DIAGRAMME DE RAYONNEMENT CALCULÉ: ANTENNE 55 ELEMENTS LONG YAGI

FREQUENCE: 1296.0 MHz  PLAN: E

GAIN CALCULÉ : 21.25 dB iso  RAPPORT AU : ARR. : 24.72 dB

ANGLE D'OUVERTURE à -3dB : 2 x 5.27 deg.
ASSEMBLY INSTRUCTIONS

1296 / 55 element FSPT ANTENNA

IMPORTANT

When opening the package, check and compare all parts and hardware with enclosed part list. Then thoroughly and carefully read the instructions.

ELEMENT ASSEMBLY

For best efficiency, it is necessary to keep the elements at some distance from the antenna boom.

Place element in stand-off (#24 on pictorial diagram, and close-up 3) and gently knock the free tip of the element with a small hammer, to thrust element through hole (close-up 2A and 2B).

Slide element until proper centering is reached (close-up 2C).

These operations must be carried out with utmost care, to avoid unwanted bending of elements.

ANTENNA BOOM ASSEMBLY

The red end (cap set #7) indicates the front of the antenna, the black end (cap set #6), the rear. Directors are counted up from rear to front.

Refer to assembly diagram for proper mounting:

Join the three boom sections together; the sections are of the "plug-in" type. Tighten the sections together with the sets of clamps #9 and #10, and #5 wing screw #11. Mount short support leg, as shown on diagram: tighten to boom with sets of clamps #15, #16 and wing screw #17. Mount long support leg, consisting of part #5 (front) and part #6 (rear), as shown in diagrams and medallion A; M5 nuts #13 must not be forgotten! Slightly tighten (by hand) nut #13 on M5 screw #12; then slide support leg on screw #12, and screw-in M5 nuts #14. Now, first normally tighten nut #13, and then nut #14. Join both sections of the long leg, with set of clamps #19, plate #20. "Alligator" clamp #21, #5 U-bolt #18 and M5 nuts #22. Keep this last assembly temporarily loose.

ELEMENT POSITIONING ON BOOM

To avoid any confusion, each element is marked with a color (refer to color code in the element table).

Refer to close-up 3 for positioning:

Set the stand-off at slight angle across the boom (phase #1), as close as possible to the locking hole, and then rotate and slide the stand-off (phase #2) around the boom, so that the bump provided under the stand-off correctly fits into the hole (phase #3). Make sure that the sides of the stand-off also have a tight fit against the walls of the boom (phase #4).

CAUTION

The reflector is the longest element; each successive director is either the same, or shorter than the prior element. Make sure directors are correctly mounted, by checking the color order, according to code.

If elements are not properly mounted, performance of the antenna may be drastically reduced.

DRIVEN ELEMENT ASSEMBLY AND FEED-LINE

A short length of 50 Ohm coaxial cable (RG213/U) is factory mounted on the driven element. Run the coax through the 11 mm (7/16") hole and attach the driven element with the screws #23.

The type N male connector (UG219/U) must be mounted ONLY ONCE the coax has been run through the big hole (see connector mounting sketch).
This coax length is not randomly cut for stacking purposes. This length is an integer number of electrical half-wavelengths, and is the same on all manufactured antennas (see "Stacking information" clause).

As a feed line, a very high-quality, low loss coax cable is strongly recommended. Remember that the RG213/U exhibits a loss of 29 dB for 100 ft (8.6 dB for 100 feet) at 1.3 GHz. If better coax is available, use it. The feed line must be fitted with a standard type N female connector, such as the UG229/U, or a special one designed for thicker coax, with UG238/U nozzle.

MOUNTING OF ANTENNA TO MAST

The purpose of the short supporting leg is to avoid the mast to run through the element plane. As the usual diameter of the mast lies in the range from 40 to 54 millimeters (1/2" to 2"), this dimension is close to the quarter wave at 1.3 GHz, and thus the efficiency of the antenna may greatly decrease if the mast runs across the element plane.

Therefore, if an antenna is to be used single, it must be mounted on top of mast, or aside the mast with the help of a right angle bend of tubing (horizontal part about 50 cm or 20" long), this to minimize the influence of the main mast.

The maximum useful mast diameter is 54 millimeters (2" 1/8). Run mast through clamp slots and tighten short leg to mast. Then apply upward pressure on the long supporting leg to hold it in this position while tightening (nuts #22). This is to slightly strum the boom to hold it in a horizontal position, without downward droop.

STACKING INFORMATION

If two, four, or more antennas are to be stacked in phase, make sure that coax cable strip-off process is achieved the same way on all the antennas (same length of insulator removed on all lines). During mounting process on the stacking frame, make sure antennas are properly phased in. The bump on the plate shall be to the driven element marks the outer conductor of the feed line. ALL THE BUMPS MUST FACE THE SAME SIDE (all left or all right). In horizontal polarization: all up or all down, in vertical polarization.

For proper impedance matching, it is recommended to use the special power splitters designed for that purpose:

two-port splitter, part # 29223
four-port splitter, part # 29423

Proper combination of two- and four-port splitters allows stacking of 8, 16 or even more antennas, provided phase lines are correctly tailored.

PART AND HARDWARE LIST

<table>
<thead>
<tr>
<th>Diagram #</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Front boom section</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Central boom section</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Rear boom section</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Short supporting leg</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Long leg front part</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Long leg rear part</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Red plastic cap (front indicators)</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>Black plastic cap (rear indicator)</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>Boom attaching clamp (M5 threaded hole)</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>Boom attaching clamp (smooth hole)</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>Boom attaching screw (M5x25)</td>
<td>2</td>
</tr>
<tr>
<td>12</td>
<td>Boom to long leg attaching screw (M5x50)</td>
<td>4</td>
</tr>
<tr>
<td>13</td>
<td>Boom to long leg spacing M6 nut</td>
<td>4</td>
</tr>
<tr>
<td>14</td>
<td>Boom to long leg tightening M6 nut</td>
<td>4</td>
</tr>
</tbody>
</table>