


Aerohive 5 GHz Directional Antenna Installation Guide

This guide explains how to install a 5 GHz directional antenna and connect it to AP1130 outdoor access points. These antennas are designed to be installed in pairs within line-of-sight of each other. When planning your installation, make sure that there are no obstructions in the line-of-sight space between the antennas, and that there are no metal objects within 5 feet, (1.5 meters) of either side of the antennas.

 *This antenna is for use in the United States and Canada only.*

Kit Contents, Required Accessories, and Tools

The Aerohive 5 GHz directional antenna kit (AH-ACC-1130-ANT-18 for the AP1130) includes:










- 5 GHz 18-dBi antenna
- (4) 3/8" (10 mm) hex nuts
- (4) 3/8" (10 mm) locking washers
- (4) 3/8" (10 mm) flat washers
- Mounting bracket
- Hardware: (4) 5/8" (16 mm) hex nuts, (4) 1/2" (12.7 mm) locking washers, and (4) 5/8" (16 mm) flat washers
- (2) 5' (1.5 m) RF coaxial cables

To install this antenna, you will need the following accessories and tools:

- Drive sockets (nut drivers) for 3/8" (10 mm) and 5/8" (16 mm) hex nuts
- 5/8" (16 mm) open-end wrench to adjust the antenna tilt angle
- RF test meter for 5 GHz devices

Safety Instructions and Site Hazard Warnings

Read and follow these safety instructions and hazard warnings before installing this antenna. Keep these instructions for future reference.

-  *This antenna is for use in the United States and Canada only.*
-  *To comply with radio frequency exposure limits, do not place this antenna within 26.5" (70 cm) of any people or animals.*
-  *Make sure that there are no metal objects within 5 feet (1.5 meters) of either side of the antenna.*
-  *Make sure there is nothing that obstructs the line-of-sight between antennas.*
-  *Make sure there is nothing that obstructs the line-of-sight between antennas.*
-  *To install this antenna, you must be a qualified installation professional, licensed or certified in accordance with local regulations.*
-  *Use only attachments and accessories specified by Aerohive.*
-  *Do not locate the antenna near overhead power lines or other electric light or power circuits, or where it can come into contact with such circuits. During installation, exercise extreme care not to come into contact with these circuits, which can cause serious injury or death. For proper installation of the product, refer to national and local electrical codes: NFPA (National Fire Protection Association) 70, National Electrical Code Article 810 (U.S.); Canadian Electrical Code, Part I, CSA 22.1 and Section 54 (Canada); and if local or national electrical codes are not available, refer to IEC (International Electrotechnical Commission) 364, Part 1 through 7 (other countries).*
-  *Do not connect or disconnect antennas or cables from the AP during periods of lightning activity.*

Mounting the 5 GHz Directional Antenna

You can mount the 5 GHz directional antenna on a vertical or horizontal mast and adjust the orientation for optimum radio transmission by tilting the mounting bracket. The mounting bracket accommodates masts with a 1.5" to 2" (40 - 50 mm) diameter.

To provide unobstructed RF coverage, mount the antenna in a relatively open area on a mast so that it has at least a three-foot (one-meter) clearance from any nearby obstructions.

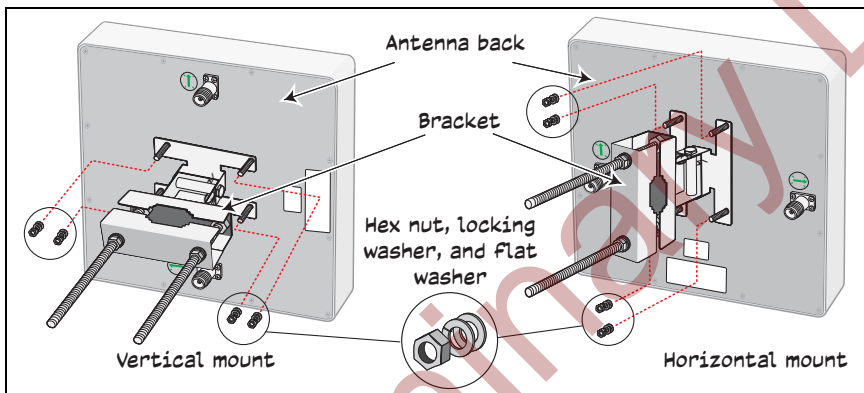
(F) *In accordance with FCC regulations, do not install this antenna within 26.5" (70 cm) of any people or animals.*

Gather all the required materials and tools, read the safety and hazard warnings, and confirm that your installation site meets FCC distance requirements. You are now ready to install the antenna using the following steps.

Attaching the Antenna Mounting Bracket

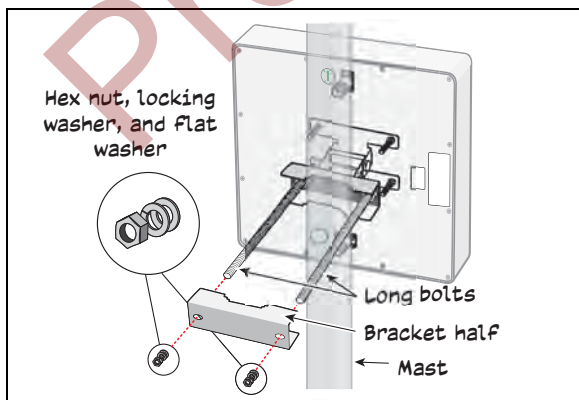
The following steps describe how to attach the mounting bracket to the back of the antenna.

