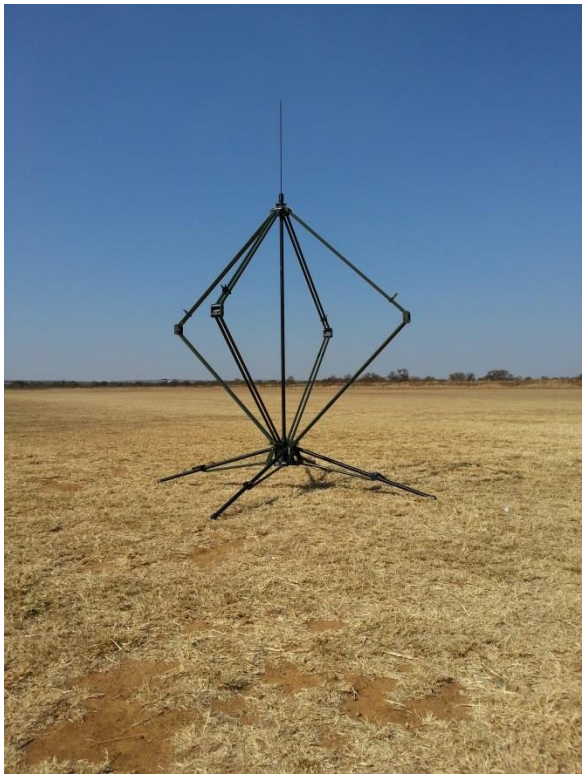
Quick Deployment HF NVIS DF Element

1 – 30 MHz

VERSION: 2.4

Product Code: DF-A0049



SPECIFICATIONS:

Electrical:	
Frequency range	1 – 30 MHz
VSWR	< 2.0:1 (typical CP modes)
Nominal impedance	50 Ω
RF power handling	Passive, receive only
Polarisation	Linear, vertical, LCP or RCP
Connector	N(f)
Power supply	DC injected to select polarisation (+5 V VP, 0 V LHCP, -5 V RHCP)
Switching cycles	Designed for 100 Mc
Mechanical:	
Total height (deployed/stowed)	< 2250/1200 mm
Total diameter (deployed /stowed)	< 1600/280 mm (excl. quadpod) < 1900/280 mm (incl. quadpod)
Total mass	< 8.3 kg
Mounting	- Self-standing with quadpod - Guy ropes (not incl.) for high wind - Bolt hole flange for semi-permanent mounting
Colour	Per request
Environmental: designed to meet the following specifications	
Temperature range	Designed for storage: -30 °C to +70 °C Designed for operation -30 °C to +55 °C
Weatherproofing	Designed for IP66 rain resistant
Shock and vibration	Designed for MIL-STD 810E 516.4: vibration category 8, shock 40 g
Wind resistance	120 km/h without guy ropes 160 km/h when fitted with guy ropes
Exposed materials	Painted aluminium and fibreglass

PRODUCT DESCRIPTION:

The DF-A0049 antenna is a single site location (SSL) HF DF array element. Polarisation is selectable between linear vertical, RHCP and LHCP though the injecting of different DC voltages into the N(f) connector interface connector.

The antenna includes an integrated switching system and lightning and ESD protection. There are no nonlinear active components in the chain to introduce unwanted distortion on the received signals.

It can be deployed as part of either a linear or circular array and is quickly and easily deployed and stowed. The product is unique in that it features a fully integrated quadpod for rapid deployment but can also be bolted to a plinth for semi-permanent installations. When stowed, the antenna collapses into a very small form factor for easy transportation and storage.

The design of the antenna element is such that it is able to switch between one of three modes: LHCP, RHCP and a VP omni mode. In LHCP and RHCP modes, the antenna element is capable of receiving waves of LHCP and RHCP polarisation respectively, incident from the upper half sphere, with a gain peak at θ = 0° (directly upwards). In VP omni mode, the antenna operates similar to a monopole antenna, able to receive waves with vertical polarisation with a gain peak on the horison (or just above it) and a null at θ = 0°.

The antenna is intended for use in constructing DF interferometer arrays consisting of a number of DF-A0049 antennas.

PRODUCT FEATURES:

- Low visual profile
- Quick deployment
- Integrated switching system
- Lightning/ESD protected
- Compact stowed form factor

APPLICATIONS:

- HF DF array element
- Linear or circular arrays
- SSL arrays

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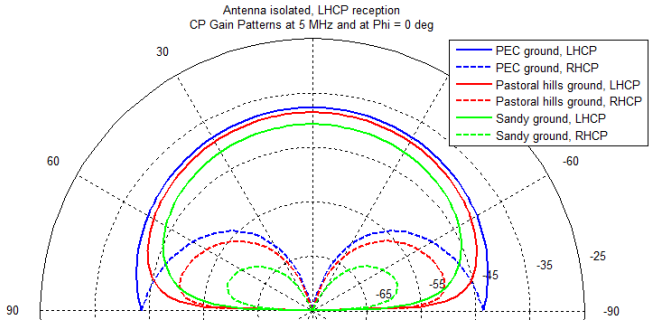
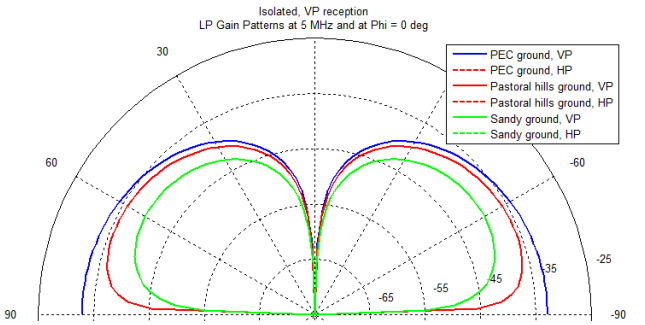
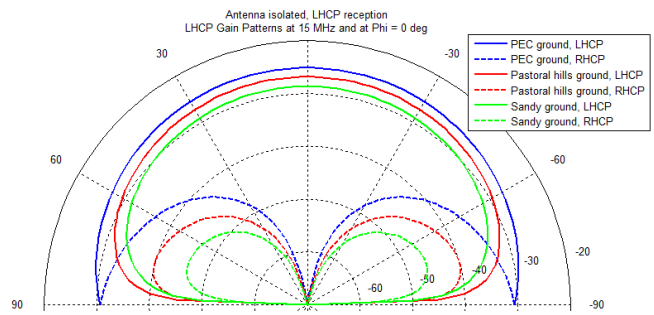
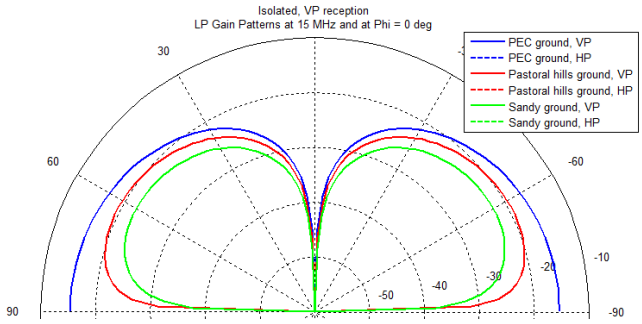
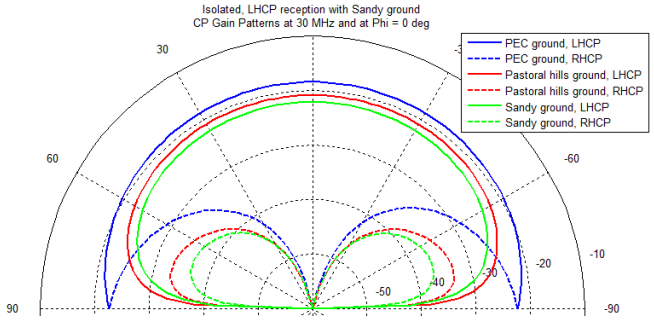
Elevation patterns for various ground types:

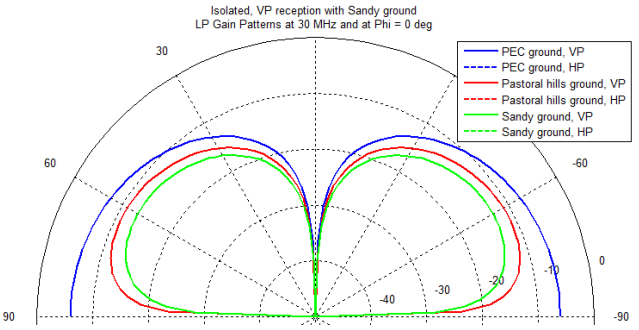










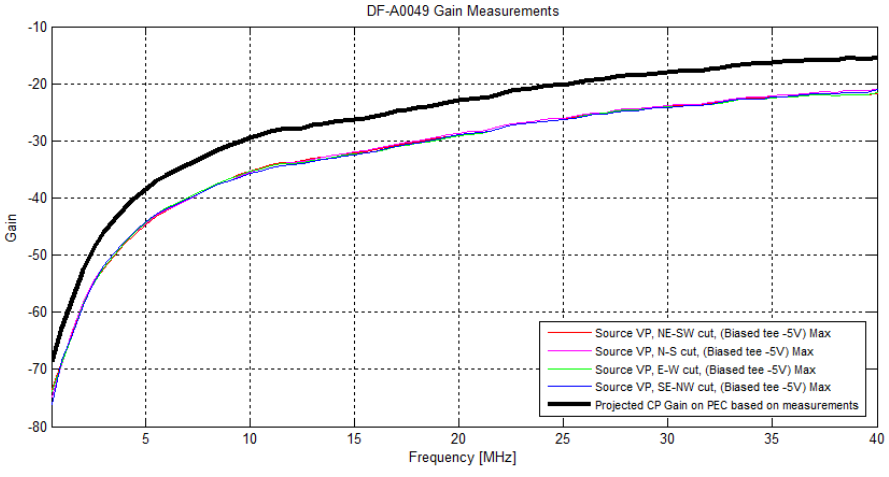


Gain and pattern symmetry:

NB. Gain patterns are measured with the antenna in free space using a VP source and reference (coloured traces adjacent) for 4 elevation cuts at 45° to each other.

On this average, for these different elevation cuts, we can add 6 dB to predict the circular polarised gain that would be obtained on a good ground (like pastoral hills). Gain is for incidence from directly above (θ = 0°).

The good agreement between the gain patterns of the four cuts shows the pattern is symmetric with a low axial ratio.



