

095028-000 Revision P, May 2016

## DB436 Directional Antenna 400-420 MHz, 450-470 MHz Assembly and Mounting Instructions

### PRODUCT DESCRIPTION

Decibel designed the DB436 multi-element yagi antenna to provide high directivity and high front-to-back ratio. The DB436 have a band width of approximately 30 MHz with a VSWR of less than 1.5 to 1. They can be stacked and phased together to form the DB436-2 for additional gain.

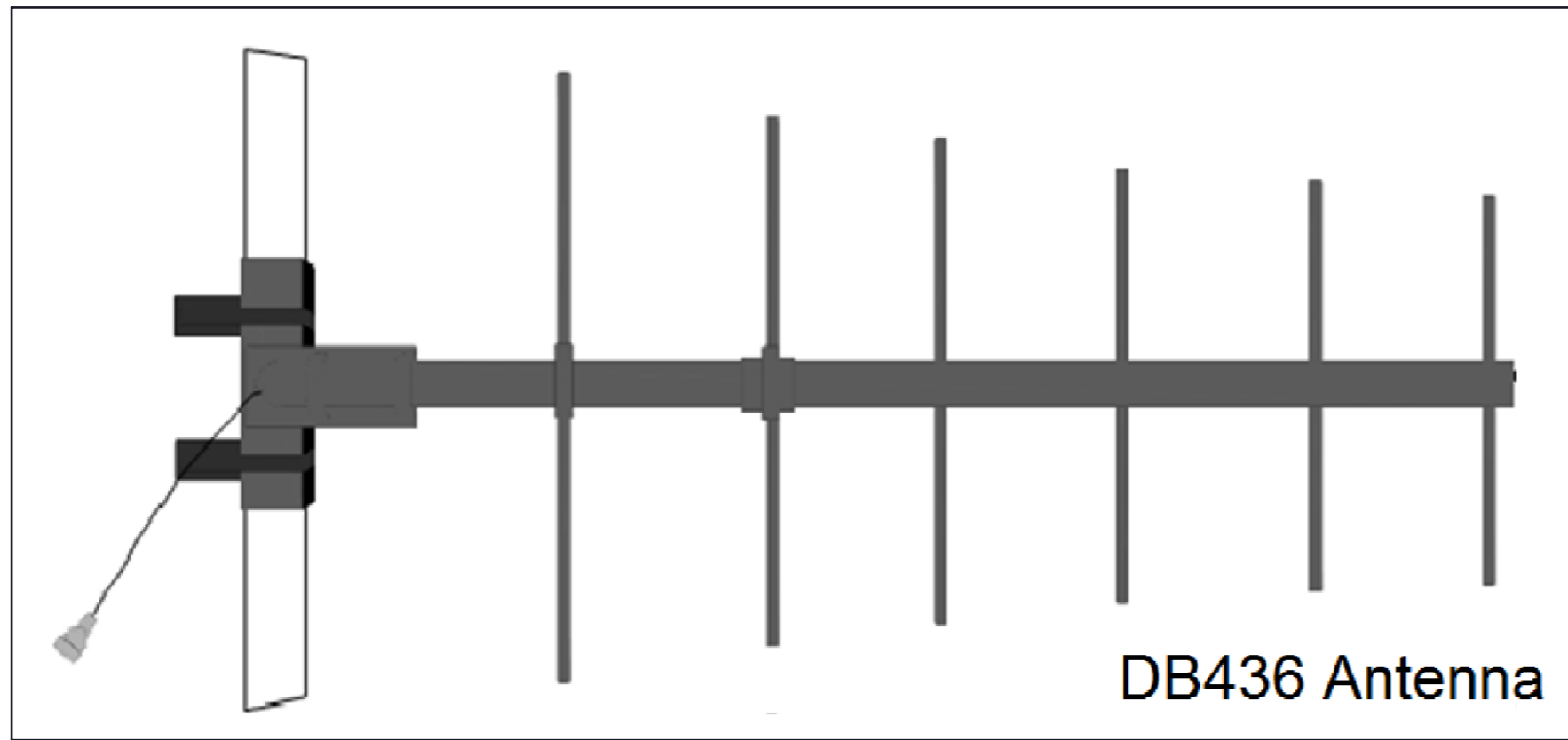


Figure 1 - DB Directional Antenna

### GENERAL MOUNTING INFORMATION

The DB436 antenna come complete with heavy-duty mounting brackets and stainless steel clamps for mounting on an angled or round leg, either on the top or side of a tower or wooden pole. The unique mounting arrangement of the antenna permits either vertical or horizontal polarization as well as rapid azimuth orientation (see Figure 4).

