ALARIS ANTENNAS

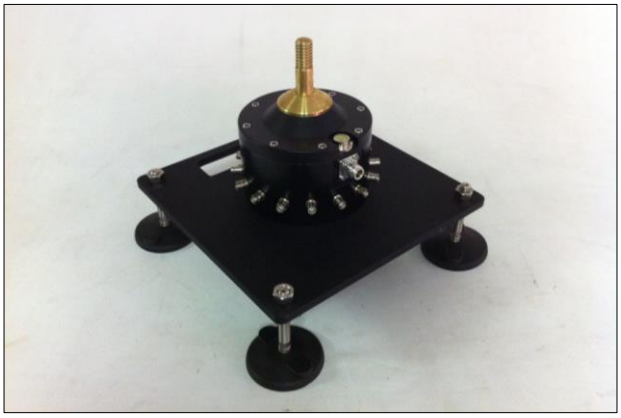
GAIN THE ADVANTAGE

Active Adcock Direction Finding Array

1 – 30 MHz

Product Code: DF-A0015 and DF-A0076

VERSION: 4.6



SPECIFICATIONS:

Product code:		
DF-A0015	1 – 30 MHz Adcock array	
DF-A0076	0.5 – 30 MHz array, two rings	
Electrical:	**DF-A0015**	**DF-A0076**
Antenna type	Active/passive monopole-based direction finding array	
Number of elements	9	17
Polarisation	Vertical	
VSWR	< 2:1 to 50 Ω	
Gain and sensitivity	See graphs attached	
RF outputs	3	5
Connectors (RF)	N-type female	
Connector (power)	MIL 38999-09-98	
Supply voltage	10 – 20 V DC	
Supply current	< 500 mA	< 1 A
Mechanical:	**DF-A0015**	**DF-A0076**
Antenna weight	98.5 kg	197 kg
Assembled diameter (max)	16 m	50 m
Assembled height	2.8 m	
Shipping container dimensions	1600 mm x 335 mm x 500 mm	
Environmental: designed to meet the following specifications		
Maximum wind speed	80 km/h (free-standing) 120 km/h (with provided guy ropes) 160 km/h (bolted down)	
Temperature range	-31 °C to +71 °C	
Water resistance	IP65	

PRODUCT DESCRIPTION:

DF-A0015 implements an 8-element active Adcock array with a centrally located ninth element for omni-directional sensing. This direction finding antenna array covers a frequency range of 1 to 30 MHz.

For improved performance at low frequencies, the DF-A0076 can be installed instead. As well as the 9 elements of the original DF-A0015, this array features a second array at approximately 4 times the diameter, giving superior DF sensitivity in the 0.5 to 7 MHz band.

The arrays are intended for use in conjunction with the Watson Watt (WW) DF estimation method. Corrected WW may also be used to enhance accuracy in the 25 to 30 MHz region.

The array features a passive mode where the active matching circuitry is bypassed and powered down. All antenna elements are connected to the central combiner system for beam forming.

Shipped in compact storage and transport boxes, the antenna can be assembled by one person in 60 minutes, without special tools or civils. Adjustable feet on each element accommodate uneven surfaces. The array is designed for long-term outdoor deployment and is weather resistant.

ELECTRICAL FEATURES:

- HF active DF
- Unique aperture shaping provides excellent accuracy over wideband with Watson Watt method
- Passive bypass mode

MECHANICAL FEATURES:

- Robust construction
- Waterproof
- Quick assembly on any surface
- Temporary or permanent installation

.

