Cisco GPS Antenna (ANT-GPS-OUT-TNC)

The Cisco GPS Antenna is designed to cover a domestic frequency of 1575 MHz.

This antenna is compatible with any Cisco device that uses GPS, and is compatible with active GPS antennas with DC specifications given below. Connector adapters may be required from TNC(m) to the required interface. The antenna is a rugged outdoor antenna, and is IP67 rated.

CAUTION: Read the information in Overview before installing or replacing antennas.

This chapter covers the following topics:

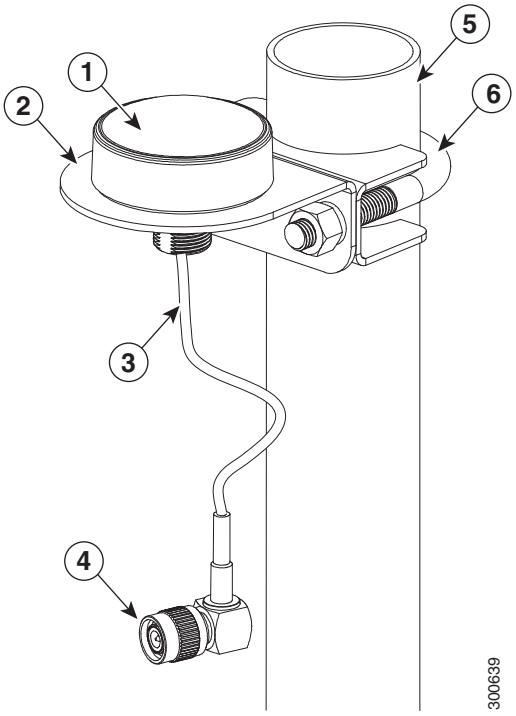
- Technical Specifications
- Safety Warnings
- Antenna Installation
- Obtaining Documentation and Submitting a Service Request

Technical Specifications

The GPS antenna features the following:

- Outdoor
- Low-profile housing
- Integrated LMR-100 cable with right-angle TNC(m) male connector

Figure 1 GPS Antenna



1	GPS antenna	2	Mounting bracket
3	LMR-100 cable(15')	4	Right-angle TNC male connector
5	Pipe (mast)	6	U-bolt connected to U-bracket

RF Specifications

The following is a summary of the antenna radio frequency (RF) specifications:

Specification	Cisco GPS Antenna (ANT-GPS-OUT-TNC)
Type	Patch, active
Operating frequency range	1575.42 MHz +/- 5 MHz
Impedance	50 ohm, nominal
VSWR	2.0 max. in band
Gain	4.0 dBi min. @ Zenith
Minimum gain	1 dBi @ 10-degrees elevation
Pattern type	Hemispherical
Polarization	Circular RHCP
LNA gain	25 dB +/-2 dB
Front end GPS filter	This antenna features a GPS RF filter in front of the LNA to enable co-location with other radios.
Out-of-band attenuation	20 dB min. at 1575 +/- 50 MHz
DC voltage	3 to 5 VDC
Current draw	20 mA max. @ 3.3 VDC +/- .3 VDC

Mechanical and Environmental Specifications

The following is a summary of the mechanical and environmental antenna specifications:

Specification	Cisco GPS Antenna (ANT-GPS-OUT-TNC)
Environment	Outdoor (IP67)
Height	0.87 in. (2.21 cm)
Diameter (maximum, at base)	2.0 in. (5.0 cm)
Connector	Right-angle TNC(m)
Cable	LMR-100A, 15ft (4.57m)
Operating temperature	-40 to 185 degrees Fahrenheit (-40 to 85 degrees Centigrade)
Wind speed rating	165 MPH
Compliance	ROHS

Safety Warnings

WARNING: Avoid using or servicing any equipment that has outdoor connections during an electrical storm. There may be a risk of electric shock from lightning. Statement 1088

WARNING: Do not work on the system, or connect or disconnect cables, during periods of lightning activity. Statement 1001

WARNING: Do not locate the outdoor antenna near overhead power lines or other electric light or power circuits, or where it can come into contact with such circuits. When installing the antenna, take extreme care not to come into contact with such circuits, as they may cause serious injury or death. For proper installation and grounding of the antenna, please refer to national and local codes (for example, U.S.:NFPA 70, National Electrical Code, Article 810, Canada:Canadian Electrical Code, Section 54). Statement 1052

WARNING: This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available. Statement 1024

WARNING: Only trained and qualified personnel should be allowed to install, replace, or service this equipment. Statement 1030

WARNING: To report a gas leak, do not use a telephone in the vicinity of the leak. Statement 1039

WARNING: This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. Statement 1071. SAVE THESE INSTRUCTIONS.

WARNING: This product is not intended to be directly connected to the Cable Distribution System. Additional regulatory compliance and legal requirements may apply for direct connection to the Cable Distribution System. This product may connect to the Cable Distribution System ONLY through a device that is approved for direct connection. Statement 1078

Safety Precautions

WARNING: Installation of this antenna near power lines is dangerous. For your safety, follow the installation directions.

Each year hundreds of people are killed or injured when attempting to install an antenna. In many of these cases, the victim was aware of the danger of electrocution, but did not take adequate steps to avoid the hazard.

For your safety, and to help you achieve a good installation, please read and follow these safety precautions. **They may save your life!**

For your safety, read and follow these safety precautions.

- If you are installing an antenna for the first time, for your own safety as well as others, seek professional assistance. Your Cisco sales representative can explain which mounting method to use for the size and type antenna you are about to install.
- Before you install an antenna, contact your Cisco account representative to explain which mounting method to use for the size and type of antenna that you are about to install.
- Find someone to help you—installing an antenna is often a two-person job.
- Select your installation site with safety, as well as performance, in mind. Remember that electric power lines and phone lines look alike. For your safety, assume that any overhead line can kill you.
- Contact your electric power company. Tell them your plans and ask them to come look at your proposed installation.
- Plan your installation carefully and completely before you begin. Each person involved in an installation should be assigned to a specific task, and should know what to do and when to do it. One person should be in charge of the operation to issue instructions and watch for signs of trouble.
- When installing your antenna, follow these guidelines:
  - Do not use a metal ladder.
  - Do not work on a wet or windy day.
  - Do dress properly—wear shoes with rubber soles and heels, rubber gloves, and a long-sleeved shirt or jacket.
- If the assembly starts to drop, move away from it and let it fall. Because the antenna, mast, cable, and metal guy wires are all excellent conductors of electrical current, even the slightest touch of any of these parts to a power line completes an electrical path through the antenna and the installer.
- If any part of the antenna system should come in contact with a power line, do not touch it or try to remove it yourself. Call your local power company to have it removed safely.

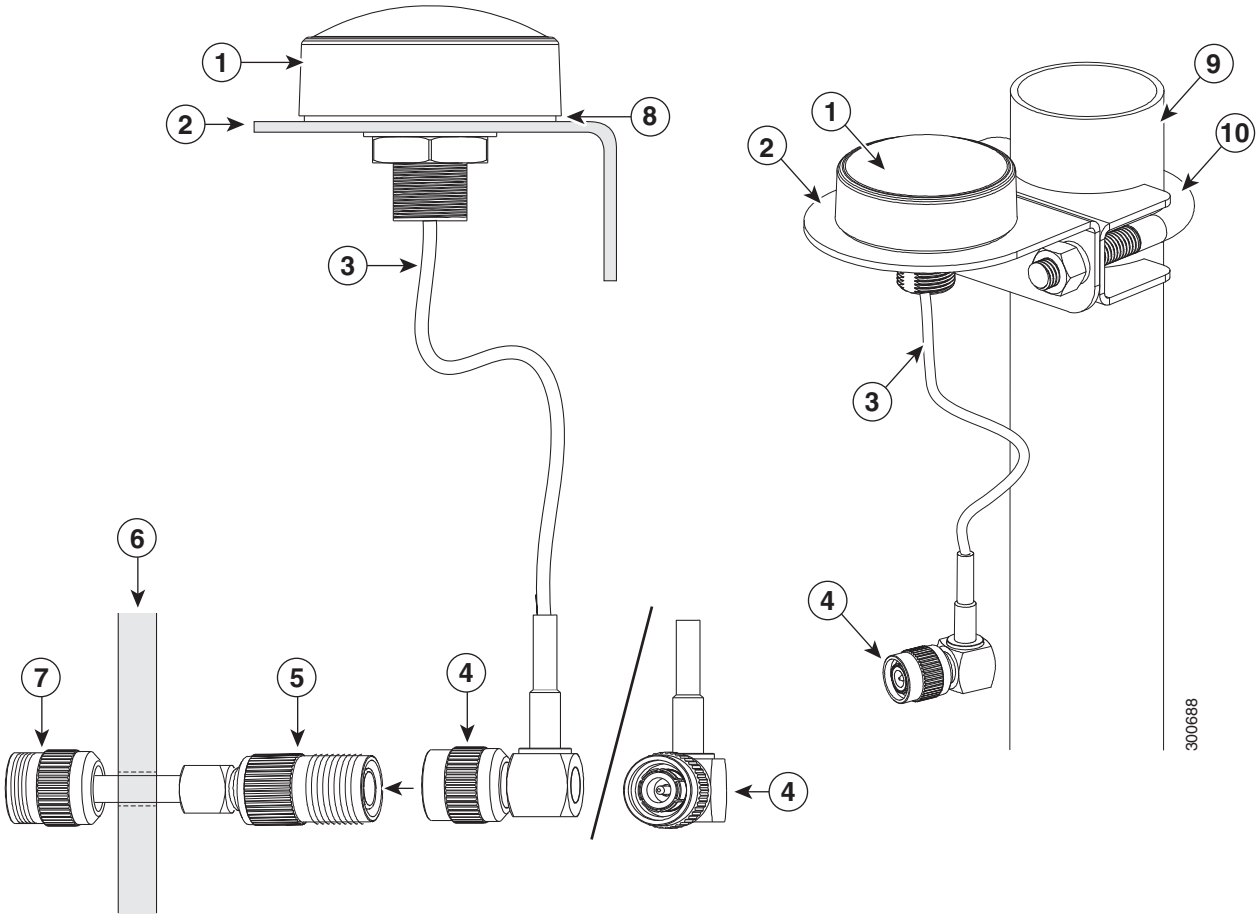
- If an accident should occur with the power lines, call for qualified emergency help immediately.

Antenna Installation

Follow these steps to install the GPS antenna onto the router:

NOTE: These installation steps are for the CGR1120 router.

