
External LTE Antenna Outdoor Installation

The Parsec Labrador[™] antenna is a compact two-in-one MIMO LTE external antenna that works on all common North American LTE bands with high efficiency. You can attach a Labrador indoor antenna to a sheetrock wall in an office environment, which is optimal for indoor applications that require a higher performance alternative to screw-on antennas. The Labrador antenna has an IP65 ingress protection rating and can be mounted outdoors.

This article provides instructions about how to install a Labrador antenna outdoors.

Installation Location

Position the antenna in an isolated area to get the maximum signal. The antenna must be away from any interference from existing antennas, cluttered areas, or other situations that might interrupt the network.

Figure 1: Labrador Pole-Mounted Antenna



Figure 2: Labrador Wall-Mounted Antenna



Use the following guidelines to determine where to install the antenna:

- Ensure the antenna is at least 2 to 5 feet away from other antennas.
- Antennas must be away from outlets, AC or heating units, or anything with an electrical motor because these things can cause radio interference and reduce antenna performance.

Tool Requirements

To install the antenna, you need the following tools:

- Hammer or rubber mallet
- Philips screwdriver
- Drill

Assemble the Antenna

Assemble the mounting bracket on the antenna using the four plastic thread forming screws as shown in Figure 3. You must mount the antenna at least 2 to 5 feet away from other objects with a clear view of the horizon in as many directions as possible. Non-penetrating roof mounts allow you to move the antenna away from other objects, and a mast height of about 6 feet puts the mounting hardware and RF connections near eye level during installation.

Figure 3: Assemble the Mounting Bracket



Mount the Antenna to the Mast or Pole

To mount the antenna to the mast or pole:

1. Mount the antenna on the pole leaving at least 1 inch of mast above the clamp, as shown in Figure 4. The diameter of the pole must be between 1 and 2.5 inches, as shown in Figure 5.

Figure 4: Mount the Antenna on the Pole

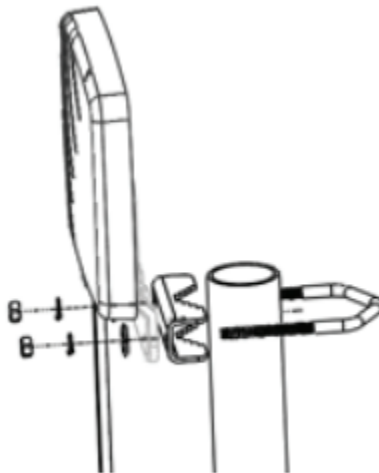
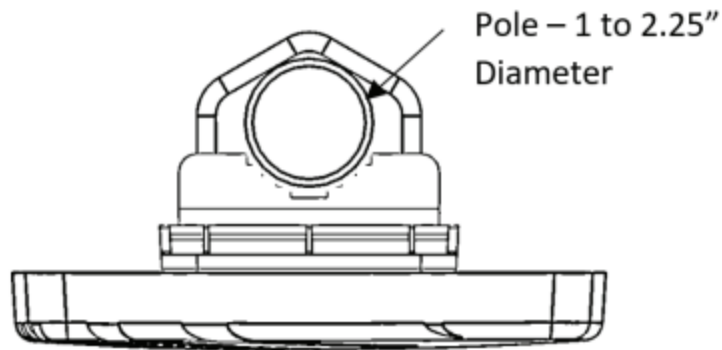
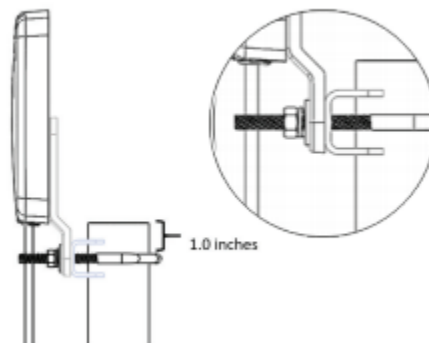


Figure 5: Pole Diameter



2. Tighten the two nuts and ensure that an equal length of threading extends past both nuts.
3. Use a 7/16 inch wrench to tighten each nut. Tighten to one full turn beyond finger tight to compress the lock washers.

Figure 6: Tight the Nuts and Compress the Lock Washers

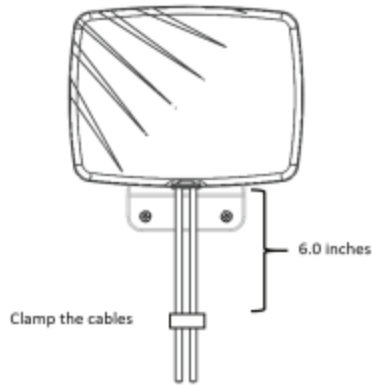


Note: Ensure that the antenna is mounted in the correct direction and tighten the mounting hardware. Waterproof the RF connectors using electrical tape or a heat shrink tube.

Cable Connection Guidelines

1. Route the cables, ensuring that there are no sharp bends in the cables.
2. Clamp the cables to the wall about 6 inches away from the antenna, if the cables are hung straight from the wall. See Figure 7.

Figure 7: Clamp the Cables to the Wall



3. Attach the two RF cables to the mast at least 1 foot below the RF connectors to provide strain relief.
4. Use vinyl electrical tape for deforming the RF cables. You can also use black UV resistant zip-ties. Avoid using tan nylon zip-ties because they rapidly deteriorate when exposed to the sun.