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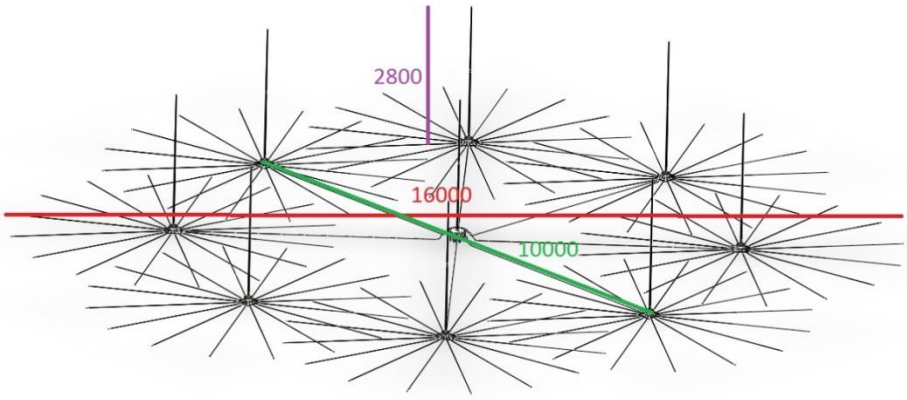
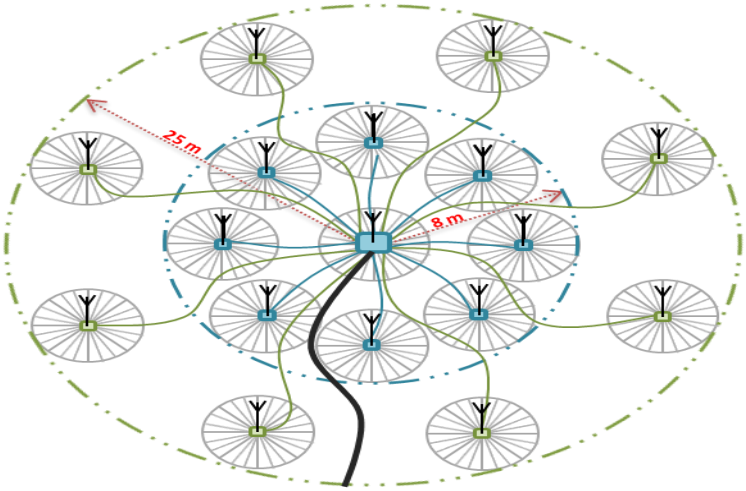
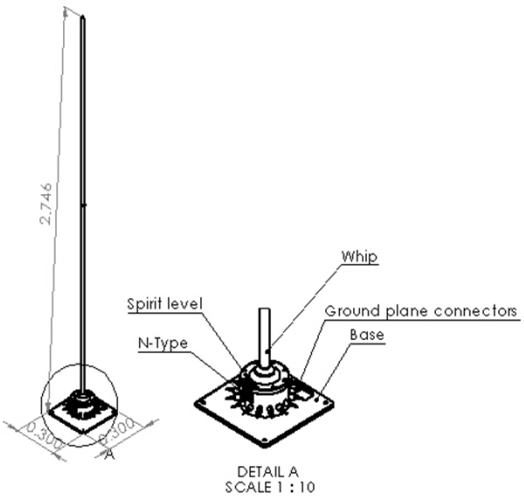
ANTENNA DIMENSIONS:

Schematic of DF-A0015 array when deployed, showing ground radials

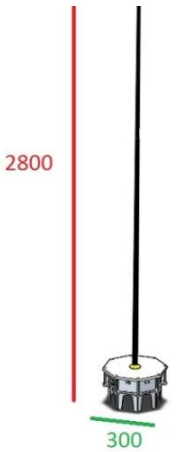


Schematic of DF-A0076 array, deployed





Dimensions of monopole elements



Dimensions of central element and combiner

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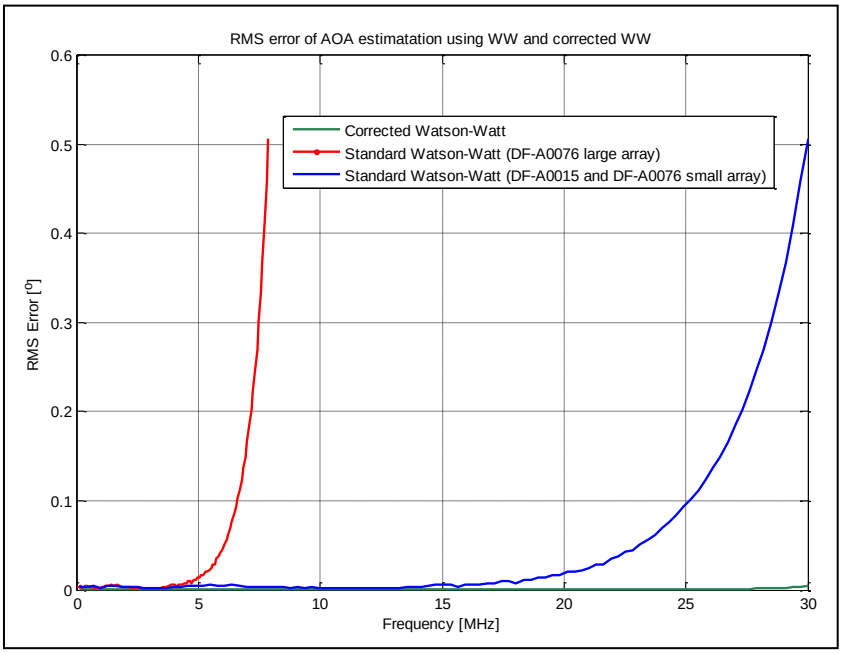
ACCURACY:

The large-signal DF accuracy of the DF-A0015 and DF-A0076 is shown below.