1. Attach the bracket for a vertical or horizontal installation as shown below. Use four 1/4" (6.4 mm) flat washers, locking nuts, and hex nuts to secure the bracket to the antenna chassis.



2. Attach the antenna to a horizontal or vertical mast in one of two ways:
 - If you cannot reach a free end of the mast, remove the outer half of the bracket, position the mast between the two long bolts and re-install the bracket half. Tighten the bracket using a 5/8" (16 mm) flat washer, locking washer, and hex nut on each bolt.
 - If a free end of the mast is accessible, loosen the outer half of the bracket and slide the antenna onto the mast. Tighten the bracket using a flat washer, locking washer, and large hex nut on each bolt.

The illustration below shows a vertical mast installation.



Connecting the Antenna to the AP



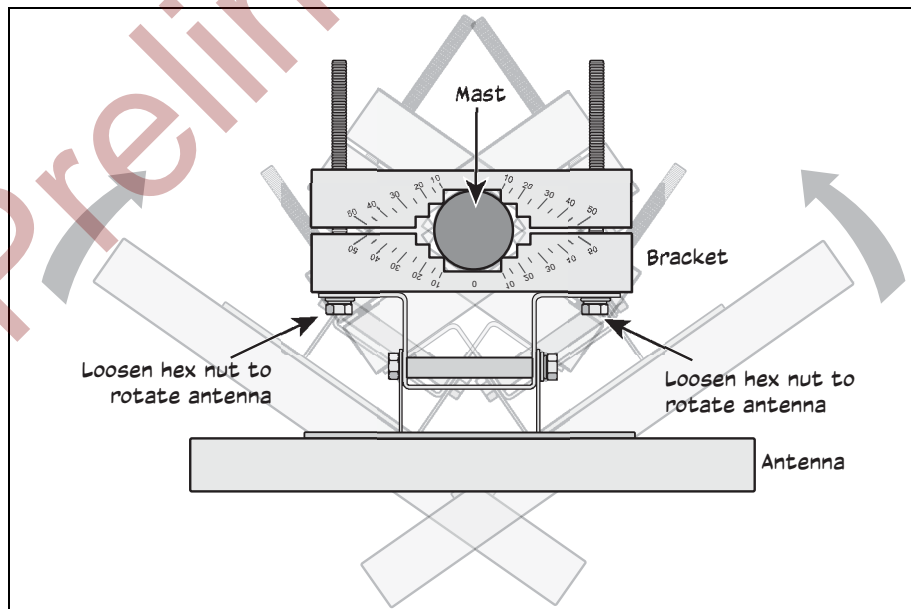
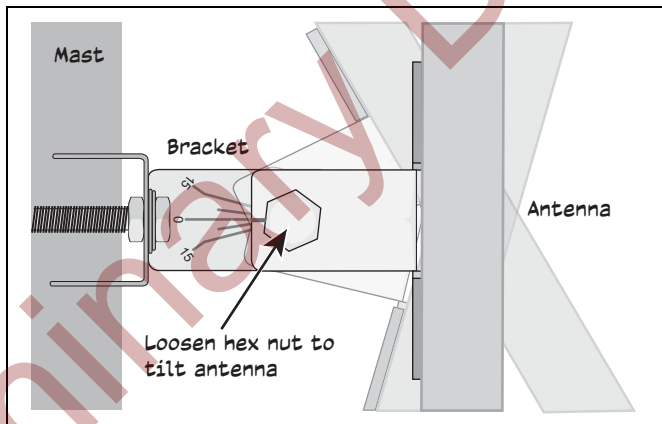
Use the two antenna cables with N-Male to connect the antenna to the AP, as shown in the illustration at the left. The optimum distance between the devices should be approximately 3' (1 m). If there is too much space between the devices, the signal will degrade. It is not necessary to ground the antenna.



You can use 2.4 GHz antennas in addition to the 5 GHz directional antenna. Always install a 50-Ohm load terminator on any unused antenna connector.

Aligning the Antenna

Two people are required to test the elevation and alignment for maximum signal strength. While one person takes readings on an RF test meter, the second person makes adjustments as necessary by loosening the hex nut on the mounting bracket and tilting or turning the antenna chassis. Use the angle markings on the bracket as guidelines, as shown in these illustrations below to help align the antenna horizontally and vertically as needed.



Device, Power, and Environmental Specifications

This section describes the specifications for the 5 GHz directional antenna.

- Frequency range: 5150-5850 MHz
- Bandwidth: 700 MHz
- Gain: 18 dBi
- Width and height: 10" (254 mm), depth: 1.625" (42 mm) without bracket, 8.75" (222 mm) with bracket
- Weight: 2.54 lb (1.15 Kg)
- Polarization: vertical/horizontal
- Maximum power: 20 Watts
- (2) N-type female connectors
- Ethernet connector: autosensing 10/100/1000 Base-T Mbps; compliant with the IEEE 802.3at PoE standard
- Mounting mast diameter: 1.5" - 2" (40 - 50 mm)
- Operating temperature: -40° to 140° F (-40° to 60° C)
- Storage temperature: -40° to 176° F (-40° to 80° C)
- Wind survivability: > 165 mph (266 kph)
- Environmental compliance: IP67

For the latest product documentation, compliance information, and software updates, visit www.aerohive.com/support.

Preliminary Draft