When mounting the antenna, make sure the elements clear all guy wires or other metal objects by at least 2 to 3 feet. When mounting a stacked phased array (DB436-2 or DB436-4), make sure the arrays are stacked collinearly and/or are exactly parallel to each other in the case of side-by-side mounting. Side-by-side arrays require a DB5009 mounting bracket for the DB436-2 and a DB5018 mounting bracket for the DB436-4.

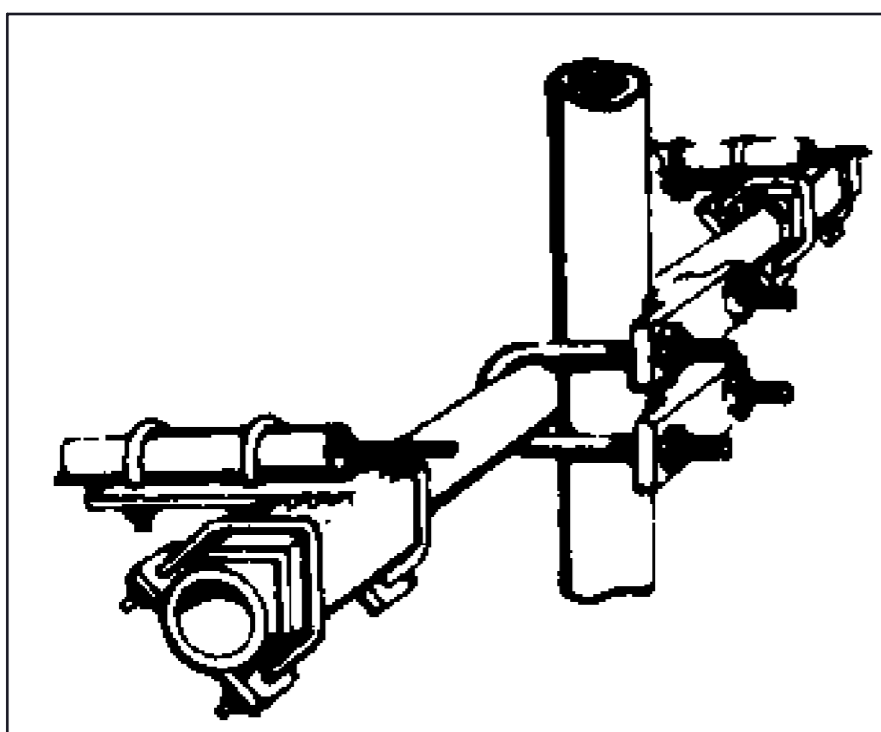


Figure 3  
Mounting Clamp Detail

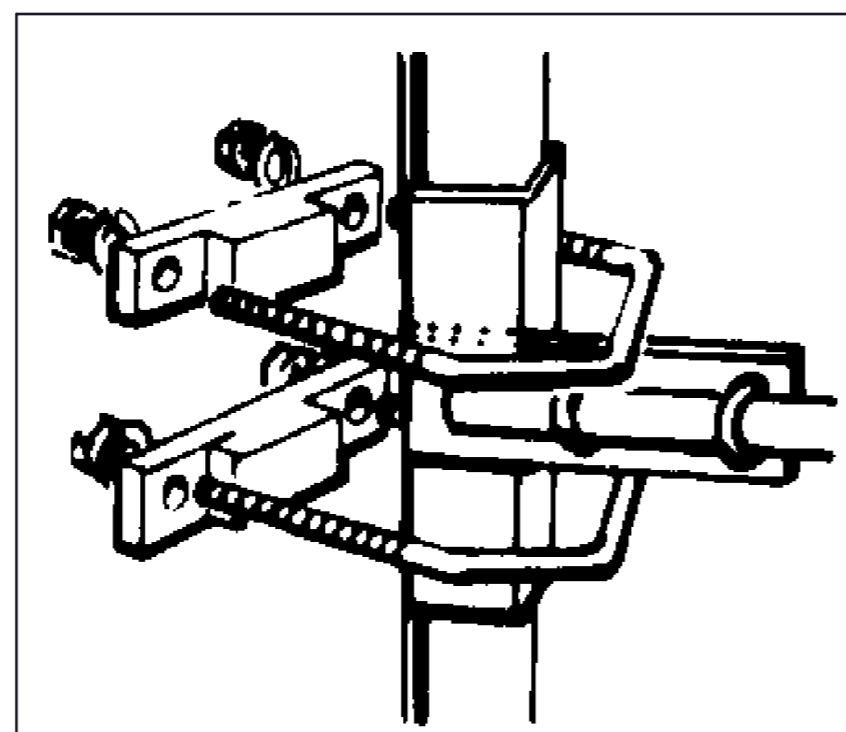


Figure 2  
Side-by-Side Mounting Detail

#### **SAFETY NOTICE**

The installation, maintenance, or removal of an antenna requires qualified, experienced personnel. CommScope installation instructions are written for such installation personnel. Antenna systems should be inspected once a year by qualified personnel to verify proper installation, maintenance, and condition of equipment.

CommScope disclaims any liability or responsibility for the results of improper or unsafe installation practices.

It is recommended that transmit power be turned off when the field installation is performed. Follow all applicable safety precautions as shown on this page.

### DB436 INSTALLATION PROCEDURE

Refer to Figure 4 while performing this procedure.

1. After removing the antenna from the shipping box, inspect it for physical damage and to make sure all parts are on hand.
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 connectors or cables from the antenna feed assembly; they are part of the antenna.
3. Verify that the frequency band to which your antenna has been tuned matches the frequency on which your radio system operates.
