



TECHNICAL MANUAL and INSTALLATION INSTRUCTIONS

# VMB-11512-N VHF/UHF ANTENNA

***VTM-15-003***

**Valcom Manufacturing Group, Inc.**

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SECTION 1

GENERAL INFORMATION AND SAFETY PRECAUTIONS

**1-1. GENERAL SAFETY PRECAUTIONS** . The following general safety precautions are not related to any specific procedures and therefore do not appear elsewhere in this publication. These are recommended precautions that personnel must understand and apply during many phases of operation and maintenance.

**WARNING**

Keep away from live circuits. Operating personnel must at all times observe all safety regulations, to prevent serious injury or death due to electrical shock.

Do not service or adjust alone. Under no circumstances should any person service or adjust the equipment except in the presence of someone who is capable of rendering aid.

Personnel working with or near high voltages should be familiar with modern methods of resuscitation.

**1-2 SPECIFIC WARNINGS.** The following specific precautions are related to inspecting and removing the antenna.

**WARNING**

Ensure that the transmitting equipment is de-energized prior to inspection of the antenna. Make sure the test equipment is properly grounded, to prevent electric shock.

**CAUTION**

Make sure the antenna is properly supported before removing its mounting hardware.

**CAUTION**

Do not coat the insulator with any substance; do not paint with lead base paints.

### **1-3. INTRODUCTION.**

1-3.1 **Purpose.** This manual provides general information on the VMB-11512-N, as well as installation data, and operational and functional descriptions of the antenna. Information in this manual will assist in installing and operating the antenna.

1-3.2 **Scope.** This technical manual is provided to aid in the operation and installation of the antenna.

1-3.3 **Applicability.** This manual applies to the VHF/UHF Antenna VMB-11512-N as manufactured by Valcom.

### **1-4. EQUIPMENT DESCRIPTION.**

#### 1-4.1

antenna for general use with VHF/UHF communications equipment. The antenna radiating elements are housed within a fibreglass insulator radome and aluminum mounting base.

**General Description** . The antenna, shown in Figure 4.1 is a 25.75 inch VHF/UHF

1-4.2 **Capabilities.** The antenna provides vertically polarized, omnidirectional azimuth radiation from 115 to 512 MHz. The aluminum antenna elements are high radiation material that can handle power up to 100 watts. The antenna meets high shock and vibration requirements.

1-4.3 **Limitations.** When used as directed, the antenna has no limitations.

### **1-5. RELATIONSHIP TO OTHER EQUIPMENT.**

The VMB-11512-N Antenna interfaces with VHF/UHF receiving and transmitting equipment with 50 ohm output impedance. A lightning surge arrester is installed inside antenna that protects the RF equipment (transmitter or receiver) .

**1-6. REFERENCE DATA.** Table 1-1 lists the reference data for the antenna.

**1-7. EQUIPMENT ACCESSORIES AND DOCUMENTS SUPPLIED.** Table 1-2 lists the equipment and documents supplied.

Table 1-1. Reference Data

PARAMETER	SPECIFICATION
<p>NOMENCLATURE</p> <p>MANUFACTURER PART NUMBER FREQUENCY RANGE VSWR GAIN IMPEDANCE INPUT INPUT CONNECTOR POLARIZATION POWER CAPABILITY RADIATION PATTERN</p> <p>(AZIMUTH)</p> <p>OPERATING TEMPERATURE WIND VELOCITY SHOCK VIBRATION HEIGHT WEIGHT BASE MOUNTING</p>	<p>VHF/UHF ANTENNA VMB-11512-N VALCOM MANUFACTURING GROUP, INC. VC-08-00065-1 115 TO 512 MHZ</p> <p>3.0:1 MAXIMUM</p> <p>-3 dBi to +3 dBi 50 OHMS INPUT N-TYPE RECEPTACLE, BNC (optional) VERTICAL 100 W CONTINUOUS OMNIDIRECTIONAL</p> <p>-51°C TO +71°C (-60°F TO +160°F) (225 KM/H) 140 MPH (NO ICE) MIL-S-901D, GRADE A MIL-STD-167-1 TYPE I 25.75 INCHES [65.40 CM] 3.64 POUNDS [1.65 KG]</p> <p>ø 5.5 INCH [13.97 CM] ALUMINUM FLANGE WITH 4 X ø 0.438 INCH [1.11 CM] HOLES ON A ø 4.50 INCH [11.43 CM] BOLT CIRCLE</p>

