

Strategic High Sensitivity HF NVIS DF Element

1 – 30 MHz

VERSION: 1.7

Product Code: DF-A0115

SPECIFICATIONS:



PRODUCT DESCRIPTION:

The DF-A0115 antenna is a single site location (SSL) HF DF array element. Polarisation is selectable between linear vertical, RHCP and LHCP through the injecting of different DC voltages onto the switch board via a dedicated control interface. On the DF-A0115-01 linear vertical, RHCP and LHCP are available as three separate, simultaneous outputs with pre-amplification.

The antenna is intended for use in constructing DF interferometer arrays consisting of a number of DF-A0115 antennas. It can be deployed as part of either a linear or circular array. The large physical size of the product provides the best possible sensitivity at HF frequencies.

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. 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 $\theta = 0^\circ$ (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 horizon (or just above it) and a null at $\theta = 0^\circ$.

Unlike competing products of the same kind, this antenna utilises our patented stabilised loop technology that eliminates cross polarisation disturbance of the antenna, providing enhanced reliability, accuracy and repeatability in practical use.

The antenna is designed only for fixed site installation on a plinth or other mechanical support structure. The antenna additionally requires guying for installation.

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

APPLICATIONS:

- HF DF array element
- Linear or circular arrays
- SSL arrays
- High sensitivity HF RDF
- High accuracy HF RDF
- Fixed site permanent outdoor deployments

Product numbers:		
DF-A0115	DC injection to select polarisation	
DF-A0115-01	Simultaneous RHCP, LHCP and VP with pre-amplification	
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	DF-A0115	DF-A0115-01
RF	N-type (female)	3 x N-type (female)
DC	4-way circular connector	None
Power supply	DC injected to select polarisation (+5 V VP, 0 V LHCP, -5 V RHCP)	Bias-tee via OMNI connector
Switching cycles	Designed for 100 Mc	
Mechanical:		
Total height	< 4510 mm	
Total diameter	< 3000 mm	
Dimensions packed	< 2450 x 570 x 440 mm	
Ground radials	16 x 6m radials, SS 316 secured with pegs	
Total mass	< 60 kg	
Mounting	Mounted using plinth and ground radial plate	
Colour	Primarily black, limited components can be colour selected on request.	
Environmental: designed to meet the following specifications		
Temperature range	Storage: -30 °C to +70 °C Operation: -30 °C to +55 °C	
Wind survival	160 km/h (5 mm ice)	
Weatherproofing	IP66	
Shock and vibration	MIL-STD 810G 516.4: vibration category 8, shock 40 g during transport	
Lightning protection	Gas discharge arrestor	
Exposed materials	Painted aluminium and fibreglass	

PRODUCT FEATURES:

- Passive (no distortion)
- Integrated switching system
- Lightning/ESD protected
- Compact stowed form factor
- Patented stabilised loop excludes cross polarisation inaccuracies
- Incorporated lightning protection
- Ground radials and guy ropes provided

Related Products:

- MISC-A0273 – 1m extension pole for DF-A0115
- MISC-A0293 – Lightning arrestor with replaceable GDT

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Alaris Antennas has a policy of continuous improvement and hence specifications may change without notice

