INSTALLATION INSTRUCTIONS
EM-M10001 (108-520 MHz)
BROAD BAND VHF/UHF QUARTER-WAVE
ROOF MOUNT ANTENNA

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.

1. Parts (Figure 1):

- Verify all parts are included with the Antenna as shown in Figure 1.
  - Antenna Whip
  - Spring
  - NMO Base Mount Adapter
  - 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-M10001 is designed for vehicular groundplane installation with a standard NMO mount.
- Ensure O-ring is properly seated within O-ring groove as shown in Figure 3.
- **Note:** Always cut the whip longer than specified chart dimension to verify ground plane effects do not cause whip to resonate higher than desired frequency of operation.

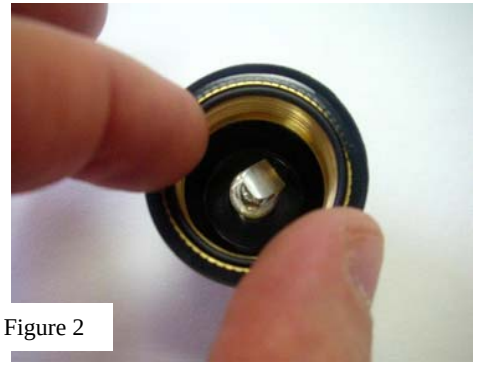

Figure 2

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 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-M10001 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-M10001

VHF (108-225 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 1/8" (3mm) increments to fine tune the desired VSWR response. 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. **Note:** For frequencies not listed in Table 1, interpolation of Tuned Length "W" is permitted. Mounting location and vehicle (ground plane) size will affect actual VSWR performance.
5. Cut the whip length required to establish the specified tuning length "W" as shown in Figure 4.
6. Verify VSWR. Secure set screws.

FREQUENCY (MHz)	WHIP LENGTH "W" (inches)	(mm)
108	25	635
110	24-3/8	619
115	22-7/8	581
120	21-1/4	540
125	19-3/4	502
130	18-7/8	479
135	17-7/8	454
140	17	432
145	16-3/8	416
150	15-3/4	400
155	15-1/8	384
160	14-1/2	368
165	13-7/8	352
170	13-1/2	343
175	13	330
180	12-5/8	321
185	12-1/8	308
190	11-3/4	298
195	11-3/8	289
200	11	279
205	10-5/8	270
210	10-3/8	264
215	10	254
220	9-3/4	248
225	9-1/2	241

Table 1

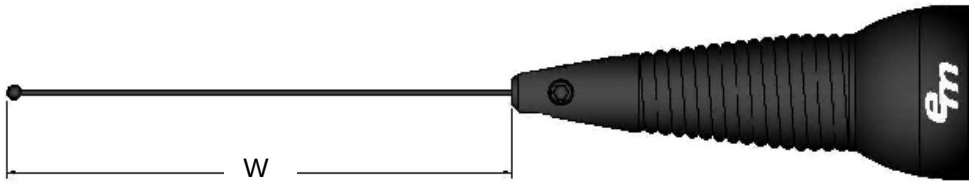

Figure 4

WHIP CUTTING INSTRUCTIONS
FOR TUNING EM-M10001

UHF (380-520 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. 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 5.** 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 2. Imperial and Metric units are given for convenience.
4. **Note:** For frequencies not listed in Table 2, interpolation of Tuned Length "W" is permitted. Mounting location and vehicle (ground plane) size will affect actual VSWR performance.
5. Cut the whip length required to establish the specified tuning length "W" as shown in Figure 5.
6. Verify VSWR. Secure set screws.

FREQUENCY (MHz)	WHIP LENGTH "W" (inches)	(mm)
380	4-9/16	116
385	4-17/32	115
390	4-1/2	114
395	4-7/16	113
400	4-5/16	110
405	4-1/4	108
410	4-7/32	107
415	4-3/16	106
420	4-1/8	105
425	4-3/32	104
430	4-1/16	103
435	3-31/32	101
440	3-7/8	99
445	3-13/16	97
450	3-3/4	95
455	3-21/32	93
460	3-19/32	91
465	3-1/2	89
470	3-7/16	87
475	3-11/32	85
480	3-9/32	83
485	3-3/16	81
490	3-1/8	79
495	3-1/32	77
500	2-15/16	75
505	2-7/8	73
510	2-25/32	71
515	2-23/32	69
520	2-11/16	68

Table 2

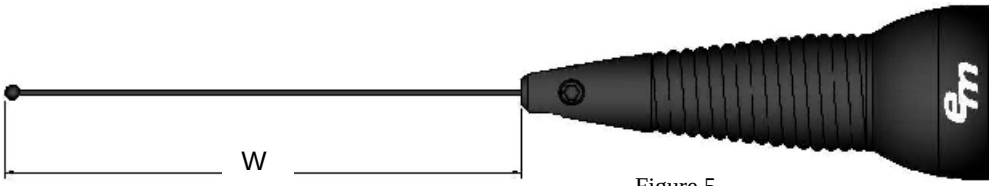

Figure 5

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.