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**Table 1-2.** Equipment, Accessories and Documents Supplied

QTY	NOMENCLATURE	OVERALL DIMENSIONS (INCHES)				W EIGHT (POUNDS) UNCRATED
		CRATED		UNCRATED		
		HEIGHT	DIA	HEIGHT	DIA	
1	ANTENNA VMB-11512-N	---	---	25.75	1.25	3.64
1	TECHNICAL MANUAL FOR VMB-11512-N ANTENNA VTM-15-003					

## SECTION 2

### OPERATION

**2-1. INTRODUCTION.** This chapter provides operating instructions for the antenna.

**2-2. CONTROLS AND INDICATORS.** The antenna contains no controls or indicators.

**2-3. OPERATING PROCEDURES .**

**2-3.1 Operator Turn-On .** No operator turn-on procedures apply since no power is required to operate the antenna. However, the antenna is coupled to RF equipment (transmitter/receiver) and to associated systems which may require energizing. For operating instructions, consult the appropriate technical manuals.

**2-3.2 Modes of Operation.** The antenna operates automatically, and no operator intervention is required other than interconnecting various associated equipment with the antenna.

**2-3.3 Operation Under Interfering Conditions.** No additional or alternate instructions are necessary to operate the antenna under interfering conditions.

**2-3.4 Operator Turn-off.** Since no power is required to operate the antenna, no operator turn-off is required. However, the specific equipment connected to the antenna may require operator turn-off. Consult the associated technical manuals for turn-off procedures.

**2-3.5 Emergency Operation.** No additional or alternate steps are necessary to operate the antenna under emergency conditions.

**2-3.6 Emergency Turn-off.** The antenna requires no emergency turn-off. For emergency turn-off of specific equipment connected to the antenna, consult the associated technical manuals.

## SECTION 3

### FUNCTIONAL DESCRIPTION

**3-1. INTRODUCTION.** This chapter provides the functional description of the antenna.

**3-2. OVERALL LEVEL.** The antenna is a base mounted, high-power antenna which provides omnidirectional coverage for general purpose communications reception and transmission from 115 to 512 MHz.

**3-3. MAJOR FUNCTION LEVEL.** The antenna consists of aluminum radiating elements housed within a fibreglass radome and aluminum mounting base. The mounting base isolates the radiating elements from the ground and physically supports the antenna.

The antenna does not require the external coupler. Only a transmitter or receiver is required to be connected to the antenna.

SECTION 4

INSTALLATION

**4-1. SITE INFORMATION.** Valcom's VMB-11512-N VHF/UHF Antenna is designed primarily for shipboard installation. The antenna can also be used at shore installations. The antenna should be installed in a non-obstructed environment, clear from any contiguous structures, such as masts, bulkheads, or other metal objects.

**4-2. TOOLS AND MATERIALS REQUIRED.** No special tools and materials are required for installation.

**4-3. UNPACKING AND RE-PACKING.** To unpack, carefully remove the staple holding the cover, and remove the antenna from the container. Save the container to pack the antenna for reshipment. No special handling procedures are required; observe normal precautions when handling the antenna.

**4-4. FOUNDATION.** The antenna should be installed vertically on a mounting plate or box that has bolt holes matching those in the antenna mounting base and a centre through hole (no larger 3 inches diameter) for N-type connector of the RF cable.

**4-5. INPUT REQUIREMENTS.** The VHF/UHF antenna has an RF power handling up to 100 watts (maximum) at the 50 ohm input impedance.

**4-6. INSTALLATION PROCEDURES.** After unpacking the antenna, proceed with its installation as follows:

- a. Examine the exterior of the antenna for damage; make sure that the fibreglass radome and the mounting base have not been damaged, misaligned, or fractured.
- b. Secure the antenna to its mounting place with four 1/4 inch diameter screws [bolts], flat washers, split lock-washers and nuts (not provided).
- c. Connect the system connector to the antenna at the input N-type receptacle.
- d. Connect the ground strap of the antenna to ground using 1/4" hardware (not provided).

**4-7. INSTALLATION CHECKOUT.** Checkout of the antenna after installation can only be accomplished by operating the receiving and transmitting equipment that is used with the antenna.

