

# Manpack/Mobile Watson Watt DF Antenna

20 – 3000 MHz

Product Code: DF-A0148

VERSION: 1.3



DF-A0148



DF-A0148 mounted on top of the optional DF-A0148-VHF and MISC-A0095-02 non-conducting quad-pod

## PRODUCT DESCRIPTION

The DF-A0148 is a wideband DF antenna intended for on-the-move direction finding from 20 – 3000 MHz.

The antenna array is implemented as a dual-band vertical stack with the low frequency band enhanced with patented hybrid loop-Adcock technology to provide improved sensitivity vs traditional designs of the same form factor.

The antenna presents patterns suitable for the Watson Watt estimation method, as well as 3-channel correlative DF. Band switching is done via an integrated switch and control system. External and internal RF chain calibration is accommodated and a compass and active GPS antenna are also integrated in the antenna.

For improved electrical performance in the 20 – 300 MHz frequency band an optional VHF module DF-A0148-VHF) is available. The module also makes use of the Alaris Antennas patented hybrid loop technology and takes advantage of the increased dimensions to improve the sensitivity when compared to the DF-A0148 Band B array.

Mounting is directly via the base-mounted MIL DTL 38999 connector interface. An optional spring mounted isolating extension mast is also available for use on vehicles or marine platforms. This provides improved performance over simply mounting the antenna directly to the structures.

\*CA Application 2,853,219;

\*EP Patent 2771943;

\*U.S. Patent No. 14/353,382;

\*ZA Patent No. 2014/02806

## SPECIFICATIONS

<b>Product codes:</b>	
DF-A0148	Antennas array incl. band switch
DF-A0148 -M1	Isolating mast with spring
DF-A0148 -VHF	Add-on for improved VHF performance (Band A)
<b>Electrical: DF</b>	
Frequency range	20 – 3000 MHz
Band A	20 – 300 MHz (DF-A0148 –VHF)
Band B	20 – 700 MHz
Band C	700 – 3000 MHz
Channels per band	3
DF method	Watson-Watt or 3-channel correlative
RMS accuracy	< 5° (using only pure WW)*
Polarisation	Vertical
Omni-output	Provided as one of the DF channels
<b>Electrical: band switch (fully integrated in antenna)</b>	
Frequency range	20 – 3000 MHz
Control	- RS 485, - dedicated switching lines
Switching time	< 1µs when using dedicated lines
Integrated features	- Compass (accuracy 3°) - Active GPS antenna
Stored information	Model no., serial no., user data fields
RF calibration	- Internal noise source - External cal injection option
Power supply	6 – 10 V DC
Power consumption	< 1 W
<b>Interfaces:</b>	
Electrical	Base-mounted connector (see below)
Connector	MIL-38999/20WG11PN
Antenna outputs	3 x co-axial (size 12 contact)
GPS output	1 x co-axial (size 12 contact)
Ext cal input	1 x co-axial (size 12 contact)
Mechanical	Spring-mount via connector
<b>Mechanical:</b>	
Dimensions (h x d)	600 mm x 80 mm (DF-A0148) 600 mm x 130 mm (DF-A0148 -M1) 800 mm x 450 mm (DF-A0148-VHF)
Mass	< 1.0 kg (DF-A0148) < 3.0 kg (DF-A0148 -M1) < 3.0 kg (DF-A0148-VHF)
<b>Environmental: designed to meet the following specifications</b>	
Temperature range	-30 °C to +55 °C (operating) -40 °C to +71 °C (storage)
Ingress protection	IP65
Shock and vibration	MIL-STD-810E 516.4, Cat 8, shock 40g

\* Improved accuracy is possible using correlative methods

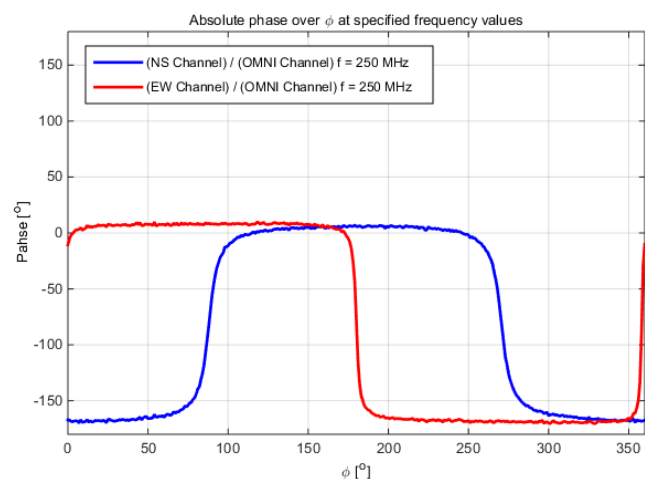
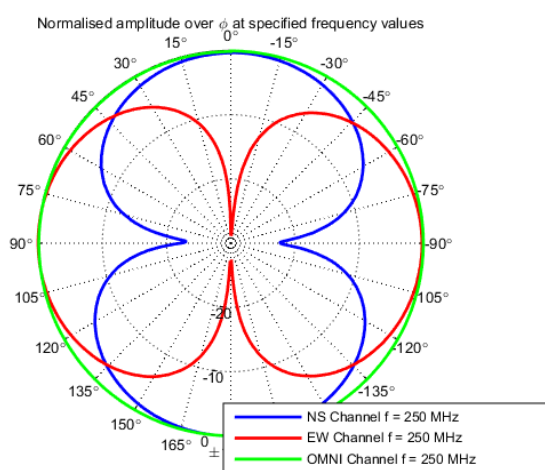
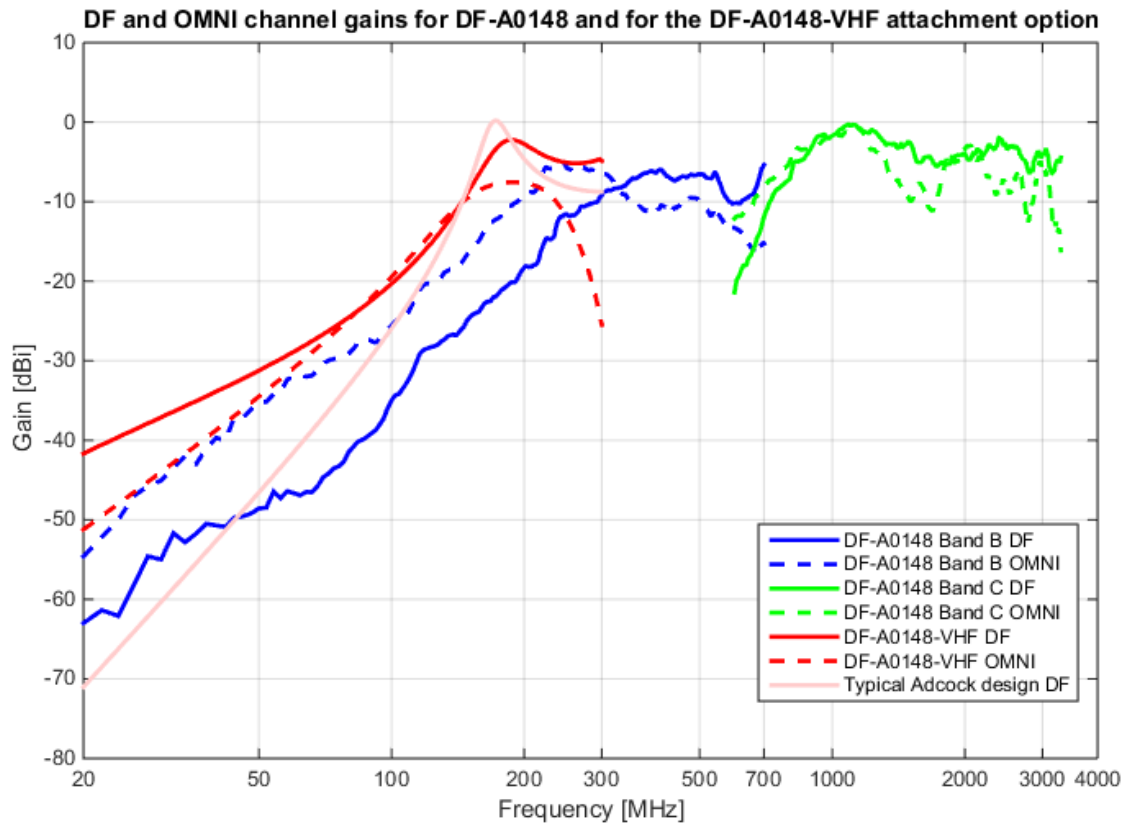
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## Gain and typical patterns:



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The DF-A0148 with DF-A0148-M1



Illustration of the DF-A0148 mounted on a marine vessel



The DF-A0148 in on-the-march configuration