



PRODUCT DESCRIPTION:

The DF-A0066 is a wideband portable DF antenna suitable for fixed and mobile mast mounted applications.

The antenna has a loop array for good DF performance at low frequencies where the phase size of the array is small, and two pentagonal arrays for the middle and high frequency ranges. Secondary pentagonal arrays of dipoles and monopoles are combined by internal 5-way low-loss combiners, and provide good omnis up to 6 GHz

A decagonal cylindrical cavity inside the antenna, approximately 350 mm wide x 370 mm high, allows switching, amplification and RF processing to be integrated into the antenna, reducing cable loss and weight. The cavity slides open giving access to the RF unit. This can be done by one person, on a mast, without a crane.

Small carrying handles moulded into the base of the antenna allow it to be moved safely by two people, while a lifting eye is provided at the top for positioning with a crane. The antenna has internal struts and gas-lifts, enabling one person to access the RF switch cavity without removing the antenna from the mast. The radome and antenna is lifted up and away from the switch and connector panels. Push/pull handles are provided on the bottom of the antenna to allow it to be closed again without applying force to the top.

SPECIFICATIONS:

Electrical:	
Frequency range	1 – 6000 MHz
Feed power handling	0.5 W (receive only)
Polarisation	Vertical
DF:	
DF type	Correlative interferometer
Frequency bands	A: 1 – 90 MHz ^{*1} B: 30 – 1000 MHz ^{*1} C: 1000 – 3600 MHz D: 3000 – 6000 MHz
DF accuracy in azimuth	A: 3° RMS ^{*2} B: 2° RMS ^{*2} C: 2° RMS ^{*2} D: 3° RMS ^{*2}
Elevation coverage ^{*3}	-7° to +7° (full accuracy) -15° to +15° (reduced accuracy)
Monitoring:	
Frequency bands	AB: 1 – 500 MHz; C: 500 – 3600 MHz; D: 3000 – 6000 MHz
Monitoring antenna types	AB: combined 5 dipoles C: combined 5 monopoles D: combined 5 monopoles
Other internal features:	
GPS antenna	Active patch antenna
Compass bracket	KVH C100 compass (optional)
Mechanical:	
Dimensions (h x d)	650 mm x 1100 mm
Mass	33 kg
Colour	White, others on request

Notes:

- 1) Optimum A-B change-over is above 30 MHz, to be determined by user.
- 2) DF accuracy when calibrated, on a test range. Operational accuracy will be lower, depending on platform and range effects.
- 3) Better azimuth accuracy at high elevations can be obtained by calibration over the full required elevation range.

PRODUCT FEATURES:

- Full-band correlative interferometer
- HF capability
- Wideband dedicated omni capability
- Light weight construction for portability

APPLICATIONS:

- Portable direction finding
- Vehicle and fixed mast mounted DF
- Wideband monitoring

