Cisco WPAN Yagi Antenna (ANT-WPAN-Y-OUT-N)

This chapter describes the technical specifications and installation instructions for the Cisco WPAN Yagi antenna. The antenna is a single-port antenna designed to cover the 860 – 876 and 902 – 928 MHz ISM bands.

The antenna supports the following Cisco Industrial Integrated Services Routers:

- IR529UWP-915D/K9
- IR529UBWP-915D/K9

Caution Read the information in Safety Warnings, page 14-13 before installing or replacing antennas.

This chapter covers the following topics:

Antenna Overview

The Cisco WPAN Yagi antenna (ANT-WPAN-OD-OUT-N) has the following features:

- 860 - 960 MHz operation
- Directional, linearly polarized
- Outdoor location
- Mast mount installation
- Pigtail with N female connector

Figure 14-1 shows the Antenna Assembly.

Figure 14-1 Cisco ANT-WPAN-Y-OUT-N Antenna

Technical Specifications

This section contains the following:

RF Specifications

The following are the Radio Frequency (RF) antenna specifications for the Cisco ANT-WPAN-Y-OUT-N Antenna:

Specification	Description
Antenna Type	Yagi antenna
Operating frequency range	860 to 960 MHz
Nominal impedance	50 ohms
VSWR	1.5:1 maximum
Gain	9 dBi typical, 10 dBi maximum
3 dB beamwidth (vertical plane)	76 degrees
3 dB beamwidth (horizontal plane)	57 degrees
Polarization	Linear

Specification	Description
Radiation Pattern	Directional
Maximum input power	100 Watts

Radiation Patterns

The following diagrams illustrate the radiation patterns for the Cisco ANT-WPAN-Y-OUT-N Antenna:

- 860 MHz Antenna Radiation Pattern, page 14-3
- 902 MHz Antenna Radiation Pattern, page 14-5
- 910 MHz Antenna Radiation Pattern, page 14-7
- 928 MHz Antenna Radiation Pattern, page 14-9
- 960 MHz Antenna Radiation Pattern, page 14-11