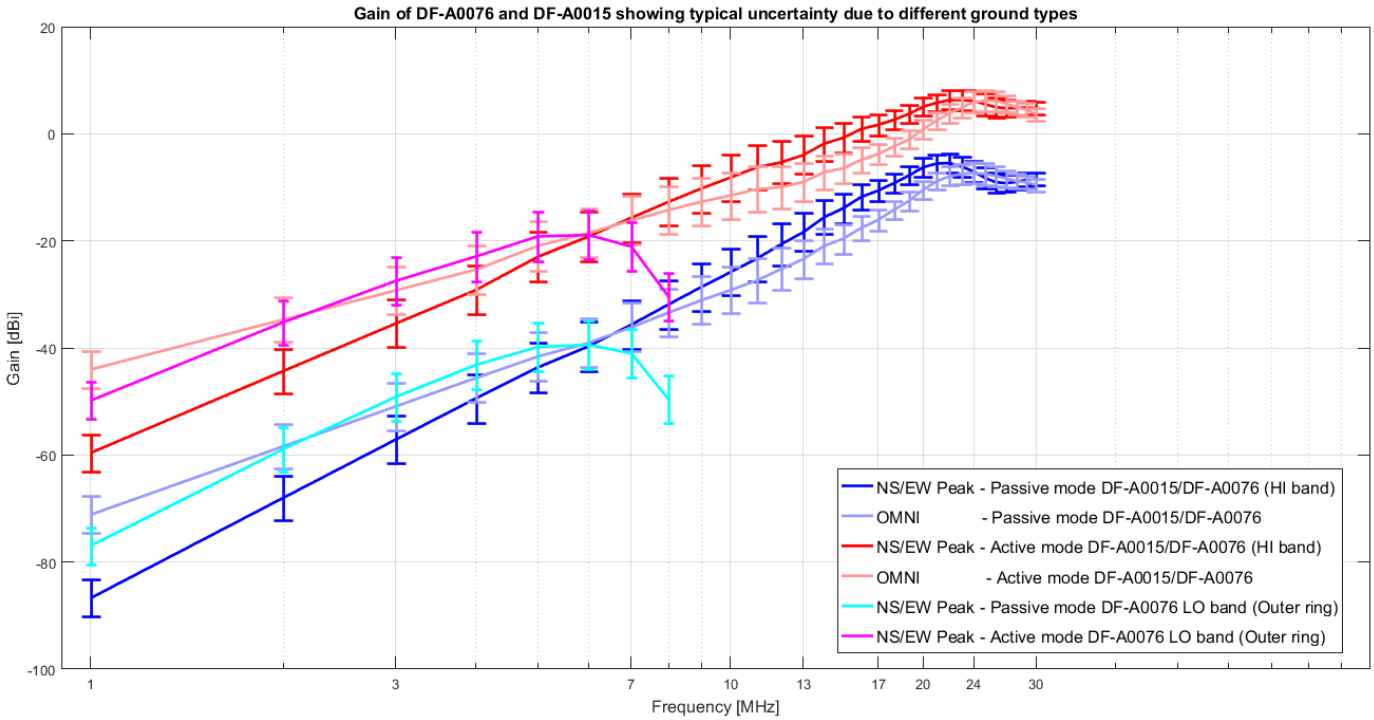


ANTENNA GAIN:

The figure below shows the gain of the elements used in DF-A0015 and/or DF-A0076.

The combined gain of the DF outputs (NS or EW) is also shown. This is lower than the omni gain due to the subtraction.

We show both the active and passive modes of each antenna with uncertainty markers indicating a range of variance in performance that should be expected when the antenna array is used with different ground conditions.



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RECEIVE SENSITIVITY:

The graph below shows the computed sensitivity of a DF system making use of the DF-A0015 and DF-A0076 antennas. It is presented as the field strength required to achieve a 2.5 ° RMS accuracy at each frequency. When installed the sensitivity will be reduced by atmospheric, manmade and galactic noise.