INSTALLATION INSTRUCTIONS

EM-MBD41004
TRI-BAND DUPLEXED ANTENNA SYSTEM w/GPS
108-174 MHz / 450-520 MHz / 746-870 MHz

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.

IMPORTANT: PLEASE CAREFULLY READ ALL INSTRUCTIONS BEFORE BEGINNING THE INSTALLATION PROCESS.

Caution: Radio output power **cannot exceed rated power** for each band of the duplexer:

- **150W, max:** (100-180 MHz)
- **100W, max:** (380-520 MHz)
- **75W, max:** (746-870 MHz)

Parts: Verify all parts are included. Reference items in Figure 1:

1. (1 ea.) EM-MBD41000-NJ Multi-Band Duplexer
2. (1 ea.) EMFLX-M10001, Field Tunable, VHF ¼ Wave Antenna
3. (3 ea.) EMNP-058 Type N Connectors, RG-58/U & 195 Type
4. (1 ea.) EM-MG11006-SP NMO/GPS Combination Mount
5. (1 ea.) EM-M11001-195 Low Loss NMO Cable Mount
6. (1 ea.) 18-00011 RG-58/U Feed Cable, 17 ft. (5.1m) length
7. (1 ea.) EM-M22001, Multi-Band UHF/700-800 MHz Antenna

Tools/Materials Required:

- Drill and Hole Punch, ¾" (19.05mm) Diameter – NMO Cable Mount installation
- #8 Self Tapping or Machine Screws (2 ea.) – Duplexer installation
- Cable Stripping Tools for RG-58/U & 195 type cable – Connector installations
- Coaxial Connector (sold separately) for attaching Feed Cable (RG-58/U) to radio transceiver

Pre-Installation Checklist and Tips:

- ✓ Locate a suitable mounting location for the Duplexer providing the shortest cable lengths for installing both antennas.
- ✓ **Important: Duplexer intended for interior or environmentally protected installation only. Do not install with direct exposure to outdoor environment.**
- ✓ Follow all instructions provided with each NMO Cable Mount and Field Tunable Antenna to be installed.
- ✓ **Best Performance Recommendations:**
  - Minimize all cable lengths during installation to reduce unnecessary cable insertion loss.
  - Feed the UHF/700-800 MHz Antenna using the EM-M11001-195 Low Loss NMO Cable Mount.
  - Separate antennas by largest distance possible to prevent VSWR mismatch or radiated obstruction. (**Note:** Duplexer provides >50 dB isolation between VHF and UHF/700-800 MHz antenna ports, maximizing cross-talk rejection.)

Installation: (Refer to Figure 1 for antenna/duplexer system configuration.)

1. Install Duplexer to a suitable mounting surface using #8 screws. Mounting Hole spacing: 2-15/16" (74.6mm).
2. Install NMO Cable mounts for each antenna according to the individual instructions.
3. Verify antenna cable routing. Cut excess cable. Strip ends of the NMO cable mounts according to the N Type Connector instructions provided with the connectors. Attach N Type connectors to the cables. Crimp and verify operation.
4. Repeat Step 4 for one end only of RG-58/U Feed Cable (18-00011). Attach radio transceiver connector (sold separately) to the opposite end of the RG-58/U Feed Cable.
5. Install antennas according to the individual antenna instructions provided. Verify operation.
6. Attach all remaining connections according to the system diagram in Figure 1.
7. Verify radio transceiver performance for all required operating bands or channels.

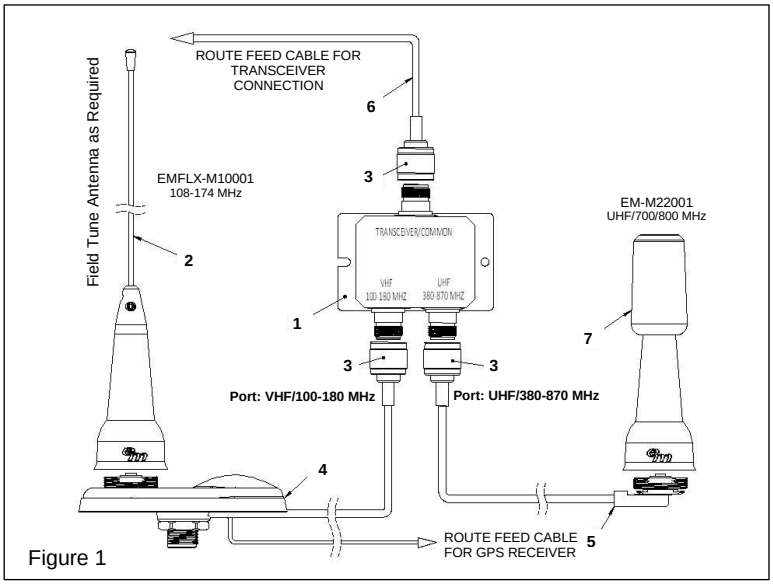

Figure 1