4. Determine the direction of the desired maximum range and the tower leg on which the antenna is to be mounted. Mount the antenna to the tower using the V-bolts and straps furnished, making sure that the "UP" arrow on the feed dipole is properly positioned. Orient the antenna and tighten the mounting clamps securely to avoid movement after alignment.
5. Decibel recommends that the VSWR be measured at the antenna 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 to the antenna. Make the connection snug but do not apply heavy force with pliers. To avoid moisture problems, carefully wrap the connection with Vapor-Wrap (part no. 11317 or 11316), working the compound into all cracks and smoothing it over the outer jackets. Failure to waterproof the cable will result in improper operation of the antenna. Properly secure the feeder cable and antenna transmission line to the tower in the best position to avoid physical damage to the cable.
7. After the antenna and transmission line installation has been completed, make a careful check to ensure that:
  - All mechanical connections have been securely made.
  - The antenna is mounted on the proper leg of the tower with sufficient physical clearance.
  - The radiating element is mounted with the "UP" arrow in the proper position.
  - All connections have been carefully wrapped with Vapor-Wrap to prevent moisture problems.

### DB436-2 INSTALLATION PROCEDURE

The DB436-2 consist of two DB436 multielement yagi antennas with a phasing transformer for connecting the two

(Continued on page 2)