860 MHz Antenna Radiation Pattern

Figure 14-2 860 MHz Antenna Radiation Pattern — Horizontal Plane

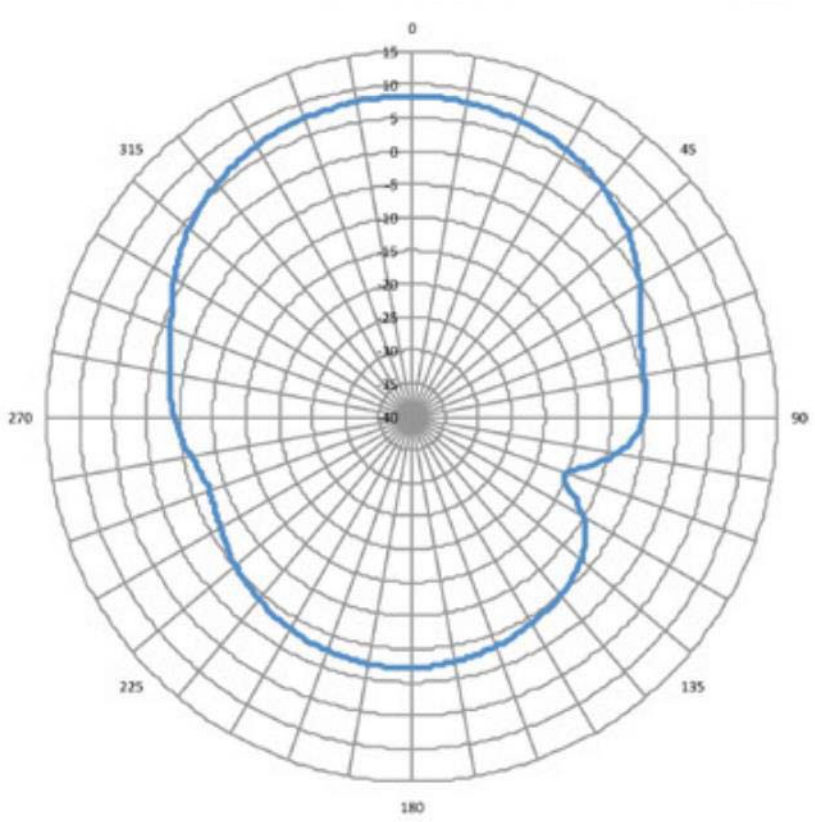
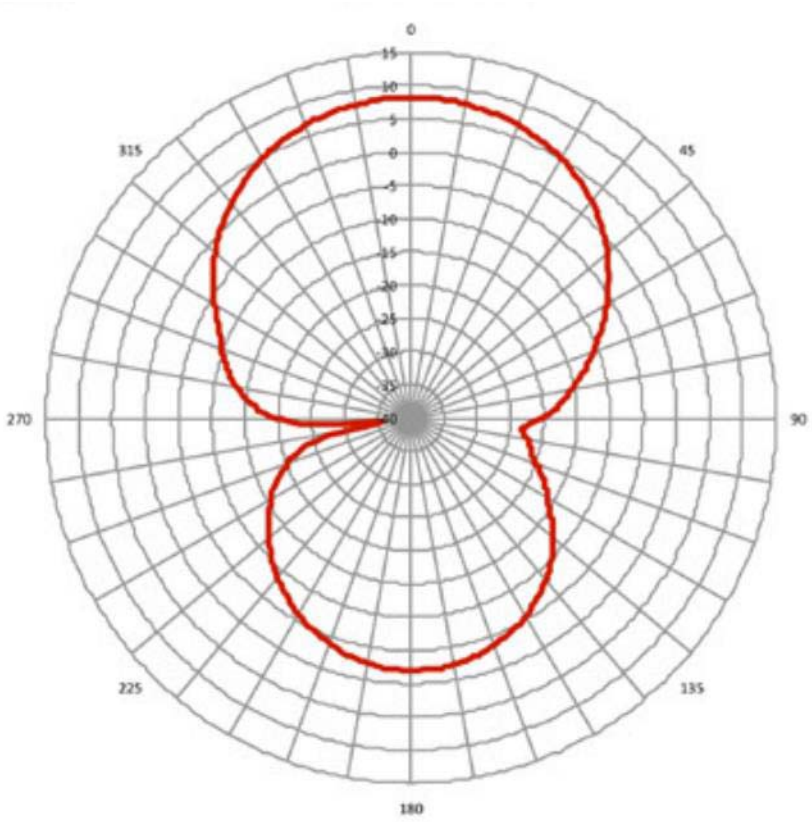


