

PRODUCT DESCRIPTION

The NPRF224 is a heavy duty, light weight, high gain antenna it is suitable for mounting to the top or on the side of a tower. Clamps for top mounting to the top or on the side of a tower. Clamps for top mounting are supplied with the antenna; an additional side mount kit must be ordered for side mounting.

ELECTRICAL DESIGN

The antenna is a four stack collinear array designed to provide high gain, broad bandwidth and minimum pattern distortion. A binary cable harness is used to ensure equal inphase power distribution to all radiating elements.

OPTIONAL RADIATION PATTERN

The NPRF224 can be used as an omnidirectional antenna having a gain of 6 dBd. An omni pattern is achieved when the four dipole elements are spaced evenly, every 90° around the mast (figure 1 and 2). An elliptical pattern is obtained when all four dipole elements are positioned in a line (collinear) along the mast. When top mounted, the omni and elliptical models provide radiation patterns as shown in Figure 3. When sided mounted, the two models provide significantly different radiation patterns (see SIDE MOUNTING and Figure 4). The antenna can be changed in the field from one pattern to the other using ordinary hand tools.

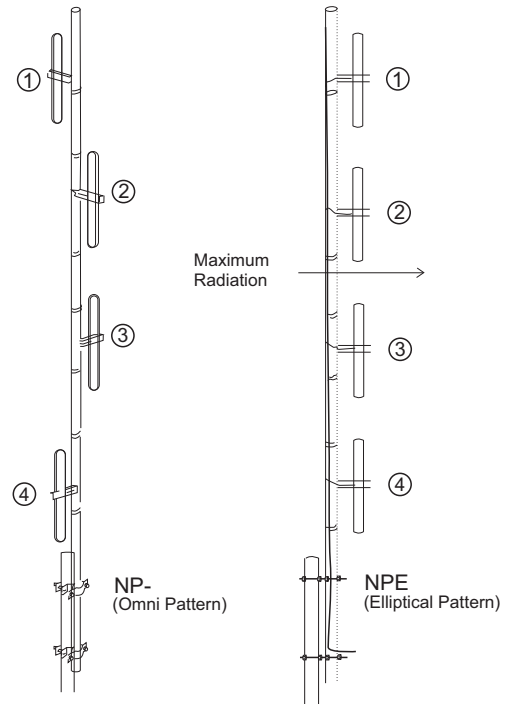


Fig. 1 Dipole Alignment

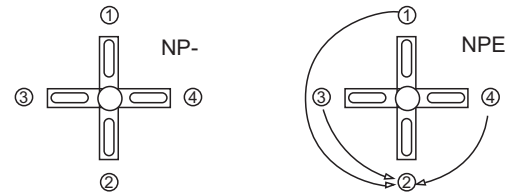


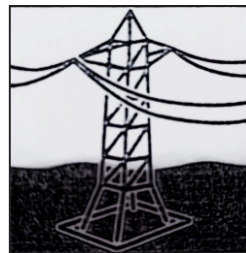
Fig. 2 Top View Dipole Alignment

SAFETY NOTICE

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

NetPoint RF 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.



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.

TWO PIECE MAST

For ease of handling and to facilitate shipment, the mast is made in two sections. Assembly of the sections is quite simple and requires only the use of ordinary hand tools. The unique center splice assures proper alignment.

SIDE MOUNTING

When the NPRF224 and NPE antennas are mounted to the side of a tower the horizontal radiation pattern shown below indicate the typical pattern shape of the antenna side mounted on a tower with an 18" to 24" face using the NP5001 side mount kit.

The Np5001 side mount kit positions the antenna approximately 18" from the tower and consists of an upper sway brace, lower bracket (both galvanized) and the necessary hardware for attaching the bracket to round tower members up to 3" OD, or angular members up to 2" on a side. Other size clamps can be supplied on special order.