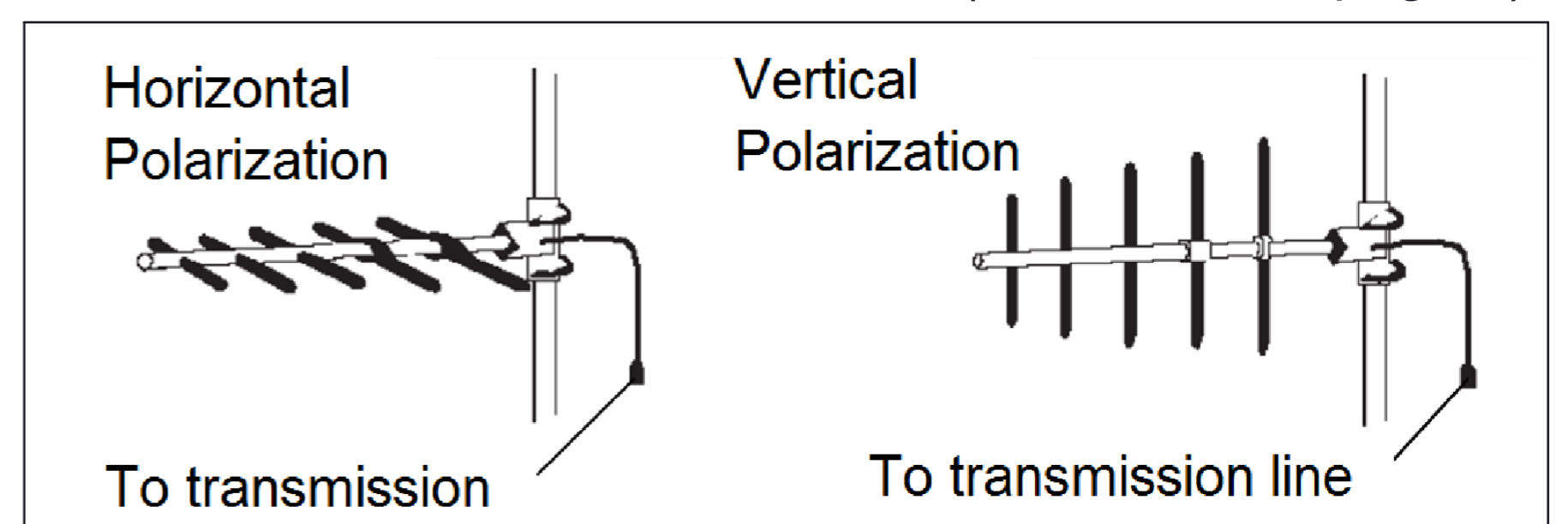


Figure 4 - DB436



Do not install near power lines. Power lines, telephone lines, and guy wires look the same. Assume any wire or line can electrocute you.



Do not install on a wet or windy day or when lightning or thunder is in the area. Do not use metal ladder.



Wear shoes with rubber soles and heels. Wear protective clothing including a long-sleeved shirt and rubber gloves.

(Continued from page 1)

units together. Antennas mounted collinearly with all elements directly in line down the tower obtain the best performance. In the case of side-by-side mounting, antennas oriented parallel to each other obtain the best performance. Refer to Figure 5 when performing this procedure.

1. Proceed with steps 1 through 3 of the DB436 Installation Procedure for both units (see page 1). Determine the direction of the desired maximum range and the tower leg on which the antennas will be mounted. Mount Antenna number 1 using V-bolts and straps furnished.
2. Measure length "A" (refer to Table 1) down the tower from the center of Antenna number 1 to determine the location for mounting the center of Antenna number 2. Mount Antenna number 2 as in step 1 above. In the case of side-by-side mounting, make sure that distance "A" separates the two yagi antennas. Determine that the "UP" arrow on the feed dipole is properly positioned.
3. Connect the two units together with the transformer. Make connection snug but do not apply heavy force with pliers. This should leave the phasing harness transformer open for connection to the station transmission line.
4. Follow steps 5 through 7 in the DB436 Installation Procedure (see page 1) to assure proper operation of the Antenna System.

## DB436 INSTALLATION PROCEDURE

The DB436-4 antenna consist of four multi-element yagi DB436 antenna with a phasing harness to connect the four units together. Refer to Figure 6 when performing this procedure.

1. Proceed with steps 1 through 3 in the DB436 Installation Procedure for each of the four yagi antennas (see page 1).
2. Mount Antenna number 1 using the V-bolts and straps furnished.
3. Measure length "A" (refer to Table 1) down the tower (or the same distance from side-to-side) from the center of Antenna number 1 to determine the location for mounting the center of Antenna number 2. Mount Antenna number 2 as in step 2 above.
4. Measure length "A" from the center of Antenna number 2 to determine the location for mounting the center of Antenna number 3. Mount Antenna number 3 as in step 2 above.
5. Measure length "A" from the center of Antenna number 3 to determine the location for mounting the center of Antenna number 4. Mount Antenna number 4 as in step 2 above.
6. At this point, the four individual antennas should be mounted. Connect the four units together with the DB436-4 phasing harness (see Figure 6) matching the color code.
7. Follow steps 5 through 7 in the DB436 Installation Procedure (see page 1) to assure proper operation of the Antenna System.

