

24 27011333 Outdoor 5 GHz Single-Polarized Omnidirectional Antenna (H360 V20 G5)

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24.1 27011333 Technical Specifications

Appearance and Structure

Figure 24-1 Appearance of the 27011333 Outdoor 5 GHz Single-Polarized Omnidirectional Antenna (H360 V20 G5)



Technical Specifications

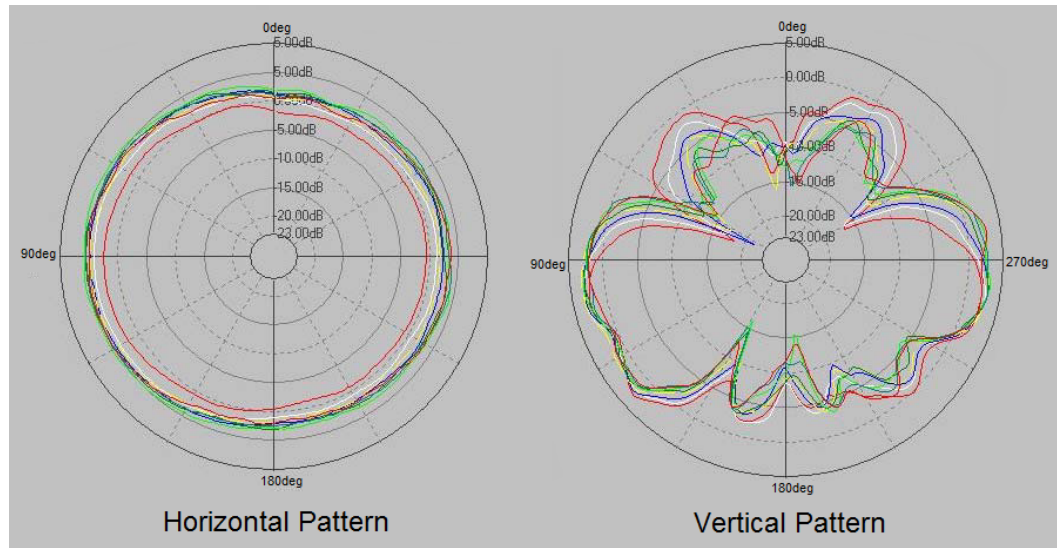
Table 24-1 Technical specifications of the 27011333 Outdoor 5 GHz Single-Polarized Omnidirectional Antenna (H360 V20 G5)

Item	Details
Part Number	27011333
Model	ANT5G05A1NR
Description	Omni-directional Antenna, 5150~5850MHz,5dBi,360deg/20deg,N/ Male,1port,without mounting parts,install directly on AP
Frequency [MHz]	5150 MHz to 5850 MHz
Antenna gain [dBi]	5 dBi
Coverage distance [m(ft.)]	60 m(ft.)
Horizontal beamwidth [degrees]	360 degrees

Item	Details
Vertical beamwidth [degrees]	20 degrees
Standing wave ratio (SWR)	≤ 2
Polarization	Vertical polarization
Antenna connector	N-male
Antenna dimensions [mm(in.)]	Length: 280±3
Weight without packaging [kg(lb)]	0.218±0.01
Installation type	Directly installed on the AP
Antenna note	The gains and lobe widths in this document are typical values. The actual values are within a range. For specifications, see the corresponding data sheet. The previous specifications list the coverage distance for reference only, which may vary depending on specific conditions. Plan an appropriate distance value according to planning experience, local standards, and onsite environments. There may be differences in the standards of different countries, so the mapping between antennas and APs shall comply with local standards. For details, refer to device access authentication information. The coverage distance is subject to the following constraints: - The default AP transmit power is 15 dBm. - The default STA type is mobile phone, and no obstacle exists. - 5 GHz: The uplink and downlink RSSIs are greater than or equal to -75 dBm. For any questions about the parameters above, contact Huawei technical support.

Antenna's Radiation Pattern

Figure 24-2 Antenna Pattern1 of the 27011333 Outdoor 5 GHz Single-Polarized Omnidirectional Antenna (H360 V20 G5)



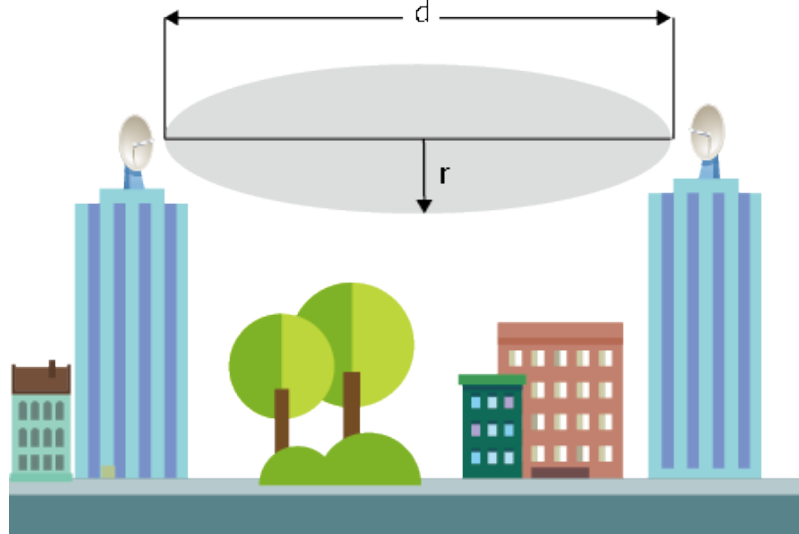
24.2 27011333 Installation Precautions

To ensure that the antenna works at the optimal performance level, take the following installation precautions:

- Install the antenna upright and place one side of the RF cable connector towards the ground.
- When installing single-polarized antennas, keep the distance between two antennas to within 30 cm to 50 cm.
- Install the antenna away from metal obstructions, such as air conditioners or heating pipes. Do not install the antenna on a wire mesh.
- Wall materials and thickness determine the number of walls that radio signals can pass through. Factor that into antenna selection.
- Install lightning rods for outdoor antennas to prevent lightning strikes. For details on how to install a lightning rod, see section "Antenna Installation."
- Ensure that no obstacle exists in the Fresnel zone in bridging scenarios. That is, the antenna height must be larger than the sum of the radius of the first Fresnel zone and obstacle height.

As shown in the figure, the Fresnel zone refers to the ellipsoid. Obstacles in the zone will adversely affect signal transmissions. If not blocked, radio signals can travel in an approximate free space.

Figure 24-3 Fresnel zone



Fresnel zones differ depending on the Fresnel zone radius. In a free space, radio signals are mainly transmitted between antennas in the first Fresnel zone. In normal cases, the Fresnel zone refers to the first Fresnel zone.

The radius of the first Fresnel zone is calculated and related parameters are described as follows:

$$r = 17.32\sqrt{d/4f}$$

- r : indicates the radius of the first Fresnel zone, in meters.
- d : indicates the distance between two antennas, in km.
- f : indicates the signal frequency, in GHz.

With 5 GHz signals as an example, [Table 24-2](#) lists the radius of the first Fresnel zone in different backhaul distances.

Table 24-2 Radius of the first Fresnel zone

Backhaul Distance (km)	Radius of the First Fresnel Zone (m)
1	3.87
2	5.48
3	6.71
5	8.66
10	12.25

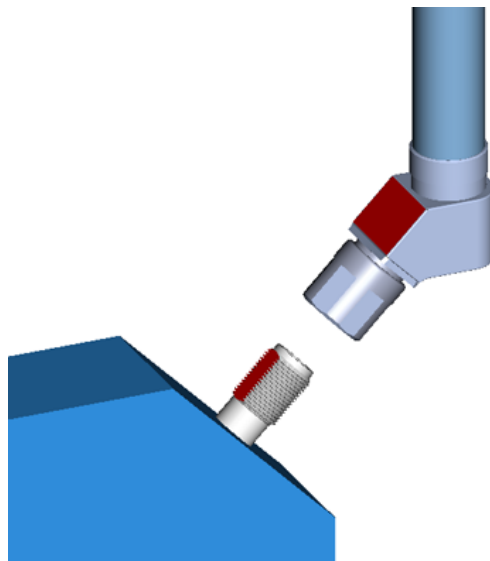
24.3 27011333 Installing Antennas

27011333 antennas are directly installed on APs.

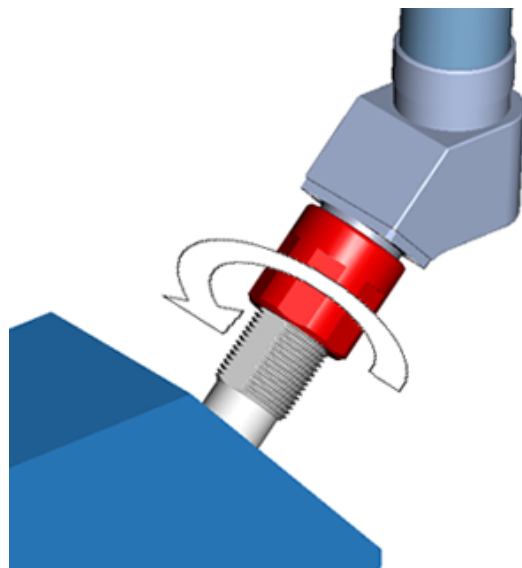
NOTICE

- Connectors of 27011333 antennas must be installed in the right direction. You should comply with the following installation instructions.
- To achieve the optimal coverage effect, it is recommended that you install the omnidirectional antenna four to six meters above ground.
- It is recommended that you connect a 50 ohm RF load to an idle antenna interface and wrap the RF load with both the insulation and waterproof tape.

1. Install the wire thread insert to the antenna port on the AP. Ensure that the two red surfaces in the following figure are on the same horizontal plane.



2. Manually tighten the wire thread insert in the direction of the arrow shown in the following figure. Then use a torque wrench to tighten it with a tightening torque of 10 N m to 15 N m.



 NOTE

If the two surfaces are not on the same horizontal plane when you tighten them, the antenna cannot be tightened securely and signal transmission will be affected. In this case, loosen the antenna and adjust its position and then tighten it again.

The following figure shows the antenna installation.



- It is recommended that you connect a 50 ohm RF load to an idle antenna interface and wrap the RF load with both the insulation and waterproof tape.
- Wrap the connectors in single-layer PVC insulation tape, triple-layer waterproof tape, and then triple-layer PVC insulation tape.
- Before wrapping the waterproof tape, stretch the tape evenly until the tape length is twice its original length. With each layer of tape wrap the cable tightly and ensure that each layer covers more than 50% of the layer beneath it.
- Wrap the triple-layer tape from bottom to top, from top to bottom, and then from bottom to top again.