



INSTALLATION INSTRUCTIONS
EM-M10003 (420-470 MHz)
3 dB UHF ROOF MOUNT ANTENNA

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 E/M Wave 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.
 - Antenna Whip (30")
 - Spring Assembly
 - NMO Base Coil
 - O-Ring



Figure 1

2. Tools:

- Tool for cutting stainless steel whip
- Hex Wrench (3/32")
- **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):

- The EM-M10003 is designed for installation to a standard NMO mount.
- Ensure O-ring is properly seated within O-ring groove as shown in Figure 2.
- **Important:** Verify proper operational frequency is stamped on the base of the coil as shown in Figure 2.
- Read and follow all Whip Cutting Instructions supplied for this model.

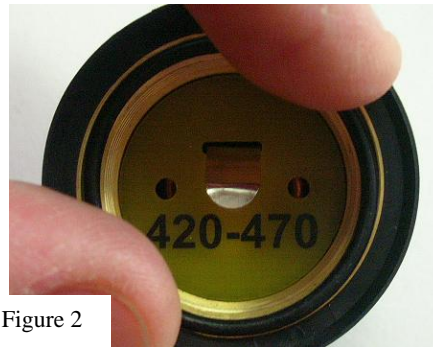


Figure 2

4. Tuning and Installation (Figures 3):

- a. Verify contact spring is completely extended. If necessary, adjust by pulling the contact outward. (Figure 3).
- b. Thread NMO Base Mount Adapter onto the vehicle NMO mount. Tighten by hand until O-Ring is completely seated.
- c. Thread Spring onto NMO Base Adapter. Firmly torque by hand.
- d. Refer to EM-M10003 whip cutting instructions. Cut whip to length according to desired frequency of operation.
- e. Verify VSWR. Apply firm torque to whip adapter set screws (2 ea.).



Figure 3

WHIP CUTTING INSTRUCTIONS
FOR TUNING EM-M10003
(420-470 MHz)

PLEASE CAREFULLY READ ALL INSTRUCTIONS BEFORE CUTTING THE WHIP.

1. **IMPORTANT: Before Cutting.**
 It is recommended to cut whip longer than the required dimension to verify actual performance. Then trim the whip in 1/16" (1.5mm) increments to fine tune the desired VSWR response.

CUTTING NOTE: The whip can be cut using a grinding wheel or shearing tool designed for this purpose.

2. **NOTE:** The 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.** Tuned dimension "W" does not specify the total length of the whip when detached from the whip adapter.

Total length of whip is approximately 1.5" (38mm) longer than "W" and must be added to the tuned dimension "W", when cutting the whip.

3. Identify the desired center frequency of operation in the left column of Table 1. Imperial and Metric units are given for convenience.
4. **TUNING NOTE:** For frequencies not listed in Table 1, interpolation of Tuned Length "W" is permitted. When interpolating intermediate frequencies, the antenna frequency response increases by approximately 1 MHz for every 0.04" (1 mm) of cut length.
5. Cut the whip as required to establish the specified tuning length "W" as shown in Figure 4.
6. Verify VSWR. Secure set screws (2 ea.).

| FREQUENCY (MHz) | WHIP LENGTH "W" | |
|-----------------|-----------------|------|
| | (inches) | (mm) |
| 420 | 9-7/8 | 251 |
| 423 | 9-5/8 | 245 |
| 426 | 9-1/2 | 242 |
| 429 | 9-5/16 | 237 |
| 432 | 9-1/32 | 230 |
| 435 | 8-15/16 | 227 |
| 438 | 8-3/4 | 223 |
| 441 | 8-9/16 | 219 |
| 445 | 8-1/2 | 216 |
| 448 | 8-3/8 | 213 |
| 451 | 8-1/4 | 210 |
| 454 | 8-1/8 | 206 |
| 457 | 8 | 203 |
| 460 | 7-7/8 | 200 |
| 463 | 7-3/4 | 197 |
| 466 | 7-5/8 | 194 |
| 469 | 7-1/2 | 191 |
| 470 | 7-7/16 | 189 |

Table 1

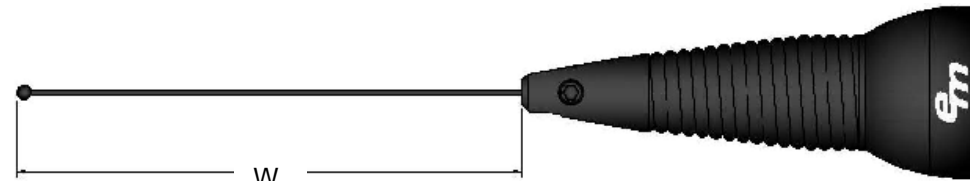


Figure 4

[Note: Add 1.5" (38mm) when cutting total whip length.]

E/M Wave Inc.
LIMITED WARRANTY STATEMENT

Congratulations on your selection of another quality antenna product from E/M Wave. E/M Wave is committed to continually provide the greatest antenna VALUE for your wireless applications

Electro-Magwave Incorporated, herein after referred to E/M, warrants, under standard terms and conditions, all products manufactured by it to be free from defects in material and workmanship under normal use and service, for a period of two (2) years from the initial delivery date to the original consumer.

E/M's obligation under this warranty is limited to prompt replacement of any necessary parts or complete product, at its option, without charge, by an authorized retailer or distributor, and does not include installation or reinstallation related charges. The original consumer shall return the parts with prepaid transportation charges to the point of purchase or the manufacturer for complete evaluation of defects.

The warranty period of any replaced item shall not extend beyond the original purchase term.

This warranty does not apply to any part or product which has been modified or altered in any way, nor does it apply to any part or product that fails to perform due to damage, neglect, inappropriate physical or electrical abuse or misuse, misapplication or inappropriate use, improper installation or all other forms of accidental causes.

This warranty is exclusive and in lieu of all other warranties, whether express or implied including implied warranties of merchantability and fitness for a specific purpose, and limited to the duration of the two (2) year period stated herein.

Standard Warranty Conditions: This warranty shall apply only if, (i) the product has been correctly installed and used at all times in accordance with the intended application as described within the product documentation and (ii) the product has not been subjected to any form of modification, damage, neglect, inappropriate physical or electrical abuse or misuse, misapplication or inappropriate use, improper installation or all other forms of accidental causes.

Disclaimer: E/M shall not be liable, for any reason, for damages caused by breach of this warranty or of any other implied warranty. E/M shall not warrant that the operation of the product is 100% inerrant, nor does it guarantee uninterrupted service operation, implied claims of service coverage or other system related performance criteria. E/M shall not be liable for purchased selection, misapplication of product or failure to meet any governmental regulations.

E/M reserves the right to change product materials and specifications without notice.