**Note:** If replacing an existing antenna with a new antenna, it is recommended that new mounting hardware be used.

**SECTION 5**  
**MAINTENANCE**

**PREVENTATIVE MAINTENANCE**

**5-1.** . When used in salt-water environments, it is

recommended to wash the antenna base with fresh water to remove any build-up of dried salt residue. This should be performed on a monthly basis or after prolonged exposure to sea-spray.

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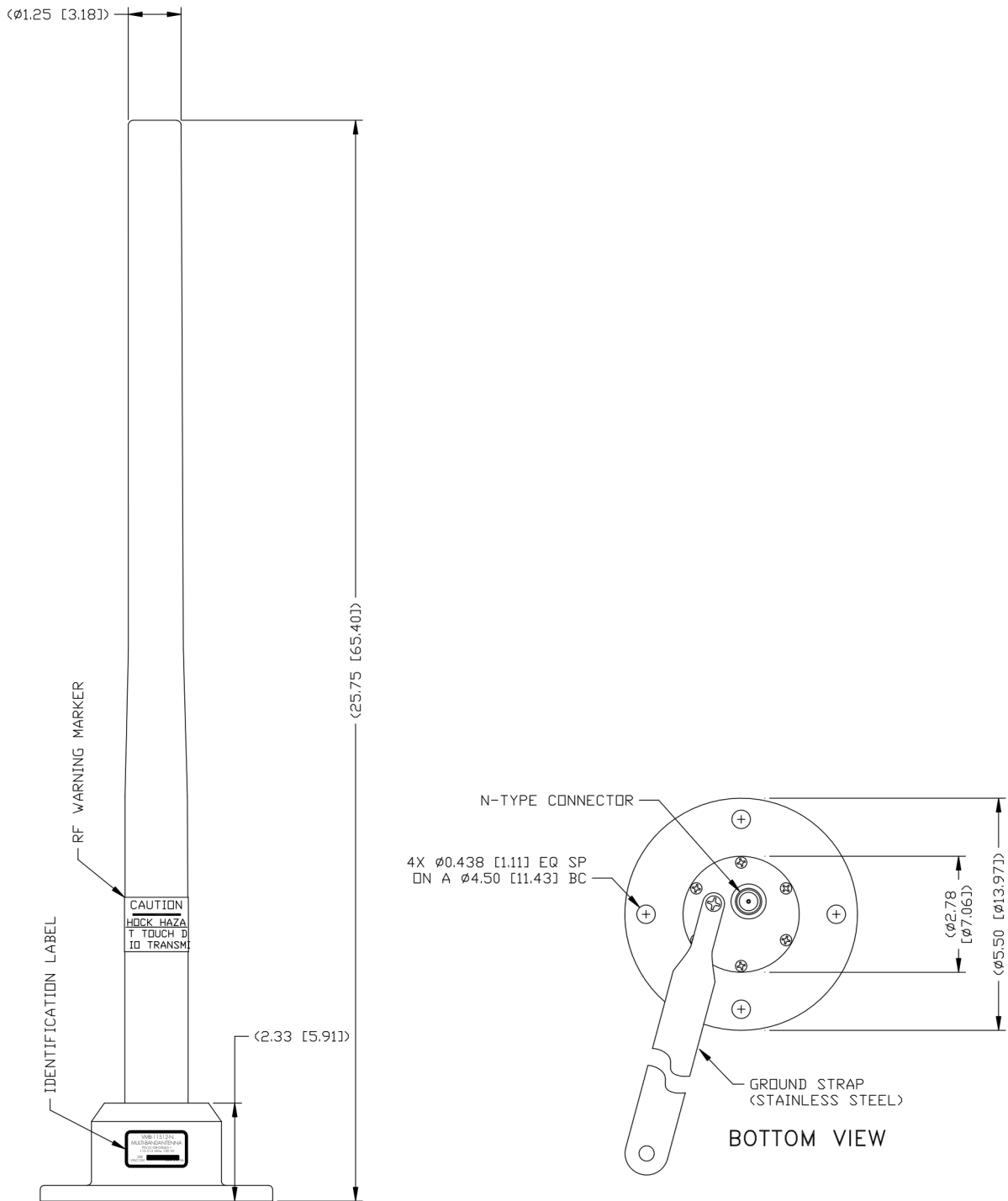


Figure 4.1 - VHF/UHF Antenna VMB-11512-N