2 dBi Ground Independent Tunable Poly Spring Vehicular Antenna 144-174 MHz NMO Mount Connector

HG142PSGI-NMO

Features

• Broadband performance; ground independent
• NMO Mount, Black Chrome Finish
• Flexible Black Polymer Alloy Spring
• O-ring seal for waterproof construction
• Durable Xenoy™ base with TPV over mold dust seal and grip ring

Applications

• Service Vehicles
• Public Safety
• Public Transportation
• Mining & Construction

Description

This wide band ground independent VHF mobile omnidirectional antenna is ideally suited for multipoint mobile applications including service vehicles, public transportation, public safety, mining and construction vehicles, as well numerous other commercial and industrial applications where mobility and wide coverage is desired. This antenna features a flexible Poly Spring base. Unlike the traditional metal spring base, the Poly Spring will not corrode and does not generate electrical noise when flexed during use. It has a standard TAD/NMO Motorola-type mobile base.

Configuration

Design

Application Band

Band Type

Radiation Pattern

Polarization

Ground Plane

Connector Type

Vehicular

VHF

Single

Omni Directional

Linear, Vertical

Independent

NMO Mount

Electrical Specifications

<table>
<thead>
<tr>
<th>Description</th>
<th>Minimum</th>
<th>Typical</th>
<th>Maximum</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range (Tunable Range)</td>
<td>144</td>
<td></td>
<td>174</td>
<td>MHz</td>
</tr>
<tr>
<td>Operational Bandwidth (Frequency Dependent) MHz</td>
<td></td>
<td>15-20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input VSWR (across operational bandwidth)</td>
<td></td>
<td>2:1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Center Frequency VSWR</td>
<td></td>
<td>1.2:1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impedance</td>
<td>50</td>
<td></td>
<td>Ohms</td>
<td></td>
</tr>
<tr>
<td>Gain</td>
<td>2</td>
<td></td>
<td>dBi</td>
<td></td>
</tr>
<tr>
<td>Horizontal (Azimuth) Beam Width</td>
<td></td>
<td>Omnidirectional</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vertical (Elevation) Beam Width</td>
<td>70</td>
<td></td>
<td>Degrees</td>
<td></td>
</tr>
<tr>
<td>Input Power</td>
<td></td>
<td>150</td>
<td>Watts</td>
<td></td>
</tr>
</tbody>
</table>

Click the following link (or enter part number in “SEARCH” on website) to obtain additional part information including price, inventory and certifications:

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Mechanical Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Material</td>
<td>Xenoy™ w/TPV over mold grip ring</td>
</tr>
<tr>
<td>Whip Material</td>
<td>17-7 SS</td>
</tr>
<tr>
<td>Whip Finish</td>
<td>Black Chrome</td>
</tr>
<tr>
<td>Mounting Application</td>
<td>¾ inch thru-hole NMO Mount</td>
</tr>
<tr>
<td>Spring Material</td>
<td>Black Molded Polymer Alloy</td>
</tr>
</tbody>
</table>

Size by Frequency

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>144 MHz</td>
<td>46 in</td>
</tr>
<tr>
<td></td>
<td>[116.84 cm]</td>
</tr>
</tbody>
</table>
HG142PSGI-NMO

Installation Instructions
HG142PSGI-NMO (144-174 MHz) 2 dBi
VHF GROUND PLANE INDEPENDENT ANTENNA

Congratulations on your selection of another quality antenna product from L-COM. L-COM is committed to continually provide the greatest antenna VALUE for your wireless applications.

1. Parts (Figure 1):
   Verify all parts are included with the Antenna as shown in Figure 1.
   A. Antenna Whip
   B. e/m-Flex™ Poly Spring Assembly
   C. NMO Base Adapter
   D. O-Ring

2. Tools/Materials Required:
   A. Tool for cutting stainless steel whip
   B. Hex Wrench (3/32")
   C. Note: Special tools are not required to install the antenna. The antenna is intended to be installed using a firm hand torque until the sealing O-ring is completely compressed against the installation surface.

