

COMPACT HF RECEIVE ANTENNA

Features

- 2-30MHz frequency range
- Nominal 50Ω impedance
- 500W power handling
- Highly ruggedised
- EMP protected
- Omni-directional (azimuth)
- Naval shock and vibration tested
- Withstands hostile environment

Introduction

The inverted conical high frequency antenna has been specifically designed to receive signals in the frequency range 2-30MHz under the most severe weather and environmental conditions for shipborne

applications. In particular, it is designed to meet the shock and vibration specifications encountered in modern naval warfare conditions and includes electro-magnetic pulse (EMP) protection.

Description

The antenna consists of an inverted conically shaped structure supported by a ceramic insulator mounted on a pedestal.

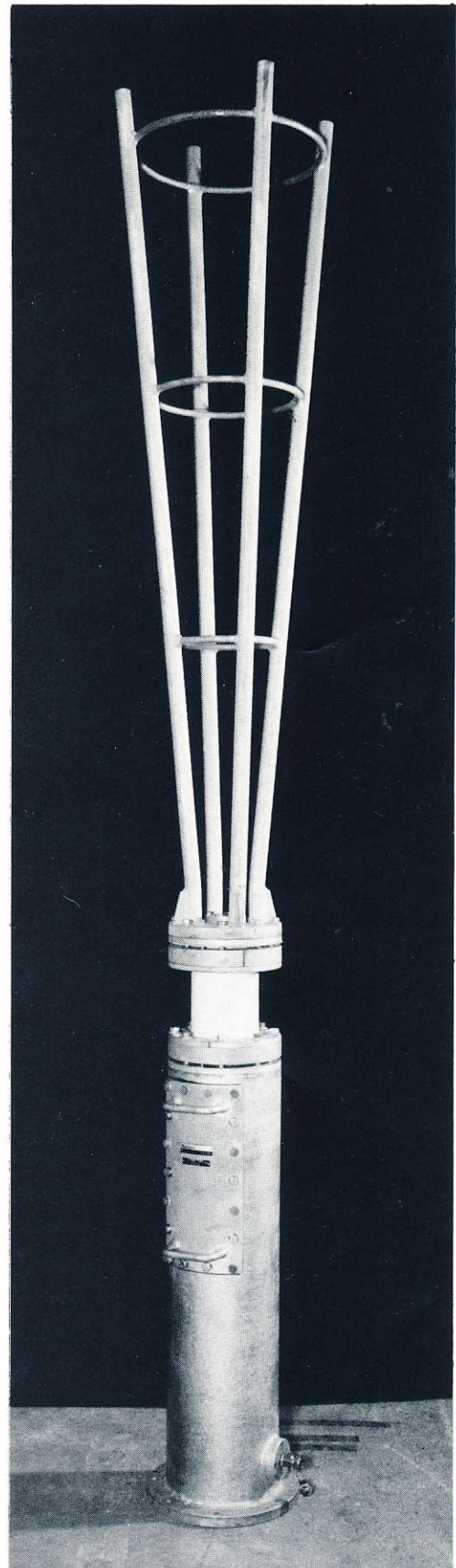
Four steel tubes welded to circular rings form the inverted conical structure whilst the pedestal consists of a flanged steel tube and acts as a housing for the coupling transformer.

Both the cone structure and pedestal are hot-dip galvanised after fabrication.

Coupling is via a ferrite core

transformer with 600Ω unbalanced termination on one side and 50Ω unbalanced on the other. The 600Ω impedance side of the transformer is connected to the conical structure bottom terminal via a brass rod through the ceramic insulator.

The 50Ω impedance side is brought to an 'N' type coaxial bulkhead termination and a cable gland fitted in the pedestal for access to an external feeder cable.



Data Summary

Frequency range

2-30MHz

Impedance

50Ω (nominal) unbalanced

EMP Protection

Incident wave 50kV/m peak-pulse (survival)

Mismatch Loss

At antenna aperture with transformer terminated in 50Ω and antenna mounted on an ideal flat ground plane

Freq (MHz)	Mismatch Loss (dB)
2	36 ± 1
4	29 ± 1
8	20 ± 1
16	10 ± 2
30	4 ± 2

Directivity

5.25 ± 0.5 dBi over ideal flat ground plane

Radiation Patterns

Omnidirectional for azimuth over ideal flat ground plane
Elevation as per figure 1

Output Connection

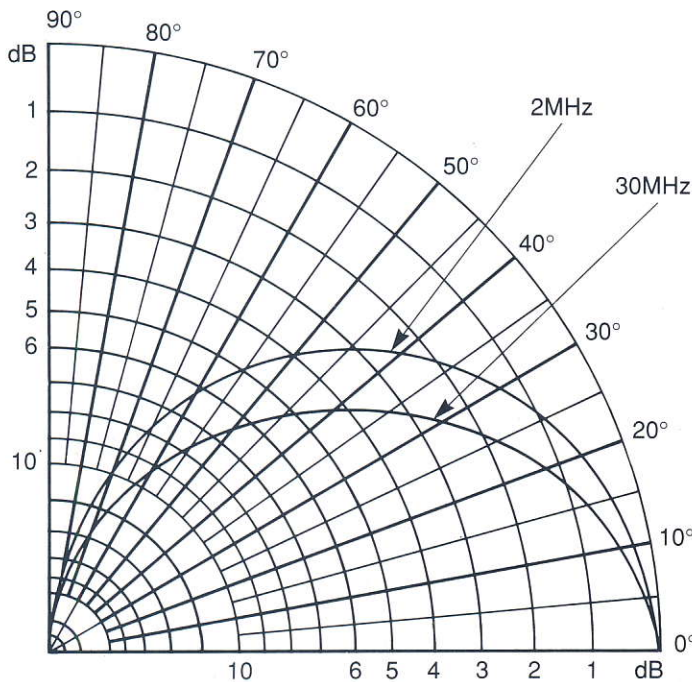
N type coaxial socket

Physical (see figure 2)

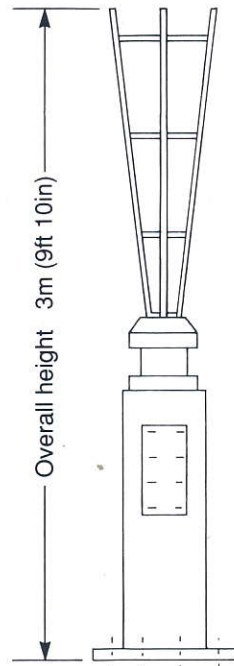
Height : 3m (118in)
Diameter : 50cms (19in)
Weight : 175kg (385lb)

Environmental

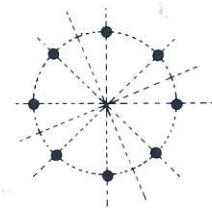
Height : 1500m above sea level
Temperature : -62° to +71°C
Humidity : 95%
Design Wind Velocity : 224km/h (164mile/h) with 25.4mm (1in) radial ice
Salt Spray : MIL-STD-810-D



Elevation radiation pattern
Figure 1



8 holes 13.5mm (0.53in) dia.
equally spaced
on 303mm (12in) p.c.d.



Base fixing

Height and base fixings
Figure 2

Marconi

Communication Systems



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