Wideband Portable DF Antenna

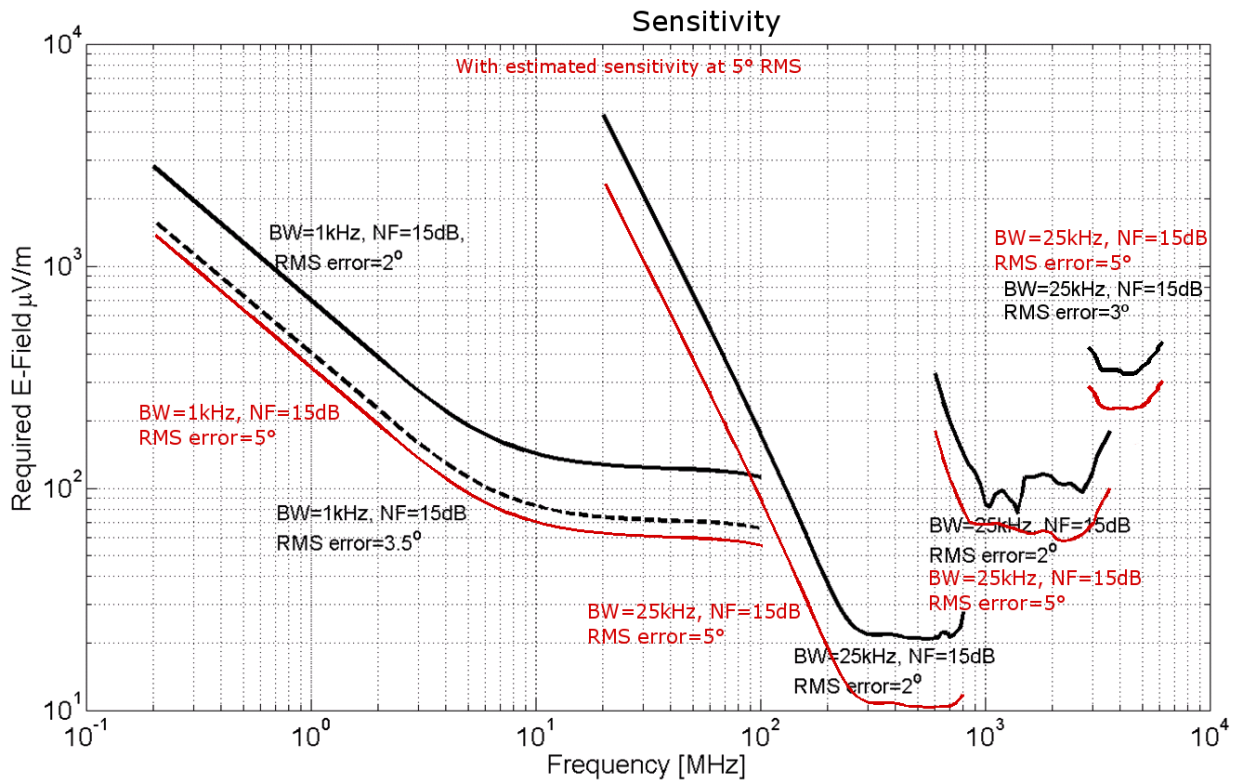
1 – 6000 MHz

Product Code: DF-A0066

VERSION: 2.1

DF SENSITIVITY

The following graph shows the predicted DF sensitivity of the antenna over frequency. The assumptions about receiver sensitivity, noise figure and RMS error are stated next to the lines.



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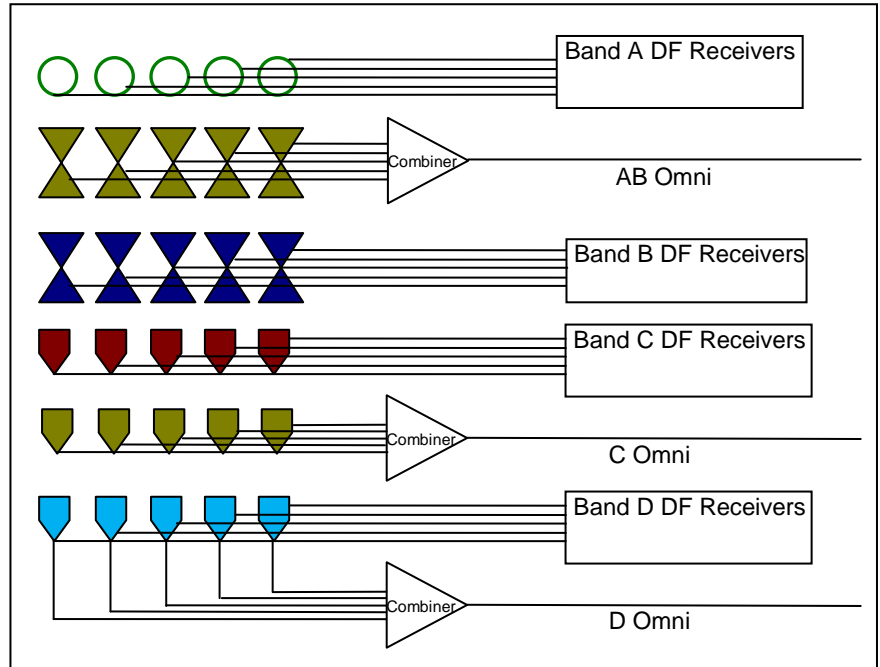
LIST OF RF OUTPUTS FROM ANTENNA

The antenna has 23 elements with connectors ending in the antenna cavity:

- 5 Band A loops
- 5 Band B DF elements
- 5 Band C DF elements
- 5 Band D DF elements
- Band AB combiner output
- Band C combiner output
- Band D combiner output

The separate omni elements of Band B and Band C are passed through combiners to produce the 2 omni outputs. The Band D DF elements are used to create this omni.

The diagram shows the antenna outputs.

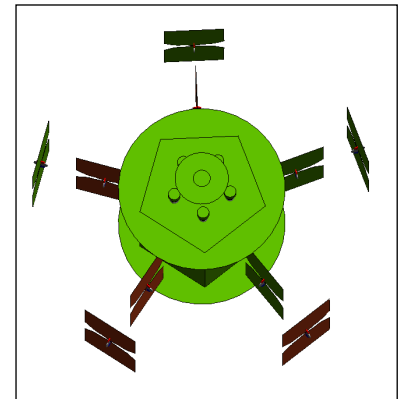


INTERNAL DIAGRAM SHOWING DF AND OMNI ELEMENTS

This model shows the positioning of DF and omni elements in the antenna.

The monopoles (small green circles) are the Band C DF elements.

The outer dipoles are the Band B DF elements, and the inner dipoles are the Band B omni elements. These are combined in-phase to give a good omni to 500MHz.

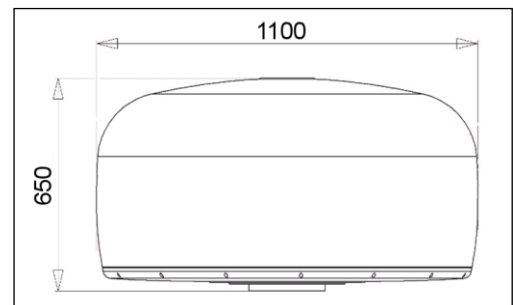


OUTER DIMENSIONS

The outer dimensions of the antenna are as shown.

HANDLING

The antenna radome has four small handles in the base, near the edge, for carrying and handling of the antenna by two people.



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**DEFENCE AND
SPECIALISED**

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ENVIRONMENTAL SPECIFICATIONS

Vibration

MIL-STD 810E method 514, combined category 1, 8 & 9 - ground mobile, marine and secured cargo. The unit shall be able to withstand without degradation, operating and non-operating exposure to random vibration in the X, and Z axis as specified below for a period of 60 minutes per axis. Level: 1.5 g over the frequency band of 5 Hz to 2000 Hz.

Mechanical shock

MIL-STD 810 E, method 516.4, procedure VI (handling, transportation and service environment). The unit shall be able to withstand without degradation, non-operating exposure to shocks in x and z axes. Level: 40 g
Shock pulse duration: 6 - 9 ms
Number of shocks per axis: 3, successive
Total Shocks: 6

Operational temperature range

MIL-STD 810E method 501.3 procedure 2. The unit shall be subjected to operational temperature range of -30 °C to +55 °C for a period of 24 hours

Storage temperature range

MIL-STD 810E method 501.3 procedure 1. The unit shall be subjected to storage temperature range of -30 °C to +70 °C for a period of 24 hours

Temperature and humidity

MIL-STD 810E method 507.3
The unit will be subjected to a temperature and humidity cycle test as specified for a period of 24 hours. The minimum and maximum temperatures used are 25 °C and 40 °C. The dwell in at each temperature is set to 9 hours while the crossover periods are set to 3 hours. The humidity is set to 95% relative humidity (RH) during the first 12 hours and then gradually decreased over a period of 3 hours to < 40% RH for the remainder of the 24 hour cycle.

Salt / fog

MIL-STD 810E method 509.3 procedure I
The test samples are subjected to a salt fog test as specified for a period of 48 hours followed by a dry out period of 48 hours

