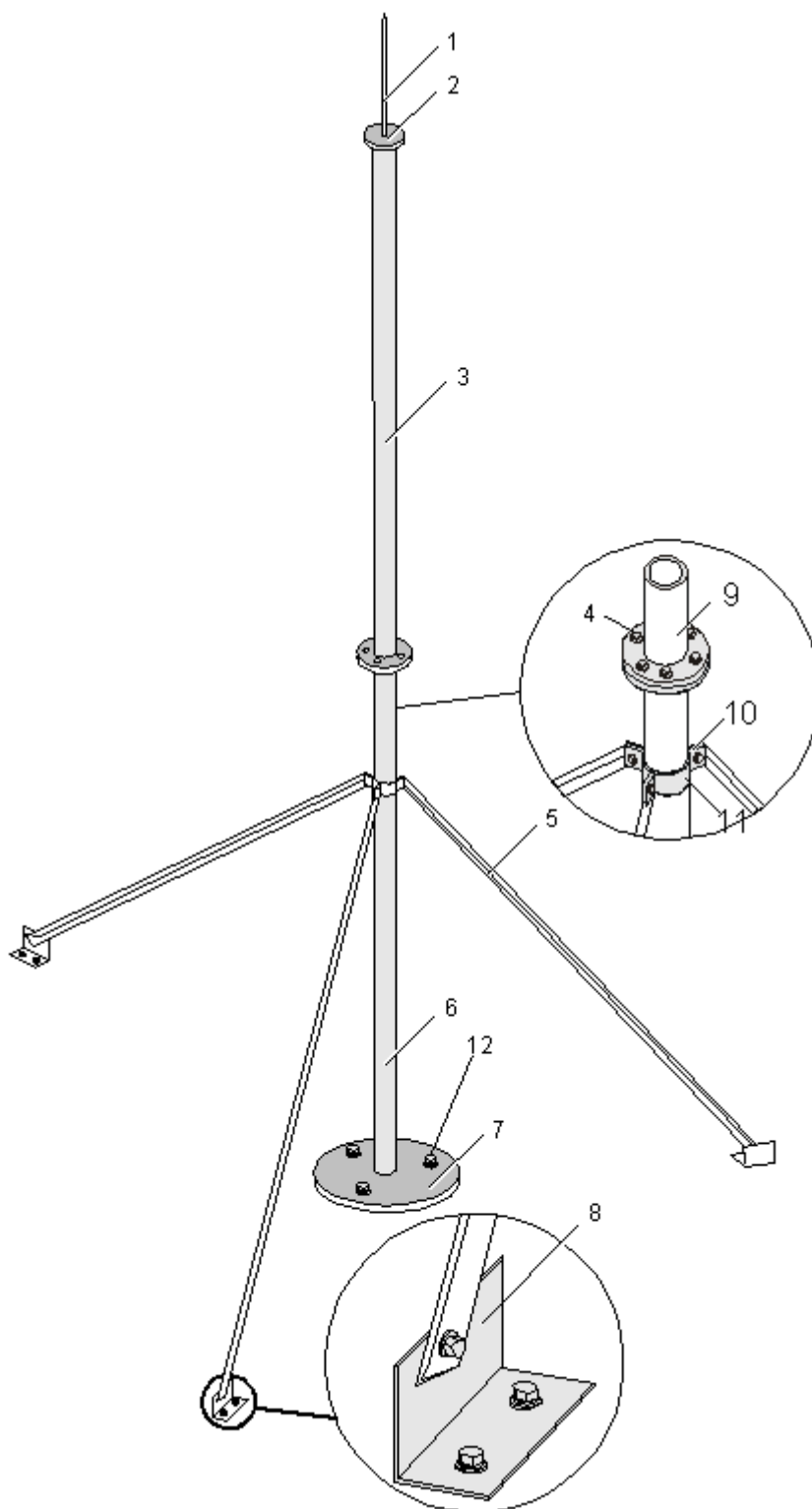
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9.2 Installing the Antenna Support on the Rooftop

This part describes the procedure for installing the antenna support on the rooftop and the precautions for the installation.

Context

There are several types of antenna supports for the installation on the rooftop. This part takes one type of antenna support as an example. [Figure 9-5](#) shows the structure of the antenna support on the rooftop.

Figure 9-5 Structure of the antenna support on the rooftop

(1) Lightning arrester

(2) Welding joint

(3) Main support 2

(4) M10 x 50 bolt

(5) Stiffener

(6) Main support 1

(7) Base plate of the antenna support

(8) Base anchor of stiffener

(9) Main support 2

(10) M10 x 50 hex bolt

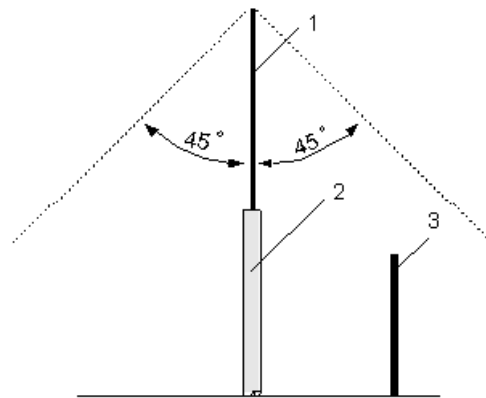
(11) Connecting piece of the stiffener

(12) M12 x 60 expansion bolt

When installing the support on the rooftop, pay attention to the following points:

- If the omnidirectional antenna is installed on the rooftop, the lightning arrester should not be installed on the support. The lightning arrester should be installed on another support separately.

Figure 9-6 Protection coverage of the lightning arrester



(1) Lightning arrester

(2) Mast of the lightning arrester

(3) Antenna

- If a lightning arrester is installed on the antenna support, the antenna should protrude 1 m to 1.5 m out of the support.
- The connecting pieces on the stiffener should be installed in a place that does not affect the adjustment of antenna directions and tilt angle.
- The dead lever of the antenna support should be vertical to the horizontal plane.
- When the directional antenna is installed on the rooftop, a lightning arrester should be installed on the antenna support and the antenna support should be connected with the grounding grid of the building.
- The welding joints should be coated with anti-rust aluminum paint. The welding joints should be solid and there should be no dry joints or open welding joints on the antenna support.

Procedure

- Step 1** Hoist or lift the support onto the roof. For the hoisting procedure, refer to the related contents in the part Installing the Antenna Support on the Tower.
- Step 2** Determine the installation position of the antenna support on the rooftop according to the engineering design.
- Step 3** Use three M12 x 60 bolts to fasten the support base vertically to the rooftop, as shown in [Figure 9-5](#).
- Step 4** Use a connecting piece to connect the stiffener to the main support, as shown in [Figure 9-5](#).
- Step 5** Connect the base anchor with the stiffener. Use M10 x 60 bolts (two M10 x 60 bolts for each stiffener) to fasten the stiffeners on the roof. Ensure that the stiffener is connected properly.

Step 6 Use six M10 x 50 bolts to connect the main support 2 to the main support 1 securely, as shown in [Figure 9-5](#).

Step 7 Coat the support base and all the welding joints using anti-rust paint.

Step 8 Cover the support base, the base anchors of stiffeners, and the expansion bolts using concrete.

**NOTE**

- If the support on the roof is not welded with the outdoor cable rack or the support is welded with the cable rack but not connected with the grounding grid of the building, use a lightning connecting piece to connect the support base with the grounding grid of the building. The lightning connecting piece is a component of the outdoor cable rack.

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