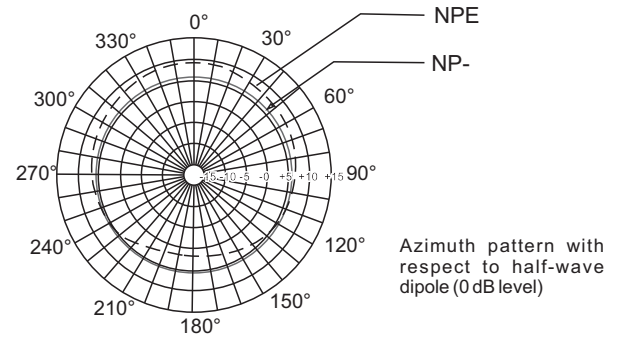
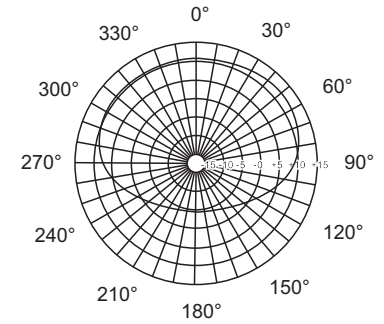
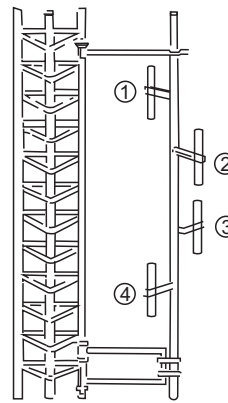
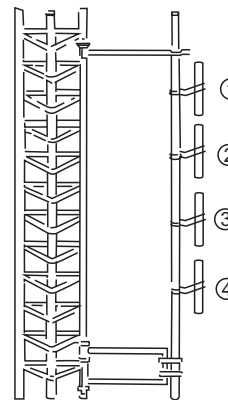


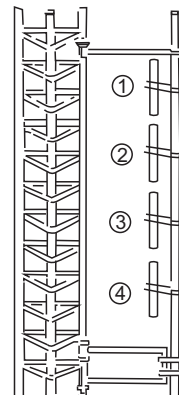
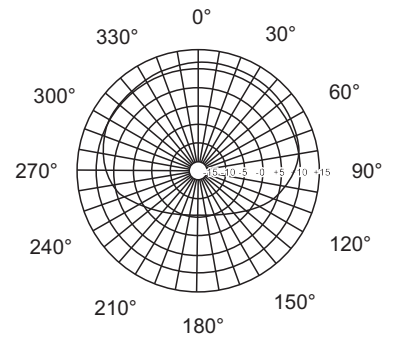
Fig. 3 Radiation Patterns for top Mounted



NP-



NPE- Elements pointed away from tower



NPE- Elements pointed toward tower

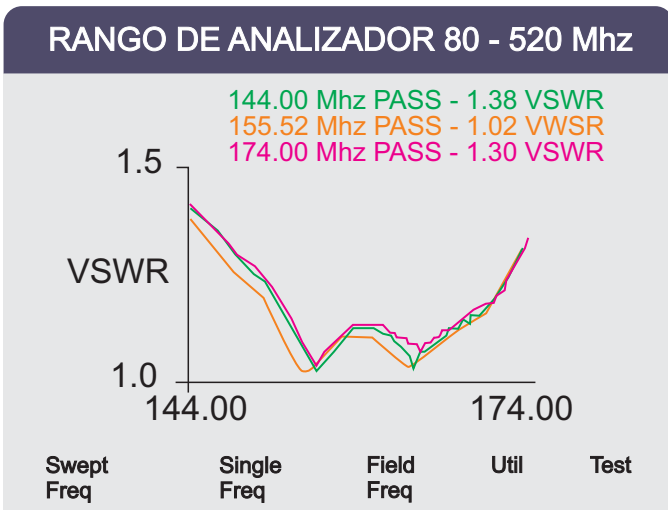
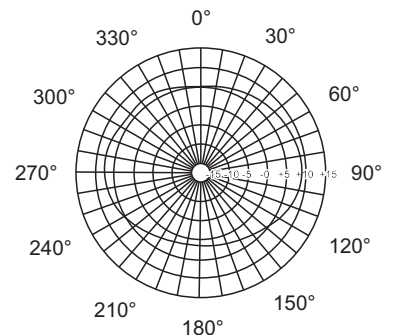


Fig. 4 Radiation Patterns

INSTALLATION PROCEDURE

1. After removing the antenna from the shipping box, inspect it to be sure all parts are on hand and that 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 connectors or cables from the antenna feed assembly since they are all a part of the antenna.

3. Verify that the frequency to which the antenna has been tuned is the frequency on which your radio system is to operate.