Figure 14-3 860 MHz Antenna Radiation Pattern — Vertical Plane



902 MHz Antenna Radiation Pattern

Figure 14-4 902 MHz Antenna Radiation Pattern — Horizontal Plane

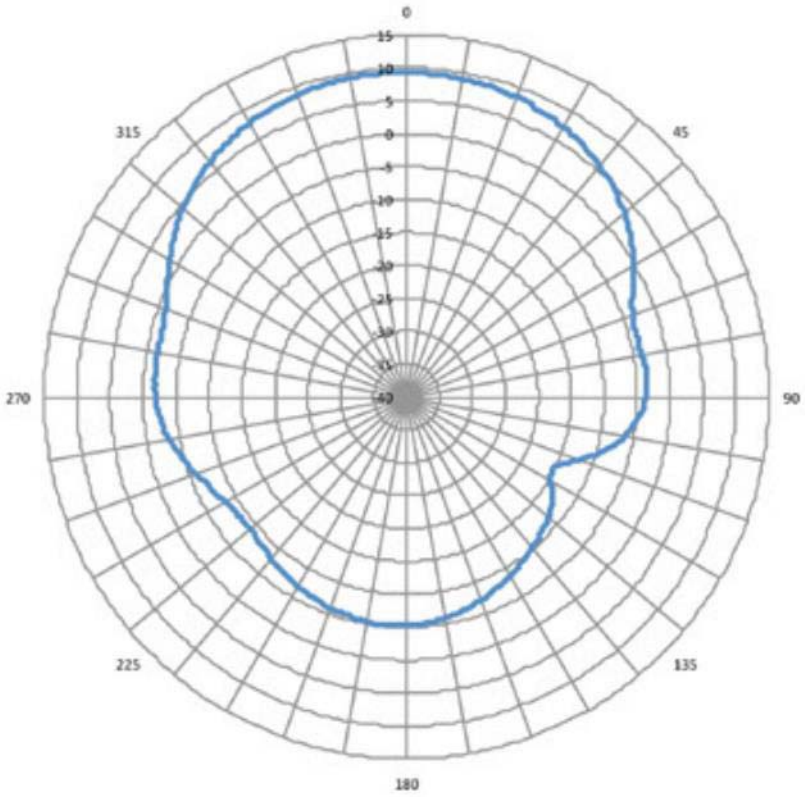
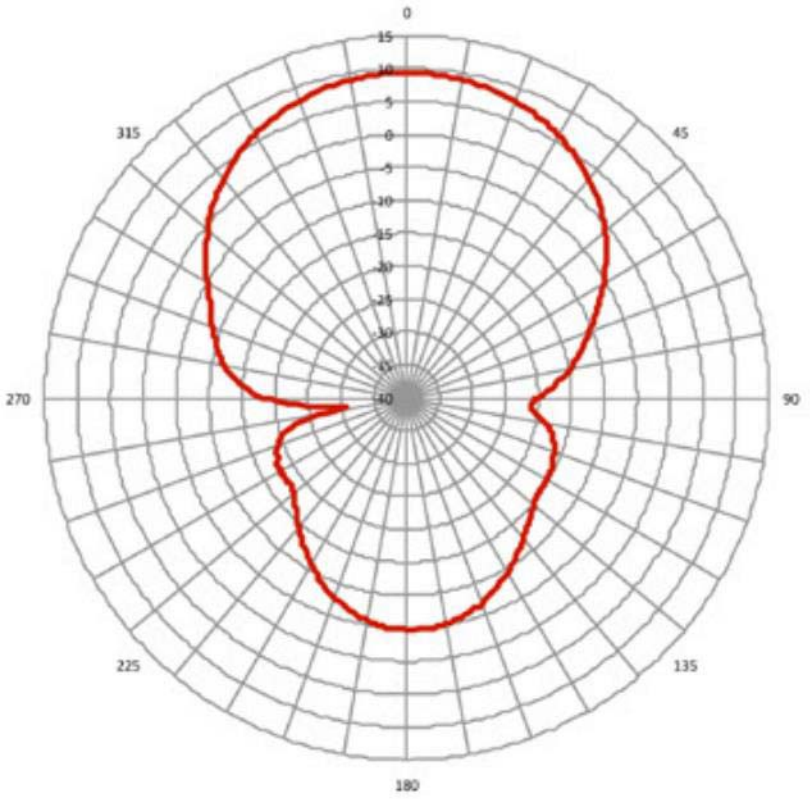


