MA1316 MOBILE DF ANTENNA

- 0.5 - 280 MHz frequency coverage
- Accurate and repeatable bearings
- Low power consumption
- Ruggedized, compact, lightweight design
- One year warranty on parts and labor

An Accurate, Compact Antenna for Mobile Operations

The MA1316 mobile antenna is a wide frequency coverage DF antenna that consists of four loop elements mounted around the perimeter of the antenna chassis, and an omni-directional sense element mounted in the center of the chassis. The MA1316 antenna is designed to receive vertically polarized signals in the 0.5 to 280 MHz frequency range.

The MA1316 is available with several mounting options; these include car top mount using magnets and/or car straps, and tripod mount. Car straps are provided for added stability. When mounted on a tripod, ground planes are required in lieu of the car top's metal roof.

All power and control signals to the antenna are provided through one 8-conductor control cable via the DF processor. The received signal with bearing information encoded is routed to the receiver through a RF coaxial cable. The antenna may be cascaded with another DF antenna to provide wider frequency coverage. A typical configuration consists of the MA1316 connected in series between a MA1310 antenna and the DF receiver/processor to achieve a total range of 0.5 to 1300 MHz.

The MA1316 is compatible with several Cubic receiver/processor configurations. A typical DF system may comprise the antenna with the Cubic LCR-3000 communications receiver and the 4006R DF processor.

CUBIC
DEFENSE APPLICATIONS, INC.
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SPECIFICATIONS

Frequency Range:	0.5 - 280 MHz monitor (2 - 200 MHz optimum DF)
Azimuthal Coverage:	360°
Antenna:	4-element loop array with vertical sense antenna
Bearing Accuracy:	4° rms maximum, 2 - 200 MHz Bearing accuracy may be improved with site calibration (Note 1) (Note 3)
Power:	Voltage: 11.5 - 20 VDC (supplied through DF Processor) Current: 220 mA
Typical DF Sensitivity:	0.5 MHz: 400 µV/m 2 MHz: 100 µV/m 5 MHz: 40 µV/m 10 MHz: 20 µV/m 20 MHz: 4 µV/m 100 MHz: 8 µV/m 200 MHz: 6 µV/m (Note 2)
Polarization:	Vertical
Impedance:	50 ohms nominal
Mechanical:	Height: 4.5” (11.4 cm) with 12” (30.5 cm) sense element Width: 12” (30.5 cm) Depth: 12” (30.5 cm) Weight: 6.75 lbs (3.1 kg)
Environmental:	Operating: -40°C to +60°C Storage: -40°C to +70°C Humidity: 95% RH per MIL-STD-810D (507.2) Shock: MIL-STD-810C Procedure VI Vibration: Random per MIL-STD-810D (514.3)

Note 1: DF bearing accuracy is measured on an ideal site with no bias over specified azimuthal and frequency range with specified polarization at 0° elevation. Bearing accuracy improvement will depend on the physical characteristics of the particular site chosen. Actual production acceptance testing performed at Cubic test site using standard deviation to elimminate site bias.

Note 2: System sensitivity is specified for an incident field strength in microvolts per meter for direction finding processor output with 6° standard deviation bearing jitter, minimum integration time of 200 msec and an IF bandwidth of 6 kHz.

Note 3: DF bearing accuracy is the rms value of all frequencies at all azimuth points as a single calculation.

$$RMS = \sqrt{\frac{\sum_{i=1}^{n} (AM_i - AT_i)^2}{n}}$$

i = index
n = # of points (frequency • azimuth)
AM = measured azimuth
AT = true azimuth

Ordering Information

Model No.	Part No.	Description
MA1316	0254471-1	Mobile DF Antenna, 0.5 - 280 MHz, supplied with magnetic mounts (4) and safety straps (4), and interconnect cables. Color: Grey

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