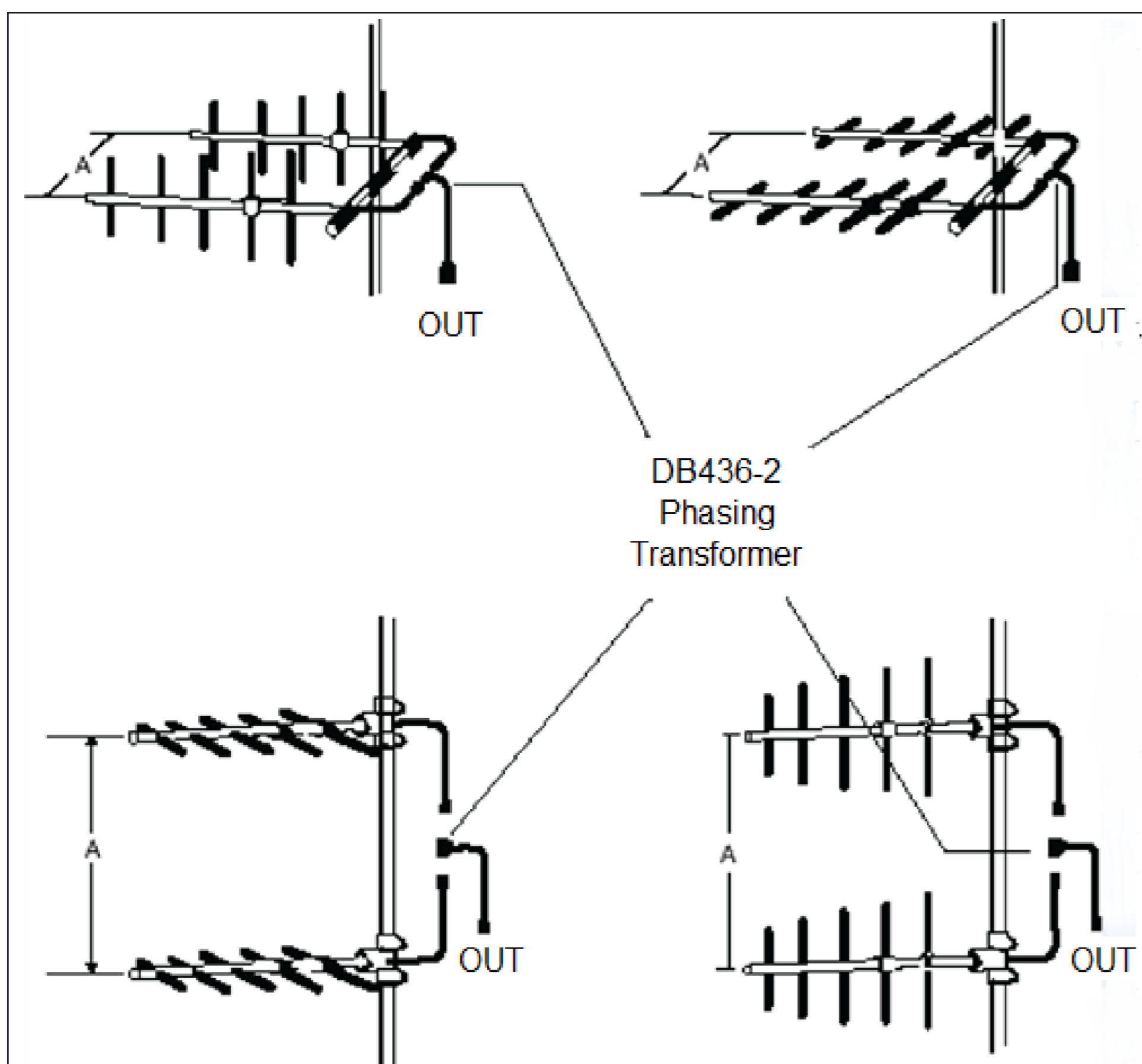


Figure 5 - DB436

Frequency Range (MHz)	"A" Measurement Lengths (inches)
