

# DB408

## Omni or Elliptical Pattern Broad Band Antenna

### Installation Instructions

#### PRODUCT DESCRIPTION

The DB408 series antenna is a high gain, light weight, heavy duty antenna for use in station applications where an omnidirectional or an elliptical radiation pattern is desired.

#### OPTIONAL RADIATION PATTERN

An important feature of the DB408 series antenna is that it permits users to adapt the antenna to changing coverage requirements. When the dipole elements are spaced evenly – every 90° around the mast – an omnidirectional, or circular pattern results. (See Figure 2.) When all sets of dipoles are in line (collinear, DB408L, DB408DL) as illustrated in Figure 1, the antenna has a directional characteristic that produces an elliptical pattern (See the DB408L radiation pattern in Figure 3.).

The change from one radiation pattern to the other is easily accomplished. First, loosen the banding clamps that hold the dipole elements against the mast. Then, loosen the tape that secures the antenna harness to the mast. Next, rotate the elements around the mast as desired (See Figure 3.). Then, securely re-tighten the clamp. Next, re-tape the harness to the mast. Finally, cover the tape securing the cabling harness (DB11901) with an aluminum backed tape such as Scotch #425 (DB11902).

#### GENERAL MOUNTING INFORMATION

The DB408 series antenna is designed for mounting on the top of a tower or wooden pole.

For best operation, it is recommended that the bottom dipole be above the top of the tower.

Side mounting of the antenna requires the use of a DB5012 side mount kit. Radiation patterns that are obtained with the antenna side mounted on an 18" face tower are shown in Figure 5.

#### INSTALLATION PROCEDURE

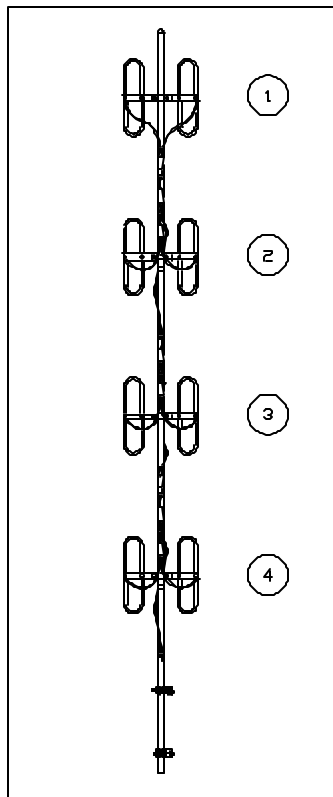
1. After removing the antenna from the shipping box, inspect it to be sure all parts are included, and there is no physical damage.
2. Inspect the antenna feed assembly output connector to determine that it mates with the end of your station transmission line.

Do not remove any connector or cable from the antenna feed assembly because they are all part of the antenna system.

#### Warning!

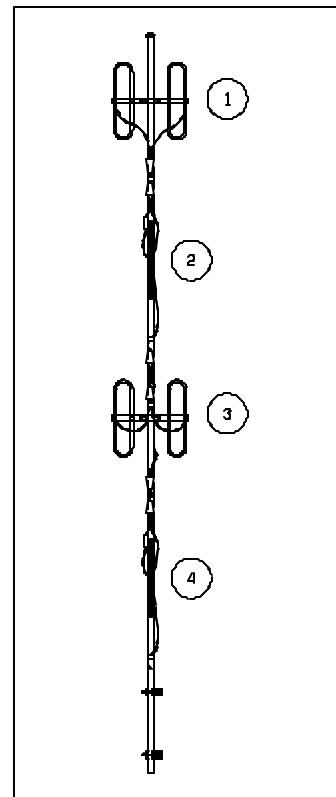
**Installation of this product near power lines is *dangerous*. For your safety, follow the installation procedures.**

**Note: Pressurization above 12 P.S.I.G. must be done in a protected enclosure to ensure personal safety.**



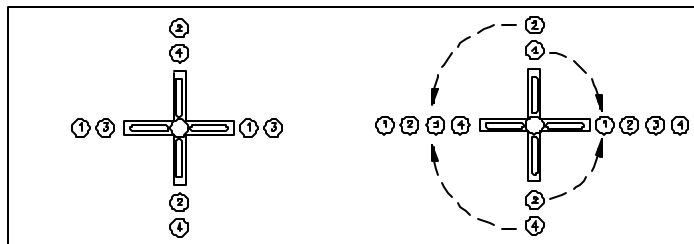
*Figure 1*

*DB408L - Elliptical Pattern*

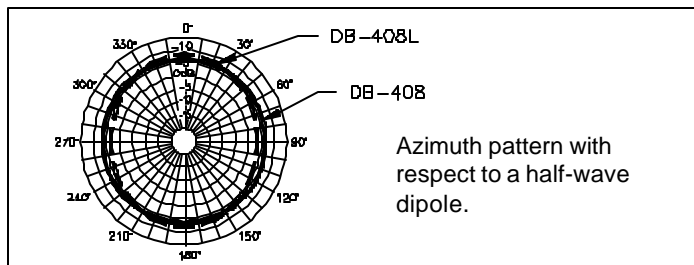


*Figure 2*

*DB408 - Omni Pattern*



*Figure 3 - Conversion to DB408L*



*Figure 4 - Azimuth Pattern*



3. Verify the antenna has been tuned to the same frequency as the existing radio system.
4. Attach the furnished DB365 mounting clamps to the bottom of the antenna mast at the designated locations. Mount the antenna on the tower.

Be sure the bottom dipoles are above tower.

5. A check of the antenna VSWR as measured at the antenna is recommended at this point.

Note this measurement carefully and record it for future reference.

6. After checking the VSWR at the antenna, connect the station transmission line(s) to the antenna. Make connection(s) snug, but do not apply excessive torque or crimping force with pliers.

With dual antennas, both antenna terminations are near the bottom of the mast.

7. To avoid moisture problems, carefully wrap all connections with Vapor-Wrap (P/N DB11316 or DB11317). Smooth wrap into the cracks and over the outer jacket of the transmission line(s).

Failure to waterproof connections will result in improper operation of the antenna.

8. Secure transmission line(s) to tower in the best position to avoid physical damage to the cable.

9. After antenna and transmission line(s) are installed, make a careful visual check to ensure that:

- All mechanical connections have been made.
- The antenna is mounted with sufficient physical clearance and properly oriented.
- All connections have been carefully wrapped to prevent moisture problems.

**SIDE MOUNTING**

When the DB408 and DB408L antennas are mounted to the side of a tower, the horizontal radiation pattern becomes distorted. Patterns in Figure 5 indicate the typical pattern shape of an antenna that has been side mounted using a DB2011 Side Mount Kit onto a tower with an 18" face. Patterns for 12" and 24" towers are similar.

The DB5011 Side Mount Kit positions the antenna approximately 16" from the tower. The kit consists of a galvanized upper sway brace and lower bracket. Included in this kit is the necessary hardware for attaching the bracket to round tower members up to 3" OD, or angular members up to 2 1/2" on a side. Other size clamps can be supplied on special order.

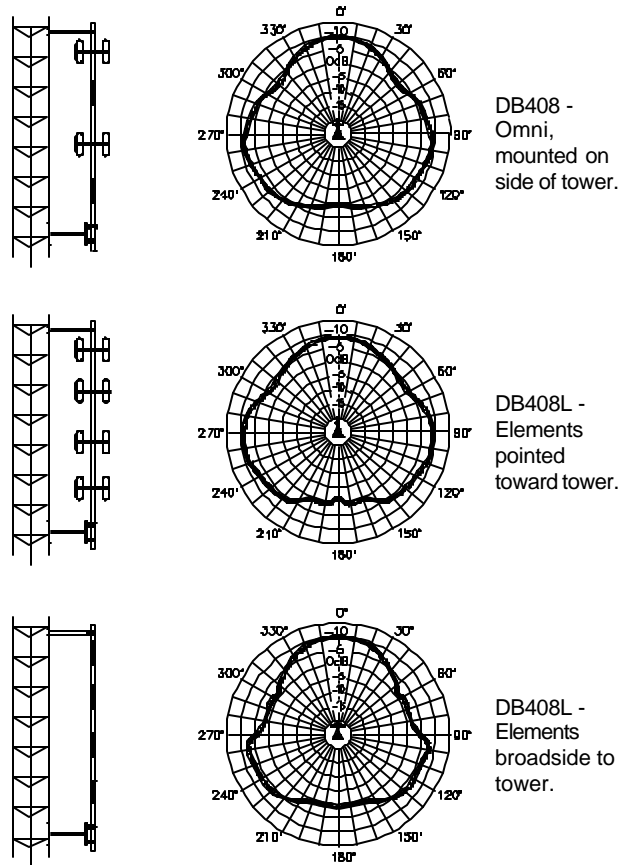


Figure 5 - Conversion to DB408L