4. Slip the mast sections together and position the bands as shown in Figure 5. Tighten the bands securely; the recommended tightening torque is 45-60 in-lbs. Then, join the connectors, making the connections snug, but do not apply heavy force with pliers. Carefully wrap Vapor-Wrap® (by Commscope) around the connection to seal out moisture problems. Secure the connectors to the mast with several wraps of tape (see Figure 5).

5. Attach the furnished Np365 mounting clamps to the bottom of the antenna mast at the designated locations. Mount the antenna on the tower with the bottom dipole above and facing away from the tower.

6. 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.

7. 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 Vapor Wrap® (by Commscope) around the connection, smoothing it into the cracks and over the outer jackets of the transmission line. Failure to waterproof the cable connection can result in improper operation of your antenna transmission line to the tower in the best position to avoid physical damage to the cable.

8. After the antenna and transmission line installation has been completed, a careful check should be made 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.
- All connections have been carefully wrapped with Vapor-Wrap® (by Commscope) to prevent moisture problems.

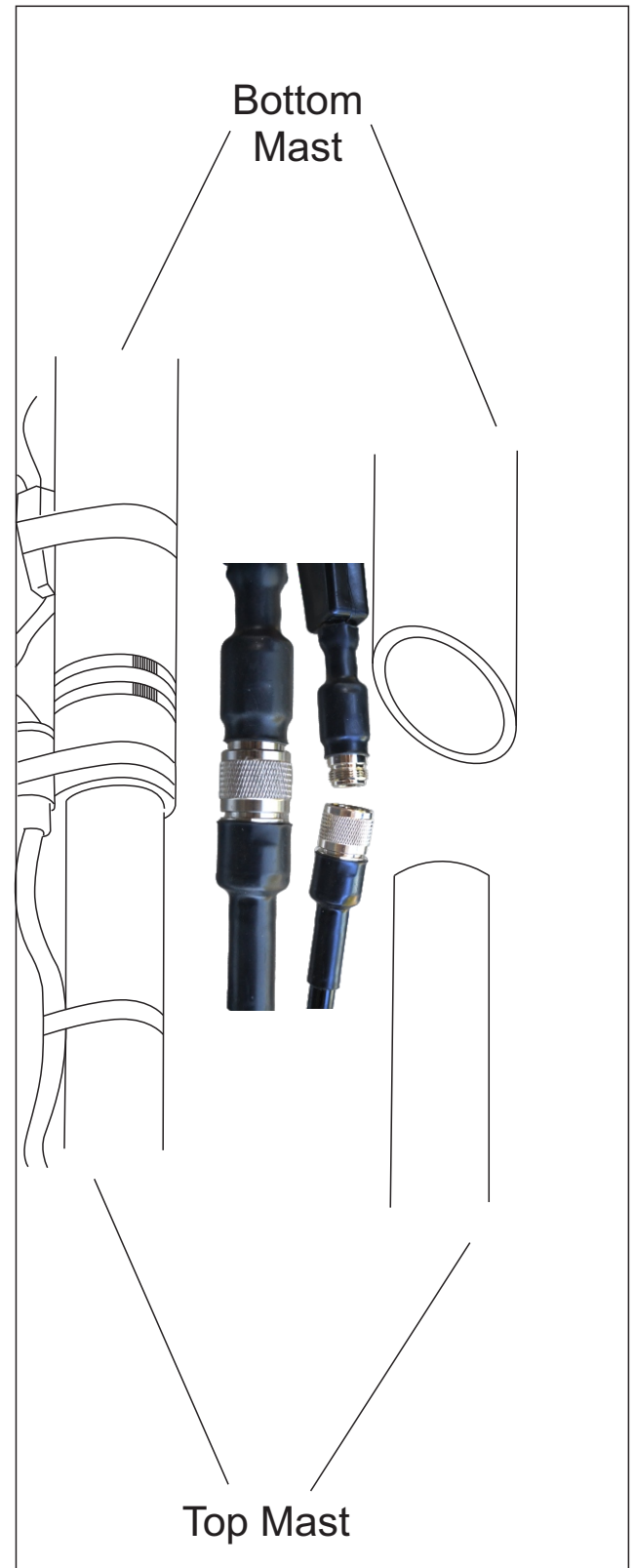


Fig. 5 Joining the Mast Sections