**GAIN THE
ADVANTAGE**

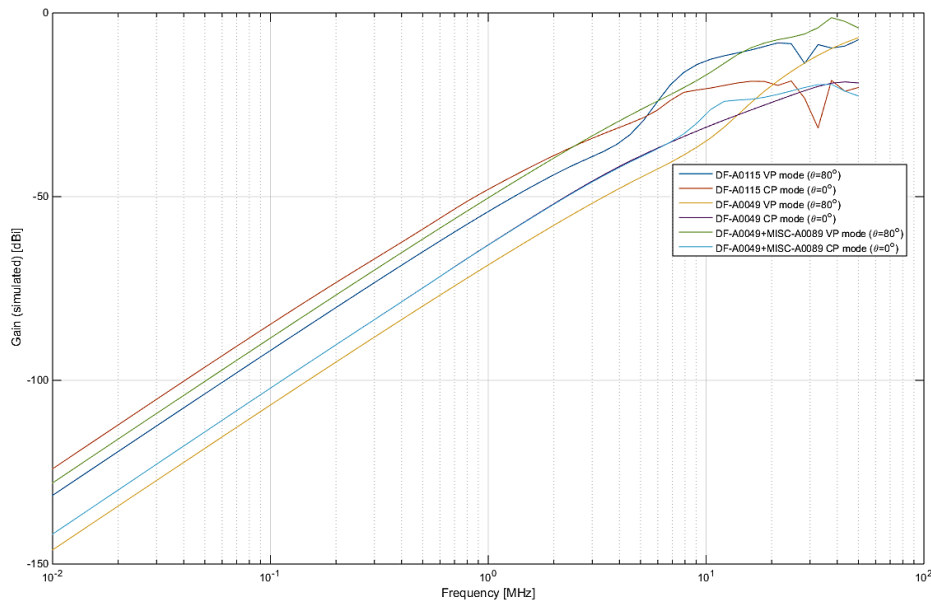
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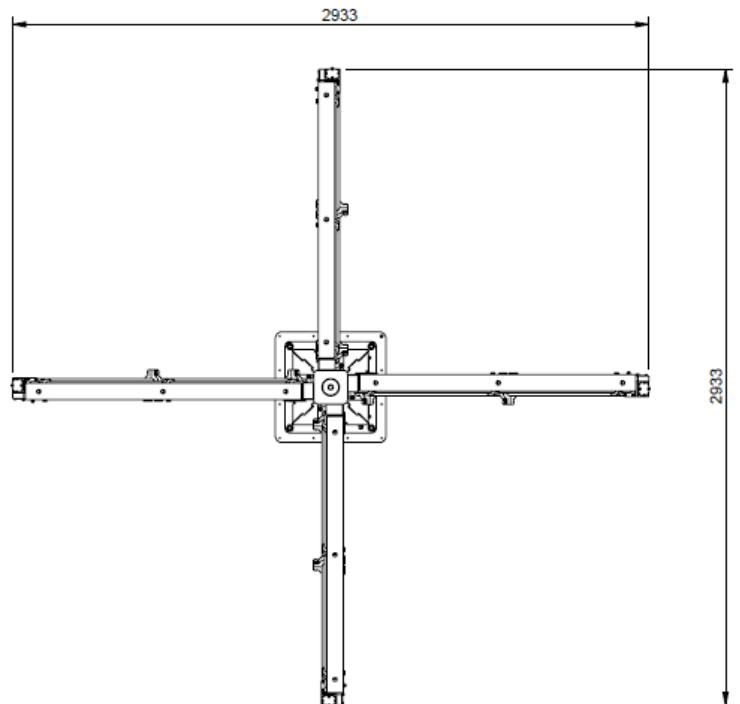
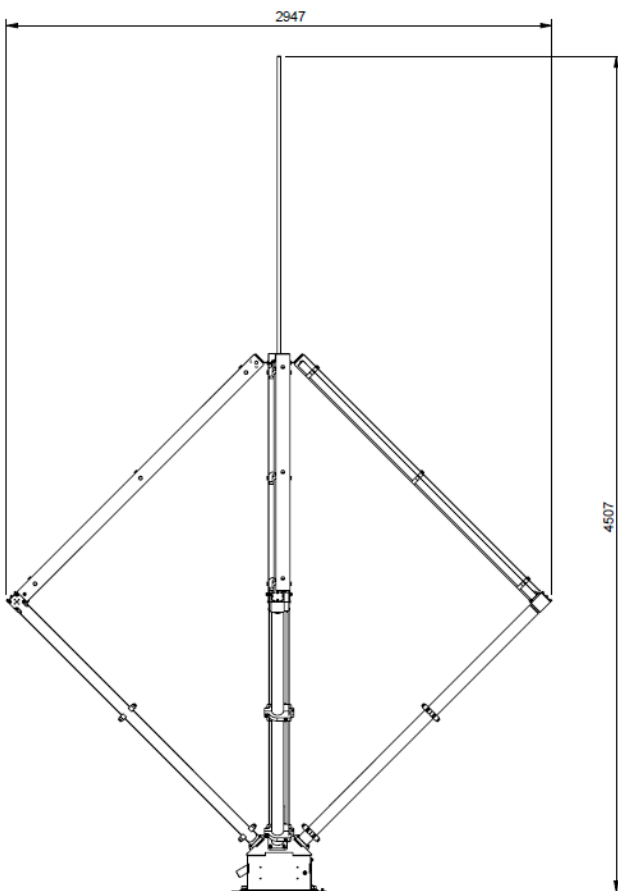
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Simulated Gain:



Outline dimension drawings (excl. ground radials):



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Elevation patterns for various ground types:

