

# Rugged Wideband DF

1 – 3600 MHz

Product Code: DF-A0037

## SPECIFICATIONS:



### PRODUCT DESCRIPTION:

The DF-A0037 is a wideband DF antenna suitable for rugged applications. Based on the more portable DF-A0029 product, the rugged version features upgraded mechanical and environmental features to improve performance when mounted on a vehicle.

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 provide good omni-directional antennas up to 3.6 GHz when appropriately combined. A HF whip on top of the antenna provides a sensitive omni output for this band

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.

<b>Electrical:</b>	
Frequency range	1 – 3600 MHz
Nominal input impedance	50 $\Omega$
Feed power handling	0.25 W (receive only)
Polarisation	Vertical
<b>DF:</b>	
DF type	Correlative interferometer
Frequency bands	A: 1 – 90 MHz <sup>*1</sup> B: 30 – 1000 MHz <sup>*1</sup> C: 1000 – 3600 MHz
DF accuracy in azimuth	A: 3° RMS <sup>*2</sup> B: 2° RMS <sup>*2</sup> C: 2° RMS <sup>*2</sup>
Elevation coverage <sup>*3</sup>	-7° to +7° (full accuracy) -15° to +15° (reduced accuracy)
<b>Monitoring:</b>	
Frequency bands	A: 1 – 100 MHz <sup>*1</sup> B: 50 – 500 MHz <sup>*1</sup> C: 500 – 3600 MHz
Monitoring antenna types	A: single passive detachable 1.2 m whip B: combined 5 dipoles C: combined 5 monopoles
<b>Mechanical:</b>	
Dimensions (h x d)	2052 mm x 1100 mm
Mass	80 kg $\pm$ 1 kg
Colour	Grey, others on request

#### Notes :

- 1) Optimum change-over from A to B is above 30 MHz, exact value to be determined
- 2) DF accuracy when calibrated, on a test range. Operational accuracy will be lower
- 3) Better azimuth accuracy at high elevations can be obtained by elevation calibration

### PRODUCT FEATURES:

- Full-band correlative interferometer
- HF capability
- Wideband dedicated omni capability
- Rugged radome
- GPS antenna

### APPLICATIONS:

- Vehicle-based direction finding
- Marine direction finding

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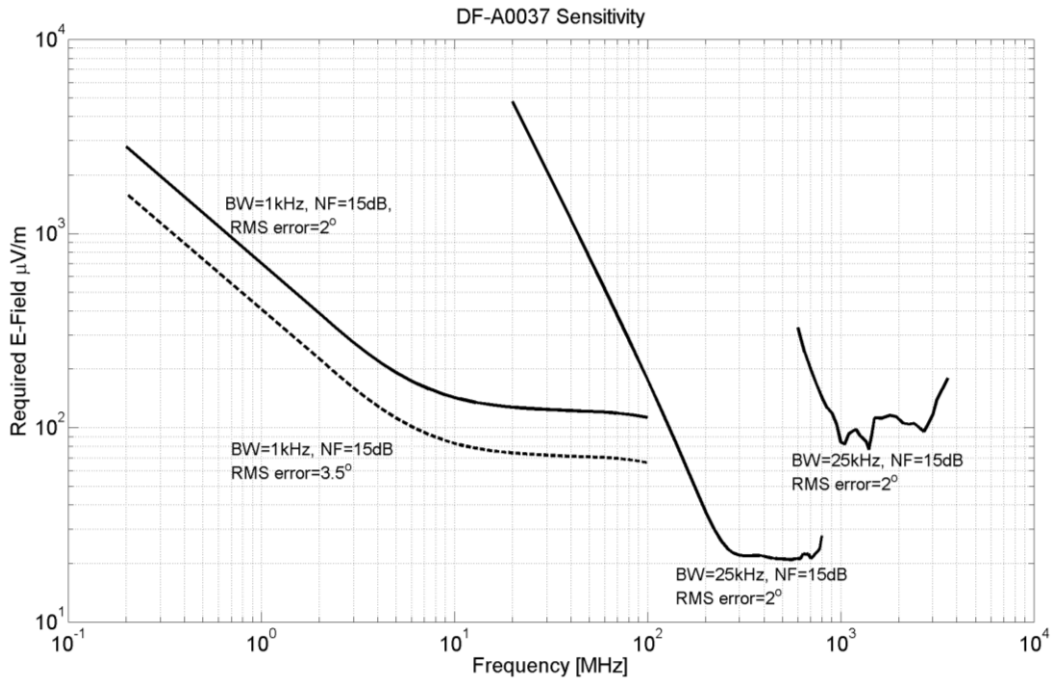
1 – 3600 MHz

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VERSION: 2.3

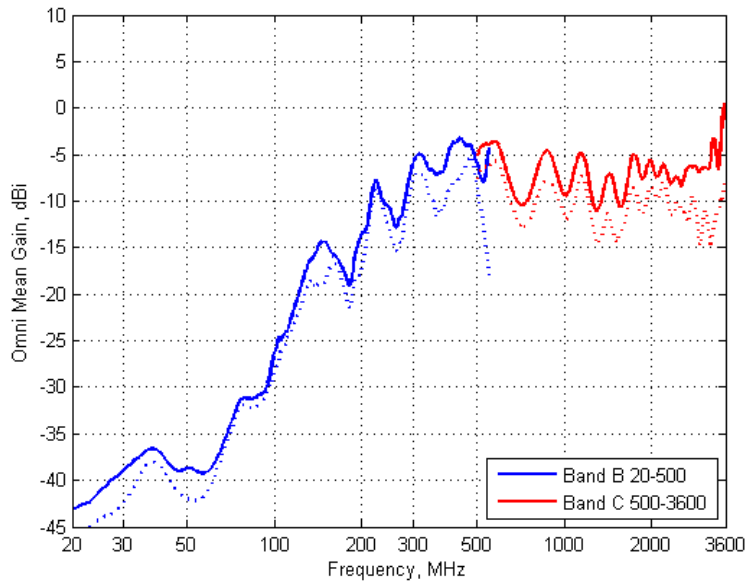
## SENSITIVITY GRAPH:

The following graph shows the predicted DF sensitivity of the antenna over frequency.



## COMBINED OMNI SENSITIVITY:

The graph below shows the gain achieved by the lossless combining of monitoring elements.



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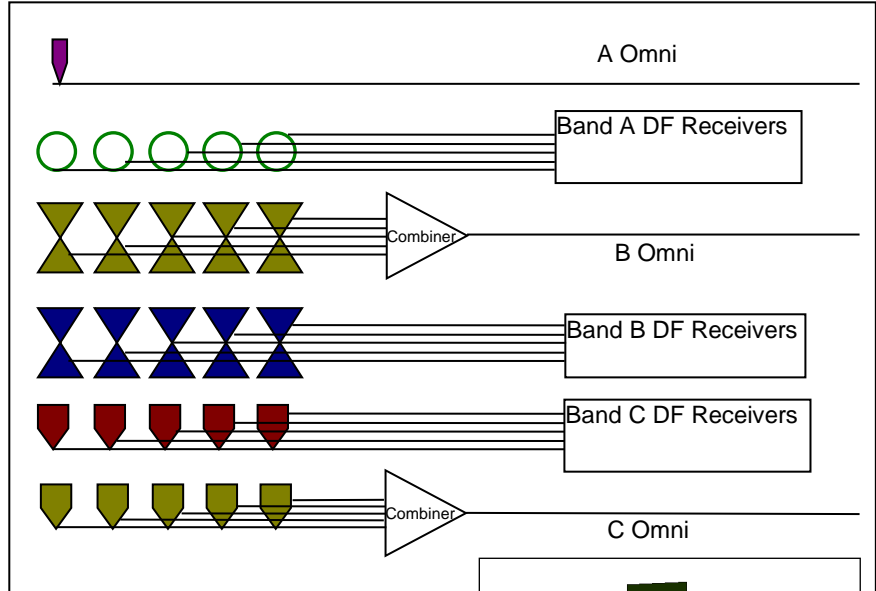
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## LIST OF OUTPUTS FROM ANTENNA:

The antenna has 18 elements with connectors ending in the antenna cavity:

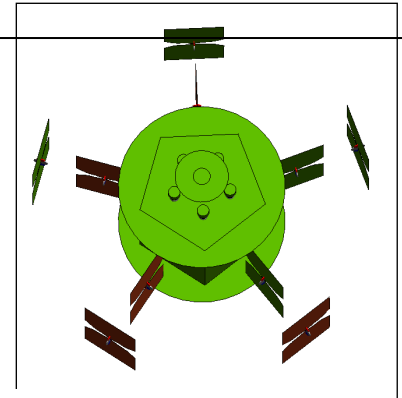
- 5 Band A loops
- 5 Band B DF elements
- 5 Band C DF elements
- Band A omni output
- Band B combiner output
- Band C combiner output

The separate omni elements of Band B and Band C are passed through combiners to produce the 2 omni outputs. The A omni is a separate feed cable from the omni on top. 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 700 MHz.



## OUTER DIMENSIONS:

The outer dimensions of the antenna are as shown. These include the 1.2 m detachable whip antenna.

