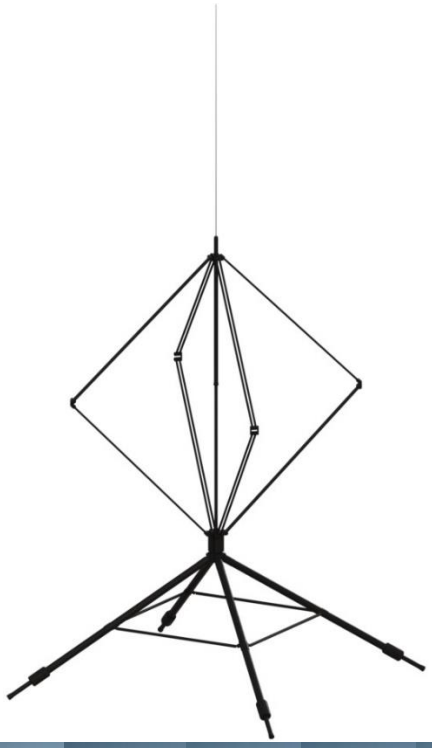
HF DF Loop Array

0.3 – 30 MHz

VERSION: 4.6

Product Code: DF-A0016



SPECIFICATIONS:

Electrical: DF	
Frequency range	0.3 − 30 MHz
VSWR	< 5:1 (over 90% of the band)
Nominal input impedance	50 Ω
Connectors	3 x N-type female
Feed power handling	Receive only
Antenna gain at connectors	See gain graph overleaf
Polarisation	Vertical
Null depth	> 15 dB
Omni pattern ripple	< 3 dB peak-to-peak
Power consumption	Zero (passive antenna)
ESD protection	All metal parts grounded
Supplied cable matching	< 5° difference at 30 MHz
Mechanical:	
Dimensions deployed	5.2 m tall, quad pod diameter 3.3 m
Dimensions collapsed	1750 x 185 x 185 mm (antenna) 995 x 300 x 300 mm (quadpod)
Weight of antenna	< 30 kg
Dimensions packing box	2036 x 626 x 345 mm (l x w x h) (height excludes 150 mm forklift base)
Weight, packed	< 80 kg
Supplied cable length	30 m (3 x RF cables)
Colour	Per request
Environmental: designed to meet the following specifications	
Wind survival	160 km/h (when fitted with guy ropes)
Temperature range	-30 °C to +70 °C
Water resistance	IP55
Vibration and shock	MIL-STD-810F ground vehicles

PRODUCT FEATURES:

- Portable, deployable DF antenna
- High sensitivity
- Covers the whole HF band
- Patented cross-polarisation resistant technology
- Externally noise-limited
- Passive antenna, no amplifiers to overload
- Waterproof
- Quad pod for mounting included
- Compact storage in supplied shipping box

APPLICATIONS:

- HF groundwave DF
- HF interferometric SSL DF
- HF monitoring
- Rapidly deployable DF

*CA Application 2,853,219;
*EP Patent 2771943;
*U.S. Patent No. 14/353,382;
*ZA Patent No. 2014/02806

PRODUCT DESCRIPTION:

A crossed-loop/monopole direction finding antenna for use with Watson Watt method, with a large diameter of 2 m to achieve a high sensitivity. The loops make use of patented cross-polarisation cancelling technology that eliminates disturbances due to cross-polarisation from on-horizon sources. This offers enhanced, reliable accuracy in real-world applications and field trials over traditional crossed-loop designs.

The antenna is collapsible for transport and storage. It is made of aluminium and brass elements and coaxial cable, with aluminium and composite mechanical parts. A lightweight composite quad pod supports the antenna above the ground. The quad pod collapses to a similar size to the antenna.

The required matching, beam-forming and calibration injection circuitry is housed in the base of the antenna.

A complete kit of parts including antenna, Quad pod, RF cables on drums, anchor stakes and alignment sight, is supplied with each antenna. The complete antenna and all accessories fit into the supplied shipping box.