3. Pre-Installation (Figure 2):
   A. Optimal VSWR and Bandwidth: Best performance is achieved when mounted to a non-metallic surface or small metal L-Bracket.
   B. Mounting Option: Metallic ground plane surface.
   C. Ensure O-ring is properly seated within O-ring groove as shown in Figure 2.
   D. Important: Verify proper operational Frequency, as labeled. (Figure 2).
   E. Read and follow all Whip Cutting Instructions supplied for this model.

4. Tuning and Installation (Figure 3):
   A. Verify contact spring is completely extended. If necessary, adjust by pulling the contact outward.
   B. Thread NMO Base Coil Adapter onto the vehicle NMO mount. Tighten by hand until O-Ring is completely seated.
   C. Thread Spring onto NMO Base Coil Adapter. Firmly torque by hand.
   D. Refer to whip cutting instructions. Cut whip length according to desired frequency and either ground plane or no ground plane installation.
   E. Verify VSWR. Apply firm torque to whip adapter set screws. (2 ea.)
WHIP CUTTING INSTRUCTIONS
“Ground Plane” and “No Ground Plane” Installations
PLEASE CAREFULLY READ ALL INSTRUCTIONS BEFORE CUTTING THE WHIP

<table>
<thead>
<tr>
<th>CENTER FREQUENCY (+ BANDWIDTH/TH)</th>
<th>TUNED WHIP LENGTH &quot;W&quot; NO GROUND PLANE</th>
<th>TUNED WHIP LENGTH &quot;W&quot; GROUND PLANE</th>
</tr>
</thead>
<tbody>
<tr>
<td>144 (± 7.5)</td>
<td>41-5/16</td>
<td>37-7/8</td>
</tr>
<tr>
<td>150 (± 7.5)</td>
<td>38-9/16</td>
<td>35-5/8</td>
</tr>
<tr>
<td>155 (± 8)</td>
<td>30-1/2</td>
<td>34-1/4</td>
</tr>
<tr>
<td>160 (± 8)</td>
<td>34-1/2</td>
<td>32-1/2</td>
</tr>
<tr>
<td>165 (± 8)</td>
<td>32-3/4</td>
<td>30-3/4</td>
</tr>
<tr>
<td>170 (± 9)</td>
<td>31-1/16</td>
<td>29-5/16</td>
</tr>
<tr>
<td>174 (± 9)</td>
<td>30-1/16</td>
<td>28-1/4</td>
</tr>
</tbody>
</table>

Table 1

1. **IMPORTANT**: Before Cutting.
   **OPTIMAL PERFORMANCE**: This antenna is specifically designed for precision VSWR performance at the desired frequency. Tuning the whip per Table 1 will provide optimal VSWR match across the bandwidth specified. VSWR bandwidth may vary depending on the actual installation surface material, location, bracket type and size.
   
   **CUTTING NOTE**: The whip can be cut using a grinding wheel or shearing tool designed for this purpose. Due to a large variation of installations without a conductive ground plane surface, it is strongly recommended to cut the whip slightly longer than the specified dimension in Table 1. If necessary, continue to trim for best VSWR match. Always verify actual VSWR or Return Loss performance after cutting and installation.
   
   **TUNED LENGTH “W”**: is determined by measuring the distance between the top of the whip adapter and the top of the whip. See Figure 4. **NOTE**: The actual cut length will be approximately 1” (25mm) longer than TUNED WHIP LENGTH “W”.

2. Choose the column in Table 1 for “Ground Plane” or “NO Ground Plane” installation.
3. Identify the desired center frequency of operation.
4. Imperial and Metric units are given for convenience. Cut the whip as required to establish the specified TUNED WHIP LENGTH “W” as shown in Figure 4.
5. Verify VSWR. Secure set screws (2 ea.).
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Environmental Specifications
Temperature
Operating Range
-40 to +85 deg C
Humidity
95%

Compliance Certifications (see product page for current document)

Plotted and Other Data
Notes:

Typical Radiation Pattern

The information contained within this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part in order to implement improvements. L-com reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. L-com does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and L-com does not assume liability arising out of the use of any part or document.
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L-com CAD Drawing