Connect the Cables

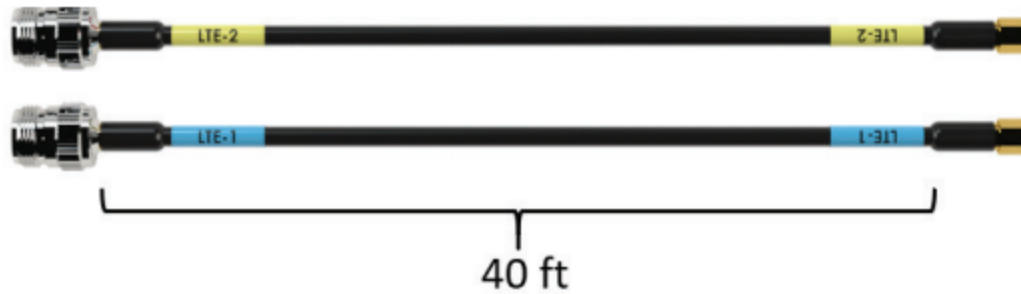
Cables on the antenna are labeled as LTE-1 and LTE-2.

Figure 8: LTE-1 and LTE-2 Cables



1. Clean the connectors to ensure that there is no dust in the terminals.
2. Connect the cables from the antenna to the designated cables of the cable kit.

Figure 9:



3. Screw the N male connectors of the coaxial cable onto the N female connectors on the antenna.

Caution: If the connectors do not screw on easily using only your fingers, then stop. The connector may be cross-threaded. Unscrew the connector and try again. Tighten the N connector firmly to compress the water-tight gasket inside the connector and to keep the connector from working loose. Channel lock 412 small V-Jaw pliers may be useful for getting a grip on the connector. The required torque is only 15 inch-pounds so be careful when using this or other tools to tighten the RF connectors.

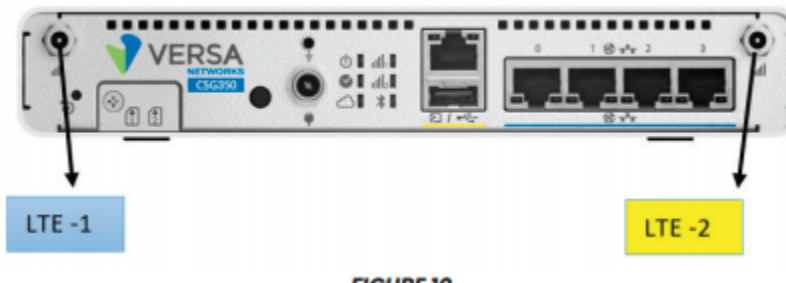
4. Connect the cables from the antenna to the designated connector on the appliance.

Note: Use a SMA torque wrench with a torque limit of 3 to 5 inch-pounds to connect the cables. If a torque wrench is not available, you can carefully tighten SMA connectors a 5/16 inch wrench if you use one finger no farther than 2 inches up the wrench to limit torque.

Connect a Versa CSG300 Series Appliance to an Antenna

For a CSG300 series appliance, connect the LTE-1 and LTE-2 cables from the antenna to the CELL 1 (main) and CELL 2 (aux) terminals on the appliance, as shown in Figure 10.

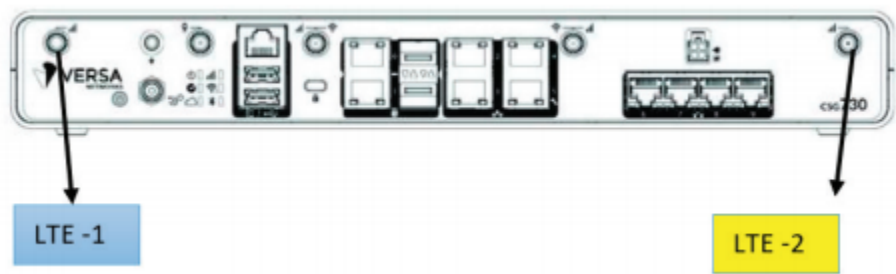
Figure 10: Connect a CSG300 Series Appliance to Labrador Antenna



Connect a Versa CSG700 Series Appliance to an Antenna

For a CSG700 series appliance, connect the LTE-1 and LTE-2 cables from the antenna to the CELL 1 (main) and CELL 2 (aux) terminals on the appliance, as shown in Figure 11.

Figure 11: Connect a CSG700 Series Appliance to Labrador Antenna



Commission and Test

1. Check each coaxial cable connector and visually inspect coaxial cable run for proper mechanical support.
2. Confirm the connection to a cellular network. Use the cellular device's built in diagnostics to confirm received signal strength indicator (RSSI) is better than -75 dB.
3. Confirm the cellular connection supporting communication at required data rates. Carry out VSWR check, should measure. Connect Cellular, LTE, and WLAN cables or stow unused pigtails.

Part Number and Hardware

- Part number of Labrador antenna: PTAWM2L01W-NF
- Cable kit: PC2402L40NFSM (if required, purchase separately)
- Cable Type and Length: LMR200 | 1 feet
- Connectors : N -Type Female
- Cable Labels: LTE-1 and LTE-2

The following table lists the mounting hardware information:

Table 1: Part Number and Hardware Information

Description	Quantity
Drill anchors	2
Anchor screws	2
Mounting bracket	1

Description	Quantity
Clamp saddle	1
V clamp bolt	1
Hex nut	2
Washer	2
Split washer	2
Plastic thread forming screws	4