Quality Management ISO 9001 DEKRA certified

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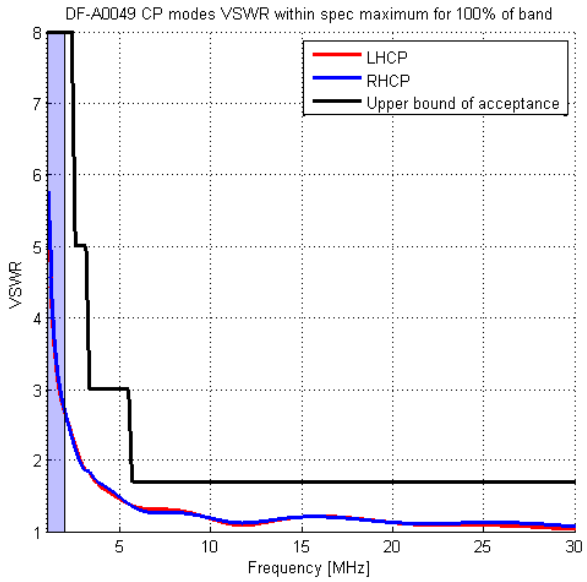
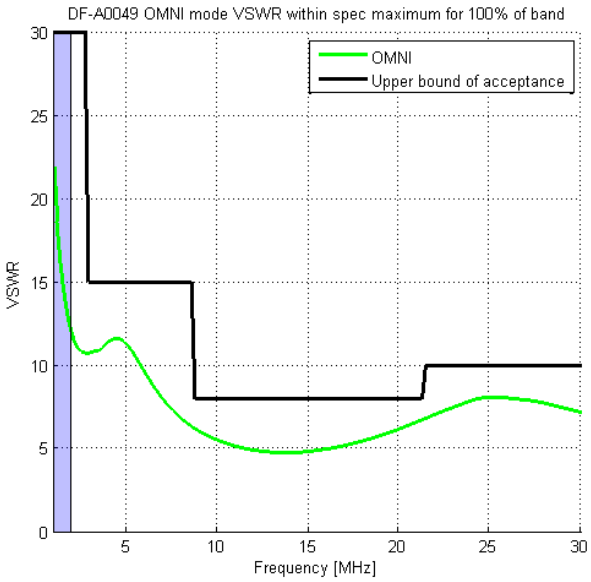
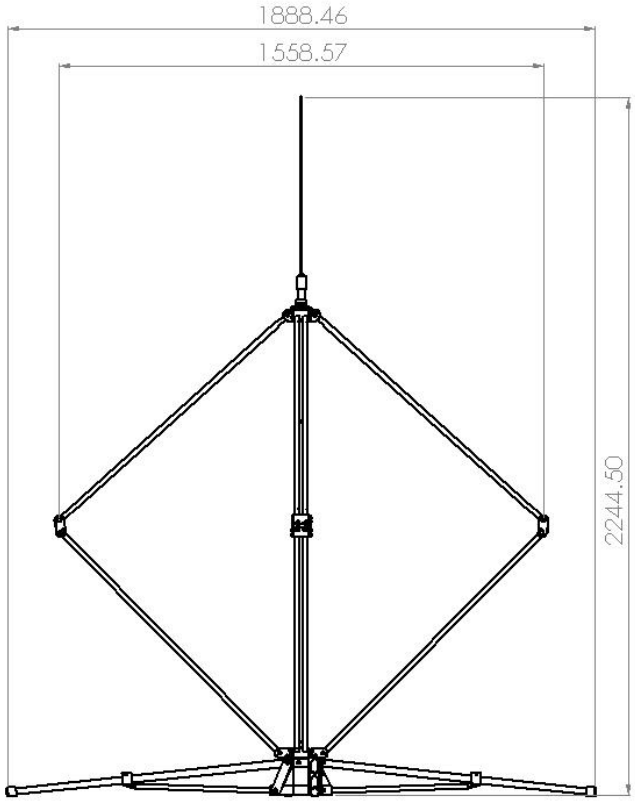
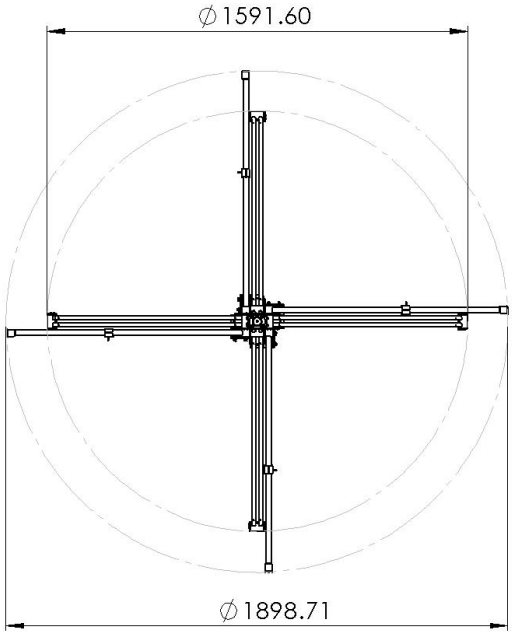
VSWR:





Outline dimension drawings:





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