1. Mount the antenna in its proper location by using the provided antenna bracket.

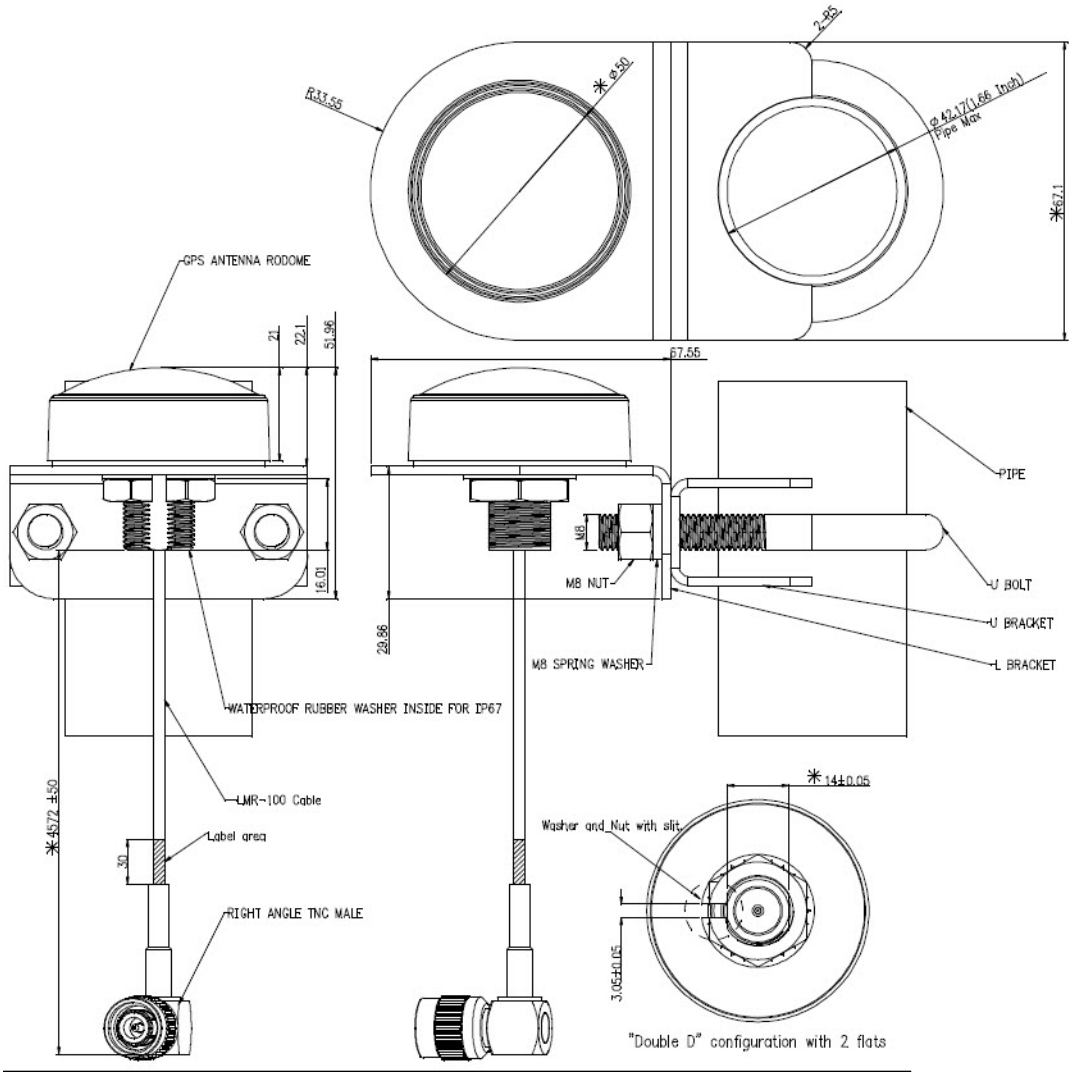


1	GPS antenna	2	Mounting L-bracket
3	LMR-100 cable	4	Right-angle TNC (m) connector
5	Adapter, TNC connector (f)	6	Building entry panel
7	Adapter, N-connector (f) to router	8	VHT adhesive tape
9	2” (outside dimension) pipe/mast	10	U-bolt

2. Route and connect the LMR-100 cable to the TNC-to-N-connector adapter installed at the building entry panel.
3. At the inside of the entry panel, install the LMR-100 cable to the N-connector on the adapter.
4. Route the cable to the router and attach to the antenna connector.

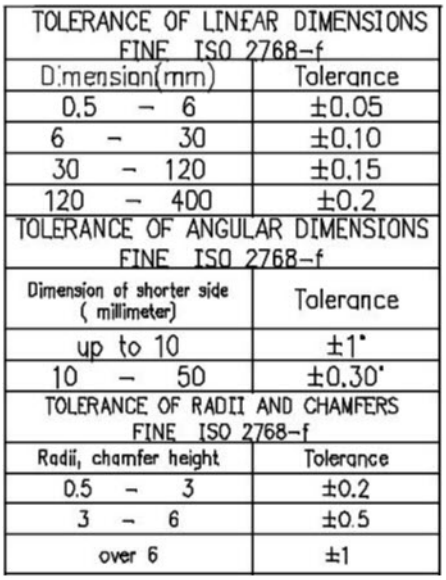
Mechanical Drawing

Figure 2 Mechanical Drawing for the ANT-GPS-OUT-TNC Antenna



Note: All Dimensions are in millimeters (mm).

Figure 3 Tolerance Table



TOLERANCE OF LINEAR DIMENSIONS FINE ISO 2768-f	
Dimension(mm)	Tolerance
0.5 – 6	±0.05
6 – 30	±0.10
30 – 120	±0.15
120 – 400	±0.2
TOLERANCE OF ANGULAR DIMENSIONS FINE ISO 2768-f	
Dimension of shorter side (millimeter)	Tolerance
up to 10	±1°
10 – 50	±0.30°
TOLERANCE OF RADII AND CHAMFERS FINE ISO 2768-f	
Radii, chamfer height	Tolerance
0.5 – 3	±0.2
3 – 6	±0.5
over 6	±1

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly What's New in Cisco Product Documentation, which also lists all new and revised Cisco technical documentation, at:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

Subscribe to the *What's New in Cisco Product Documentation* as an RSS (Really Simple Syndication) feed, and set it so content is delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS Version 2.0.

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