Figure 14-5 902 MHz Antenna Radiation Pattern — Vertical Plane



910 MHz Antenna Radiation Pattern

Figure 14-6 910 MHz Antenna Radiation Pattern — Horizontal Plane

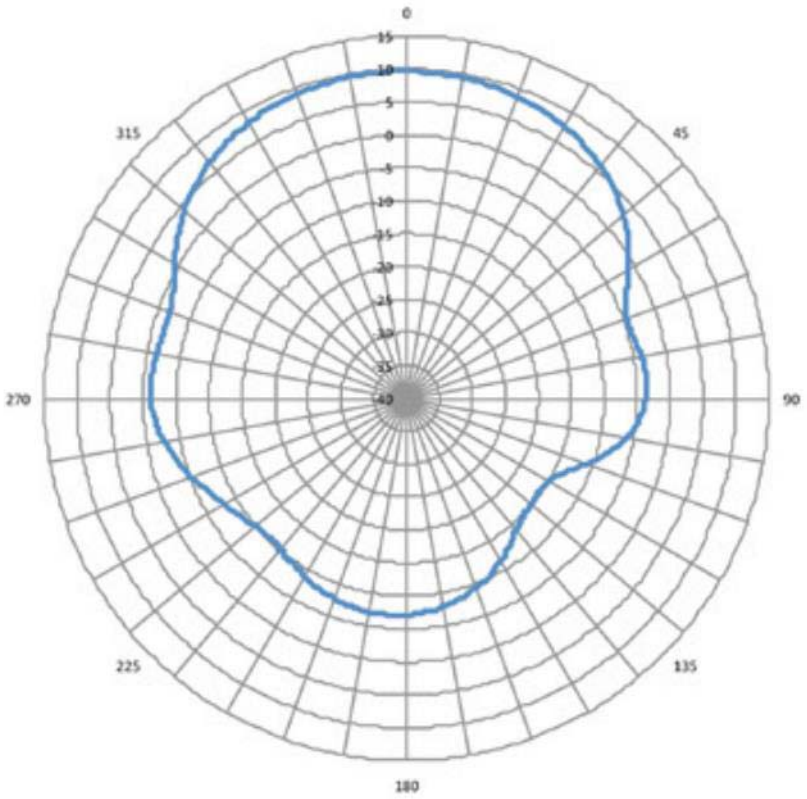
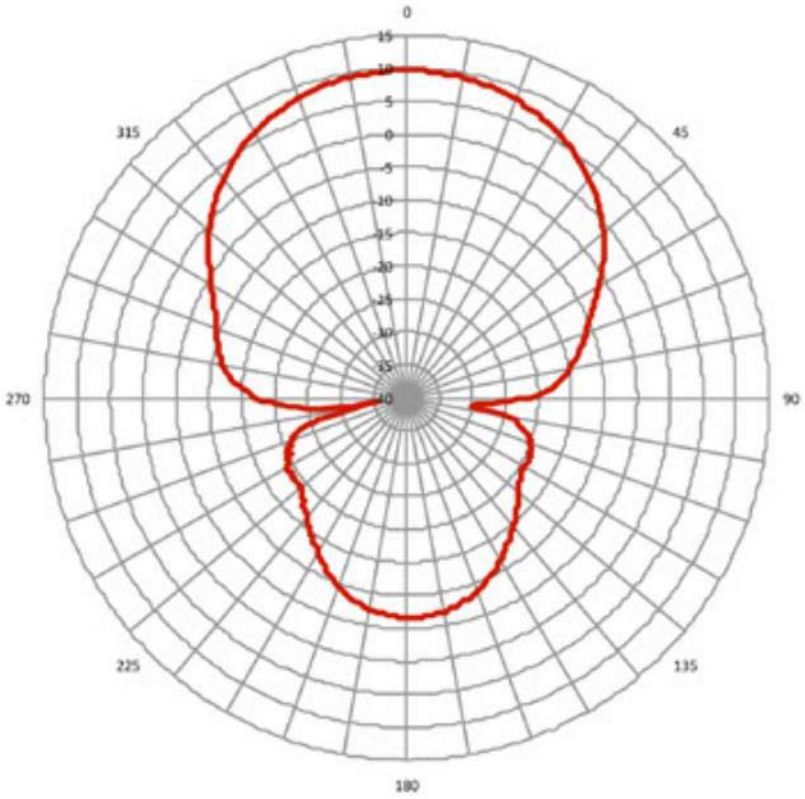


Figure 14-7 910 MHz Antenna Radiation Pattern — Vertical Plane



928 MHz Antenna Radiation Pattern

Figure 14-8 928 MHz Antenna Radiation Pattern — Horizontal Plane

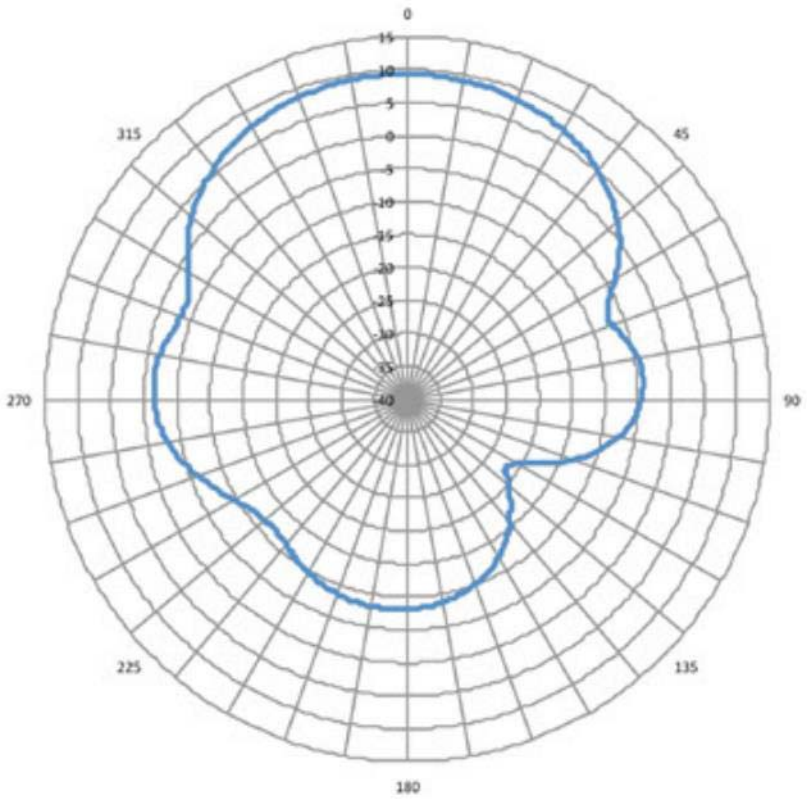
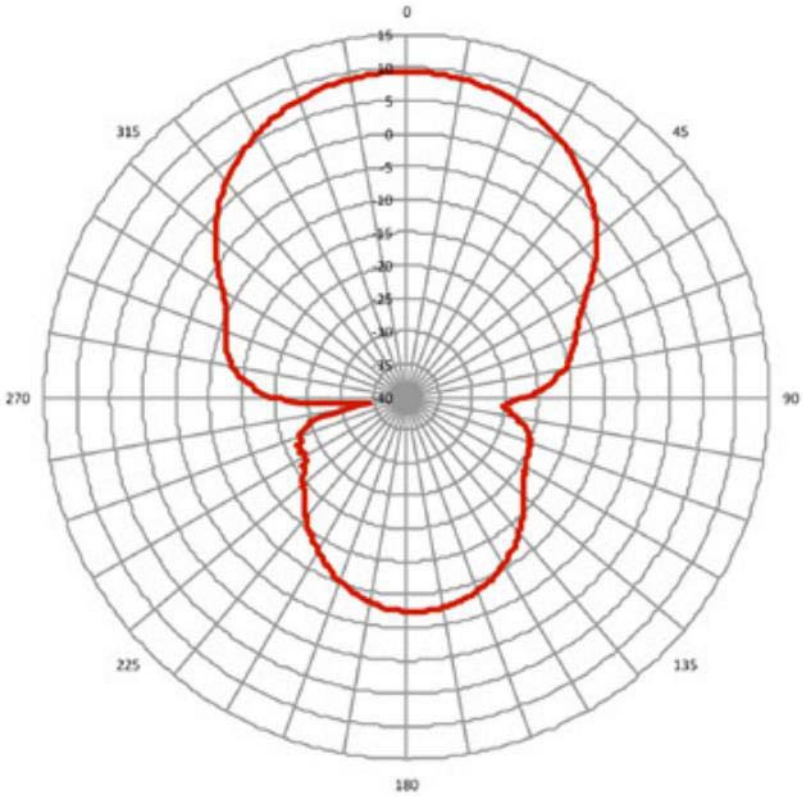


Figure 14-9 928 MHz Antenna Radiation Pattern — Vertical Plane



960 MHz Antenna Radiation Pattern

Figure 14-10 960 MHz Antenna Radiation Pattern — Horizontal Plane

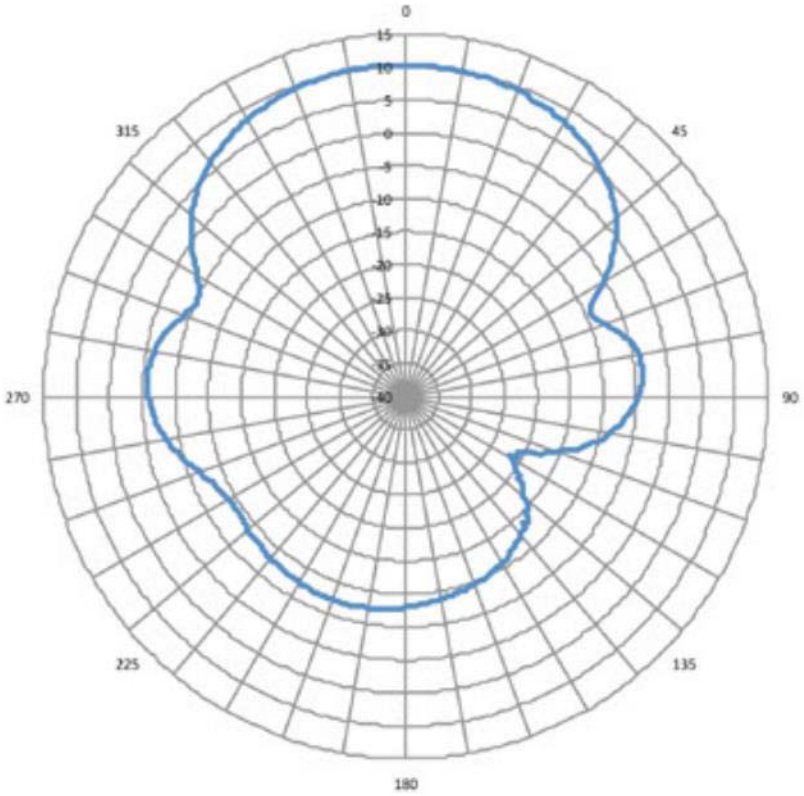
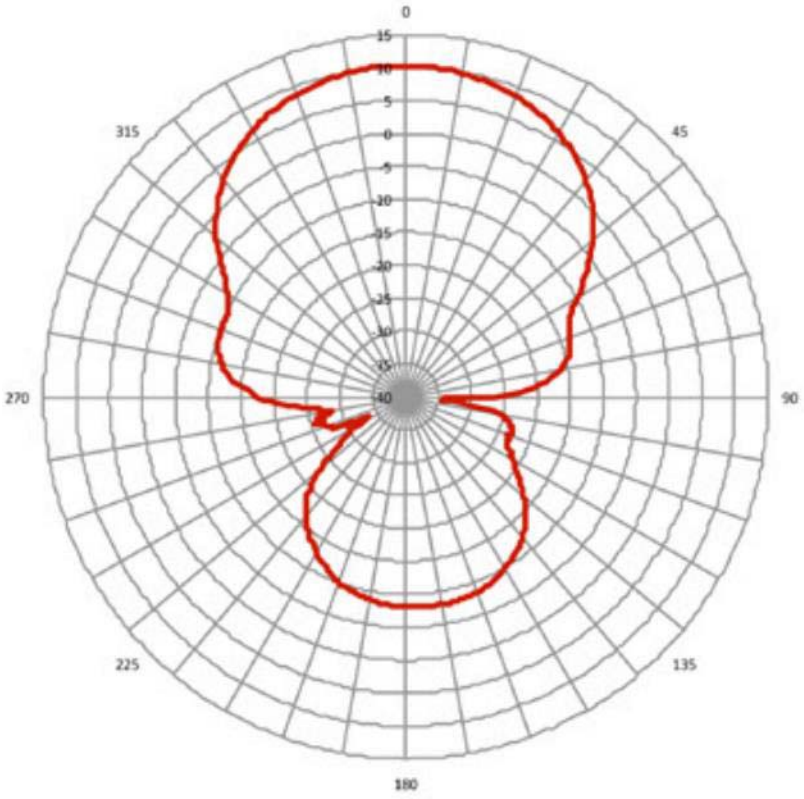


Figure 14-11 960 MHz Antenna Radiation Pattern — Vertical Plane



Environmental and Mechanical Specifications

The following are the Environmental and Mechanical Specifications for the Cisco ANT-WPAN-Y-OUT-N Antenna:

Specification	Description
Operating temperature range	-40 to 158°F (-40 to 70°C)
Mount style	Mast mount
Location	Outdoor
Connector	18” RG8 pigtail with N female connector
Dimensions	19.7 x 11.61 x 3.23 in. (50 x 29.5 x 82 cm)
Weight	2.4 lbs (1.1 kg)
Wind rating	201 km/hr (125 mph)
IP rating	IP67
Material substance compliance	RoHS compliant

Installing the Antenna

This section contains the following:

Contents of the Antenna Kit

The antenna kit contains:

- 1 x Cisco ANT-WPAN-Y-OUT-N Antenna
- 1 x Mounting bracket with washers and nuts
- 2 x U-bolts with washers and nuts
- 1 x Weatherproofing kit

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 Instructions

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.
- Plan your installation procedure carefully and completely before you begin.
- Choose your installation site with safety performance in mind. Remember that electric power cables and telephone lines look alike. For your safety, assume that any line is an electric power line until determined otherwise.
- Call your local power company or building maintenance organization if you are unsure about cables close to your mounting location.
- When installing your antenna, do not use a metal ladder. Dress in rubber soled shoes and heels, rubber gloves, and a long-sleeved shirt or jacket.
- If an accident or emergency occurs with the power lines, call for qualified emergency help immediately.

- 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.
- 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.
- 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 occurs with the power lines, call for qualified emergency help immediately.

Tools and Equipment Required

In addition to the parts included in the antenna kit described in the Contents of the Antenna Kit, page 14-13, you must provide the following tool to install the antenna on the router:

- Open-ended wrench

Note This list does not include the tools and equipment required to assemble and erect the tower, mast, or other structure you intend to mount your antenna on.

Preparing the Antenna for Installation

Note Before mounting the antenna on a mast or pole, the antenna must be attached to the mounting bracket.

To prepare the antenna for installation:

- Attach the bracket to the antenna support beam. Tighten the four nuts tight enough to stabilize the antenna. Torque to 45 in.-lbs. (5.1 N-m). The bracket should be toward the back of the antenna support beam.

Mounting the Antenna

Follow these instructions to mount the antenna.

Step 1 Attach the antenna assembly to the pole using the two U-bolts provided. The antenna elements should be vertical for vertical polarization.

Step 2 Tighten the nuts evenly and enough to secure the antenna on the pole. Torque the nuts to 60 in.-lbs. (6.8 N-m).

Step 3 Connect the RF cable to the pigtail and weatherproof the connection. Be sure to secure the cable to the pole using UV resistant tie wraps.

Connecting the Lightning Arrestor

To attach the router-end of the cable to your router, see the Dual Antenna Advanced Range Extender—Dual Antenna Configuration section of the Cisco IR500 Series WPAN Gateway and WPAN Range Extender Installation and Configuration Guide.

Connecting the Antenna to the Router

To attach the router-end of the cable to your router, see the Dual Antenna Advanced Range Extender—Dual Antenna Configuration section of the Cisco IR500 Series WPAN Gateway and WPAN Range Extender Installation and Configuration Guide.

Note Coaxial cable loses efficiency as the frequency increases, resulting in signal loss. The cable should be kept as short as possible because cable length also determines the amount of signal loss—the longer the cable length or run, the greater the loss).

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

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