

# LXE Spire® Indoor/Outdoor Antenna Installation Instructions

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## LXE Spire® Indoor/Outdoor Antenna

### Introduction

The LXE Spire® Antenna is an Omni Directional Antenna for 2.4GHz Wireless LAN systems. The Spire's unique design provides improved pattern integrity over other omni directional antennas currently available in the market place. This omni directional antenna comes in both high and medium gain configurations and can be paired with a number of accessories - Type 4 Rated weather proof enclosures, plenum rated ceiling enclosures - to meet your specific installation requirements.

By combining LXE's unmatched radio experience with EMS Technologies' advanced antenna designs, LXE offers an unparalleled 2.4 GHz wireless network solution.

- Greater throughput for 2.4 GHz solutions
- Superior performance in high multipath environments
- Improved pattern integrity



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## Specifications

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### Electrical

Frequency	2.4 to 2.5 GHz
Impedance	50 ohms
VSWR	1.5:1
Polarization	Vertical
Gain (High Gain Version)	6 dBi typical
Gain (Med Gain Version)	3 dBi typical
Beamwidth (High Gain Version)	20 degrees typical
Beamwidth (Med Gain Version)	40 degrees typical
Pattern	Omnidirectional

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### Mechanical

Height High Gain with no radome	6 inches
Med Gain with no radome	3 inches
Radome height	6.2 inches
Weight with no radome or bracket	0.2 lbs
with a radome and bracket	2.1 lbs
Radome material	Royalite R450M
Radios supported	2.4 GHz FHSS, 2.4 GHz DSSS
Connector	Reverse TNC
Temperature	-40 <sup>0</sup> C to 70 <sup>0</sup> C
Mounting Options	Ceiling Enclosure Masts I-Beams

## Safety

The Spire bracket has been designed to attach to a wall, mast, I-beam or pole. To prevent personal injury or equipment damage, the antenna must be securely mounted to each plane per instructions.

### WARNING



Antenna installations must be grounded according to local and national codes. For your safety and others, do not install or work on antennas near power lines. Install and repair all antennas or similar structures out of falling distance of all such lines. Every electrical and telephone wire is potentially dangerous.

### CAUTION



This antenna is a low power microwave device. Always mount the antenna at least seven inches away from personnel.

## Location

The location of the antenna is important. Objects such as metal columns, walls, etc. will reduce efficiency. Best performance is achieved when this antenna is mounted at 8' to 40' above floor level. If reception is poor, it's a good idea to try a few different mounting positions to optimize reception.

## Dual Spires

If using two antennas on one radio for space diversity, there needs to be 3' to 8' of separation between the antennas.

## Handling

Avoid dropping the antenna onto hard surfaces to prevent possible damage to the radome and to the RF connectors.

Always hold the Spire Antenna cable near the RTNC connector when connecting it to the bulkhead connector.

## Mounting Of Spire With Bracket

This antenna is suitable for use indoors or outside. The antenna bracket attaches to a mast (PVC pipe) from 1.5 " to 2.5" in diameter using the enclosed metal straps. When properly mounted the Radome extends below the mounting bracket. In addition, the RF cable attached to the antenna should have a dip in it that extends below the radome tip to prevent water from running down the cable towards the radome.

The bracket can also be attached using U-bolts if desired. The bracket is designed to mount to a vertical or horizontal mast. To install indoors, attach the mast to the truss and have it extend at least 10" below the truss. Then attach the antenna to the bottom of the mast. To secure to a roof, install a mast that extends at least 5' above the roof and then attach the antenna to the top of the mast with the Radome below the bracket.

To secure to a light pole, install a vertical mast above the pole or horizontal mast that extends 3' out from the pole. If the antenna is located below the top of the pole, then attach the antenna to mast with the Radome below the bracket.

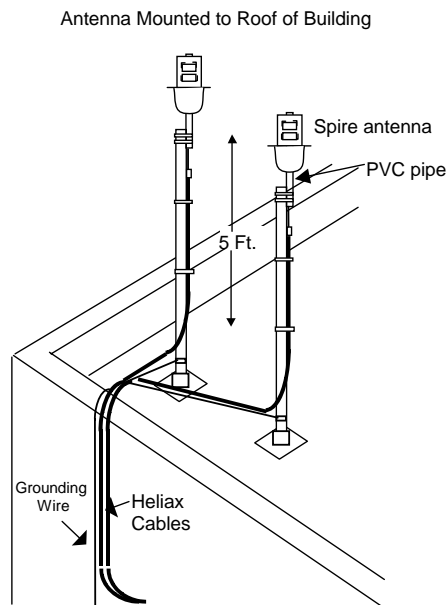


Figure 1 Antenna Mounted to Roof of Building

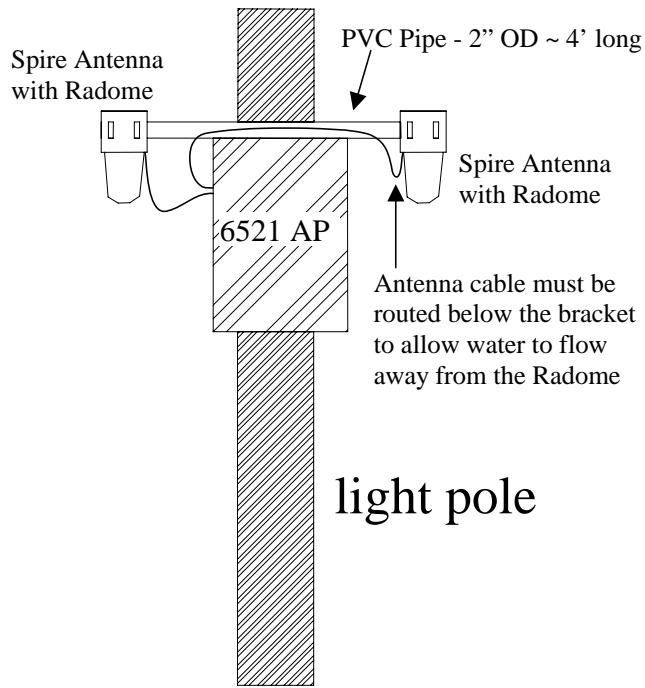


Figure 2 Antenna Mounted to PVC Pipe

## Antenna Grounding

Follow the National Electrical Code for the installation and connection of a ground rod.

## Mounting Of Spire Without Bracket

This antenna is suitable for use indoors only. It can be mounted to an acoustic ceiling tile, a solid ceiling, or to an LXE Ceiling Enclosure. To mount to an acoustic ceiling tile, use the mounting screws and nuts provided to hold the antenna to the tile. Make four holes in the tile for the screws and one hole for the RF cable.

The Ceiling Enclosure comes with a kit containing screws for attaching the Spire to the mounting plate in the Ceiling Enclosure.

The drawing below shows a typical setup with one antenna mounted to the center of the enclosure.

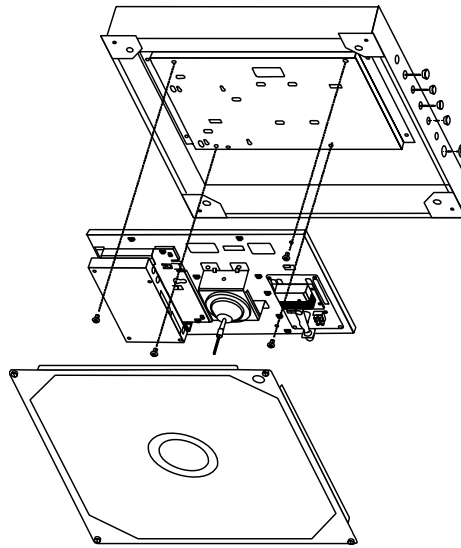


Figure 3 Ceiling Enclosure and One Antenna Mounting Diagram

The figure below shows a typical ceiling enclosure installation with local and remote antennas.



Figure 4 Typical Ceiling Enclosure Installation with Local and Remote Antennas

## Mounting Spire to I-Beam

The Spire Antenna may be mounted to an I-beam. The drawing below shows the I-Beam clamp and screw configuration for the antenna mounting plate.

The screws must be tightened to a torque value of 40 in/lb (4.52 N/m).

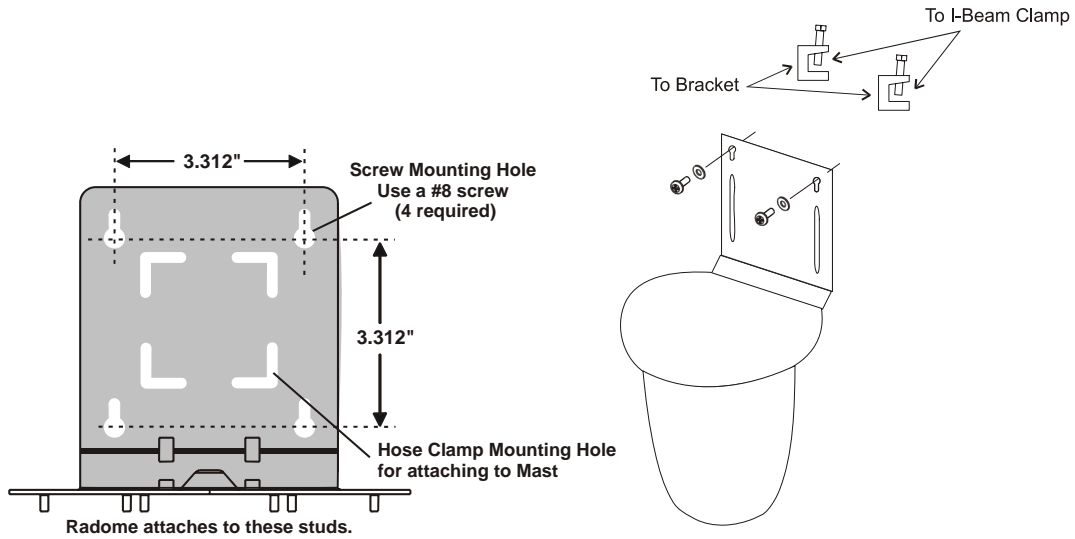


Figure 5 I-Beam Configuration



## Contacting LXE

LXE user guides are now available on CD and they can also be viewed/downloaded from the LXE ServicePass website. Contact your LXE representative to obtain the LXE Manuals CD or access to the LXE ServicePass website. You can also check the LXE ServicePass website for the latest manual releases.

You can get help from LXE by calling the telephone numbers listed on the LXE Manuals CD, in the file titled "Contacting LXE". This information is also available on the LXE website.

Explanations of terms and acronyms used in this guide are located in the file titled "LXE Technical Glossary" on the LXE Manuals CD and on the LXE ServicePass website.

## Notices

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## Revision Notice

Revision B	Added TM to the name Spire. Aug 2000
Revision C	Added instruction for attaching Spire antenna to I-Beam. Jun 2001
Revision D	Added registered trademark to the name Spire®. Formatted document for Web and CD delivery: Changed DocID number, removed revision from footer. Feb 2002
Revision E	Added "Contacting LXE" section. Added "Notices" section. Feb 2003
Revision F	Updated document presentation to reflect LXE's 2005 documentation standards. Added photos to enhance understanding. Sep 2005