400	28
450-470	25

Table 1 - Mounting Measurements

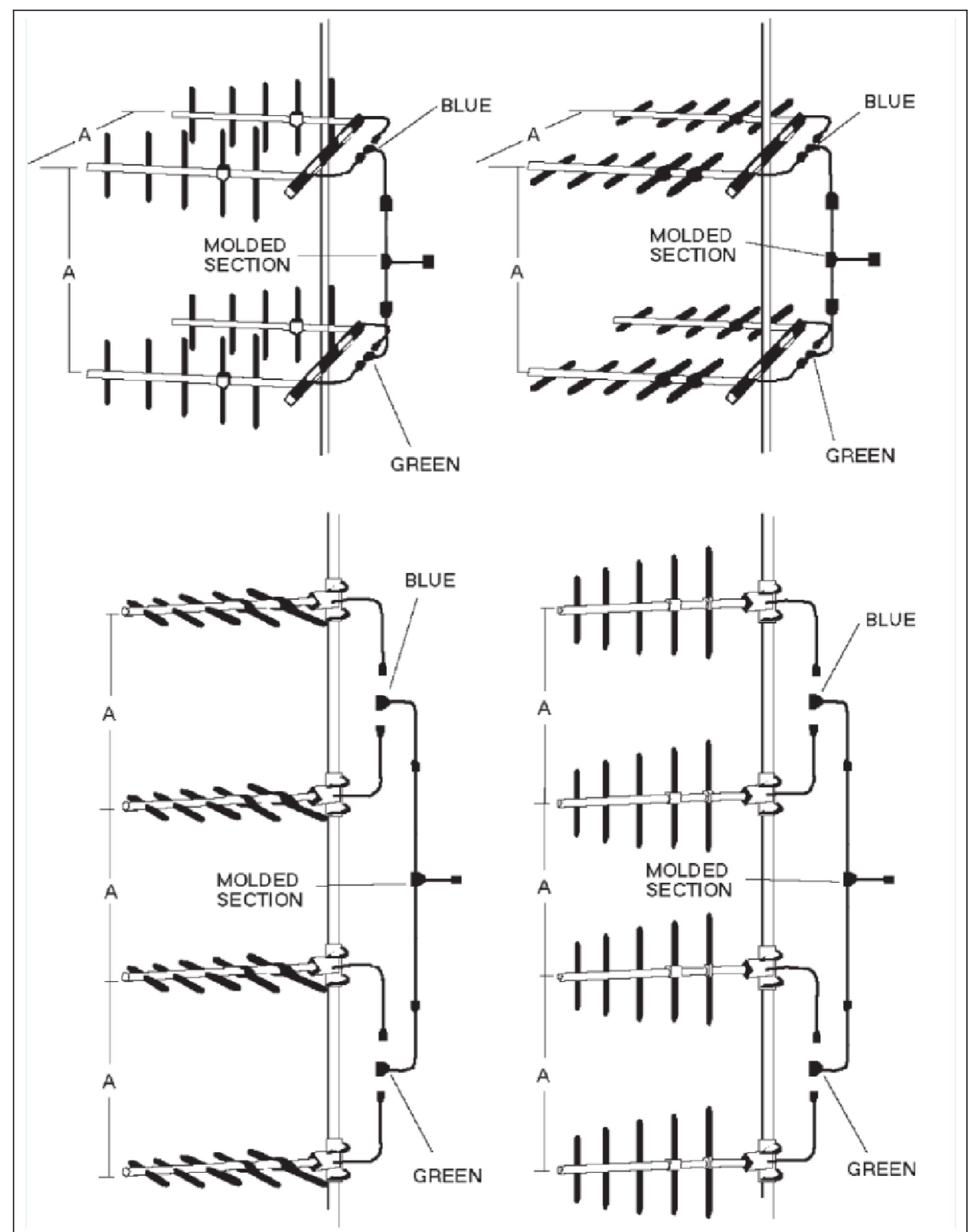


Figure 6 - DB436