Updated 2023-11-28

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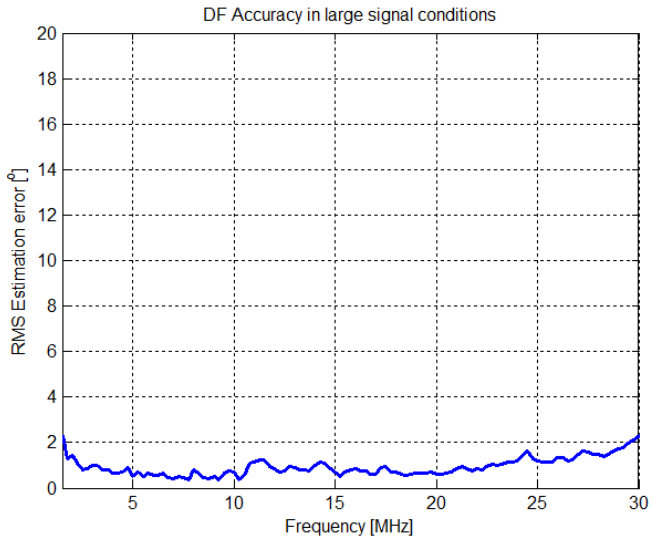
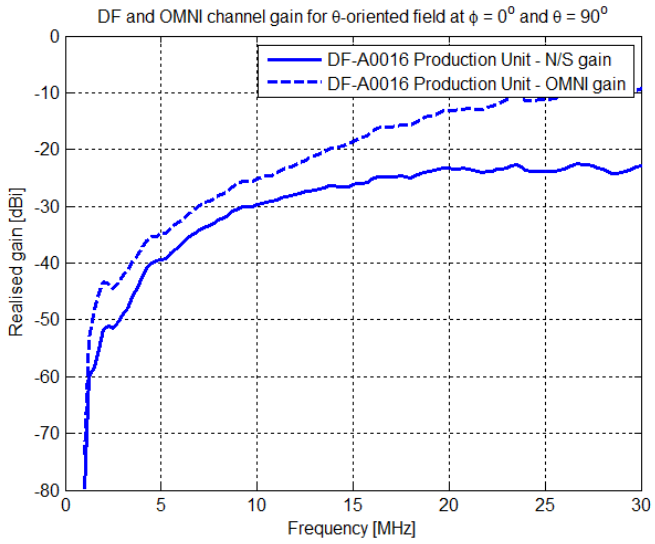
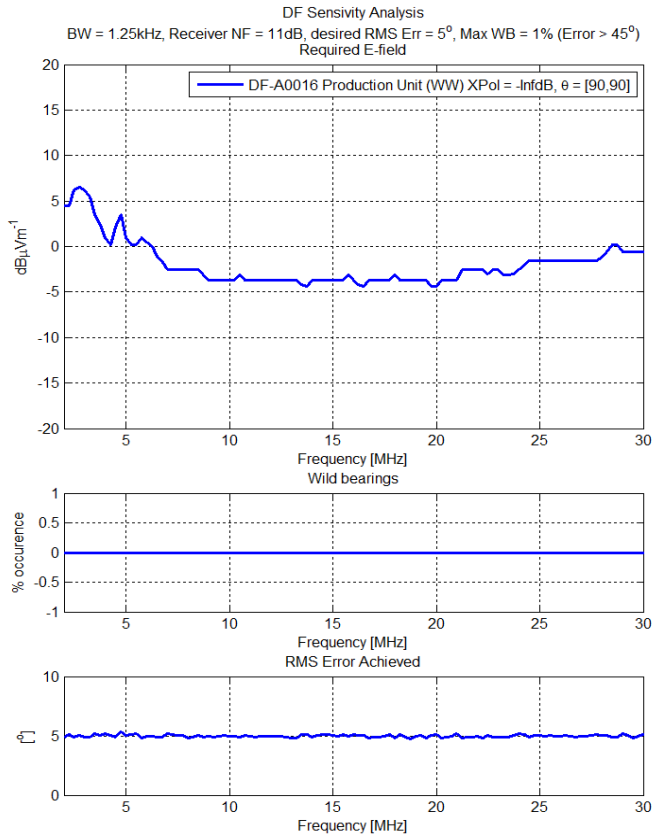
DF accuracy (large signals):



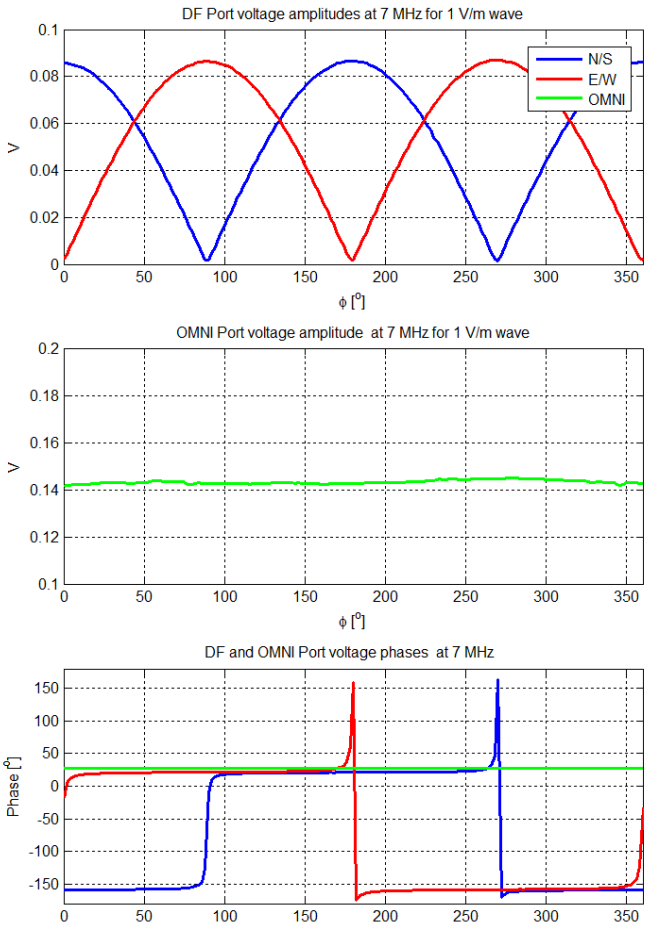
Gain of loop and monopole elements:



DF sensitivity (for 5° accuracy):



Port voltages (at 7 MHz for 1 V/m field):



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Deployment procedure:

Setup quad pod
- Remove from container
- Open up and place in upright position
- Open up legs
- Extend middle sections and pin in place
- Level by adjusting leg lengths

Deploy antenna
- Remove top section from box
- Screw in whip
- Make sure guy wires and flagpole rope is detangled
- Take out main section from box and slot top section in
- Connect flagpole rope eyelet to sliding section of loops
- Insert assembled loop structure into quadpod
- Deploy loops by pulling rope until top of loops reach end stop
- Anchor flagpole rope in provided clamp at bottom of loops

Align antenna
- Align loops N/S and tighten alignment knob
- Anchor guy wires and pull tight

Connect antenna
- Unroll cables from reels
- Connect cables to output connectors

Supplied components:

Part number	Description
DF-A0016-01	Antenna body
DF-A0016-10	Quad pod
DF-A0016-07	Kit of guy ropes and pegs
DF-A0016-08	Alignment tool
DF-A0016-09	Transit case
3 x CAB-A082	RF cable on reel

All of the above components fit into and are stored in the supplied transit case.

Deployed dimensions: