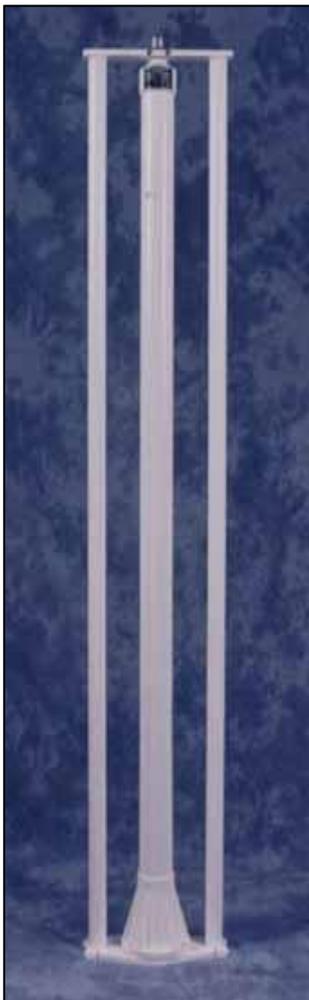


SPECIFICATION SHEET

ADS-B ANTENNA, BI-DIRECTIONAL MODEL dBs 510A-BD

dBs PART NUMBER 510300-102
APPROVED FOR USE BY FAA UNDER FAR PART 171



The dBs 510A-BD is an 8 element, high performance, full service, all band, bi-directional, Automatic Dependent Surveillance Broadcast (ADS-B) antenna.

This bi-directional antenna has 8 active elements and other components, which produce high main lobe and horizon gain with wide beam width.

The antenna is light weight, small, and 100% metal tubular construction making it extremely rugged and lightning rod compatible. Optional pipe adapter permits attachment of the antenna to a 4" O.D. pipe and optional plate adapter.

Two monitor probes are provided.

All 3 RF connectors use Type N Jacks.

It is interoperable with lightning rod assembly and/or dual obstruction lights.

The model dBs 510A-BD ADS-B antenna has been designed for ruggedness, lightweight, minimum size, long life, and in accordance with FAA-E-2754 and FAA-E-2100. It also exceeds the requirements of the UK CAA specification.

ADS-B ANTENNA, BI-DIRECTIONAL

Model dBs 510A-BD
dBs PART NUMBER 510300-102

SPECIFICATIONS/CHARACTERISTICS

TYPE: Bi-directional

AZIMUTH PATTERN: 50° Nominal (Each Lobe)

FREQUENCY RANGE: 960 through 1215 MHz (no adjustments or tuning required)

ARRAY: 8 radiator assemblies (77.8" tall)

COAXIAL CABLE: Semi-Rigid, Low Loss, Phase Stable

POLARIZATION: Vertically Polarized

GAIN, MAIN BEAM: 12 dB/iso, minimum

GAIN, HORIZON: 10 dB/iso, minimum

MAIN BEAM ELEVATION LOCATION: Between 2° and 5° above horizon

SLOPE (VICINITY OF HORIZON): 0.44 dB/°, 0.05 V/V/°

POWER HANDLING CAPABILITY: Up to at least 10 kW peak RF power at 3% duty cycle

IMPEDANCE: 50 Ω nominal

VSWR: Not greater than 2:1 (960-1215 MHz) measured at end of low loss cable not exceeding 5 feet in length.

VERTICAL FIELD PATTERN: The radiation pattern of the antenna in the vertical plane has a lobe of energy not less than 6 degrees wide at the half-power points. The power gain at angles between 10 and 50 degrees below the horizon shall be lower than the power gain at the peak of the major lobe above the horizon by at least 12 dB. The power gain at angles between 6 and 40 degrees above the horizon shall not pass under a straight line joining the points of co-ordinates (+6°, -15 dB) and (+40°, -25 dB) with values referenced to the peak of the major lobe above the horizon.

SIZE: 80" long, 8 radiator assemblies (driven elements) plus a choke assembly at each end, 15" max antenna width and 7" max antenna depth. Has top cap, base flange, and reflector assembly.

WEIGHT: 35.7 lbs. (excluding obstruction light and mounting fixtures and other optional items); 38 lbs. in shipping container.

PHYSICAL DESIGN: A metal tube, 1.5" O.D. x 1.43" I.D. (0.040" wall thickness) runs through center of antenna for

full length. RF transmission line assembly and obstruction light power lines are located within this tube. Also used as lightning down conductor.

WEATHER PROOFING: Entire antenna, including all cable connectors is weather proofed such that removal/replacement of radome is possible without sealing compounds.

ANTENNA MOUNTING: The configuration of the antenna base is such that the antenna can be mounted directly or indirectly through use of optional adapter(s).

TEMPERATURE: -50° C to +70° C.

WIND LOADING: Withstands without damage 100 mph gusts

MONITOR PORTS: Two coupling probes for monitoring the signal radiated by the antenna. Located within the radome. 50 Ω nominal impedance. Optional probe output level is 23 dB ± 5 dB for J2 and 30 dB ± 5 dB for J3 below power level applied to main RF input connector.

CONNECTORS RF: Type N Female, 3 each.

ENVIRONMENTAL:

Meets FAA-G-2100c Environment III.

Temperature, -50° C to +70° C

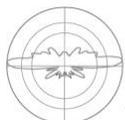
Humidity, 5 to 100%

Altitude, 0 to 10,000 feet ASL

Ice Loading, 1/2" Radial Ice.

OPTIONAL ITEMS:

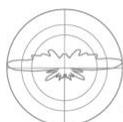
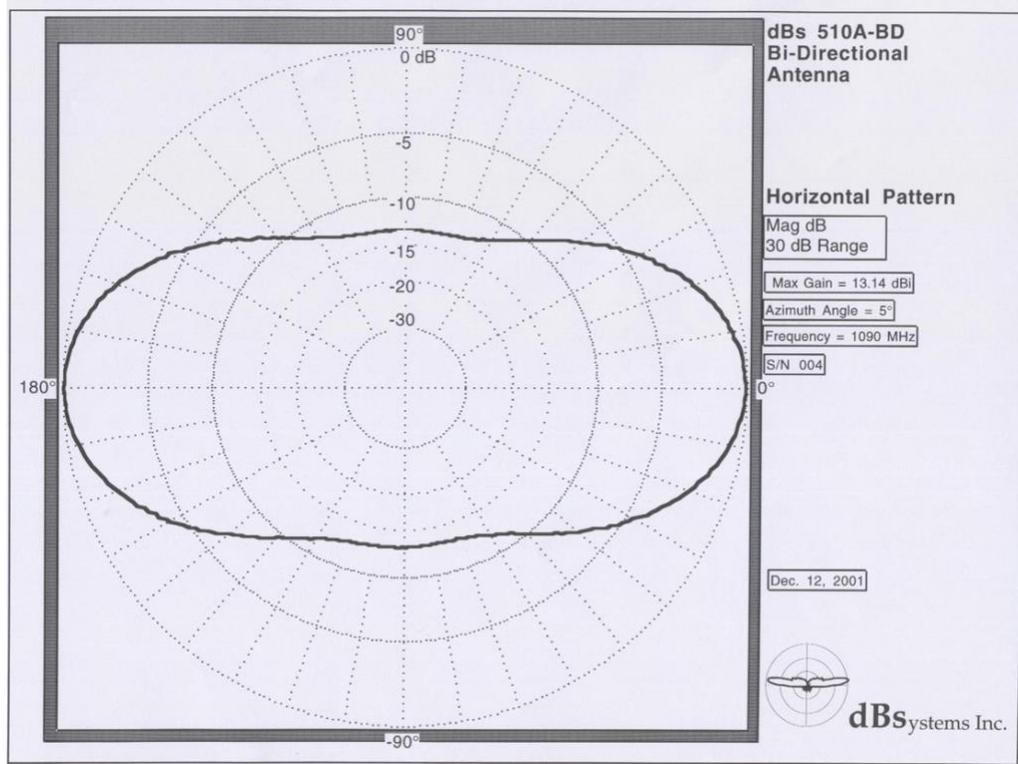
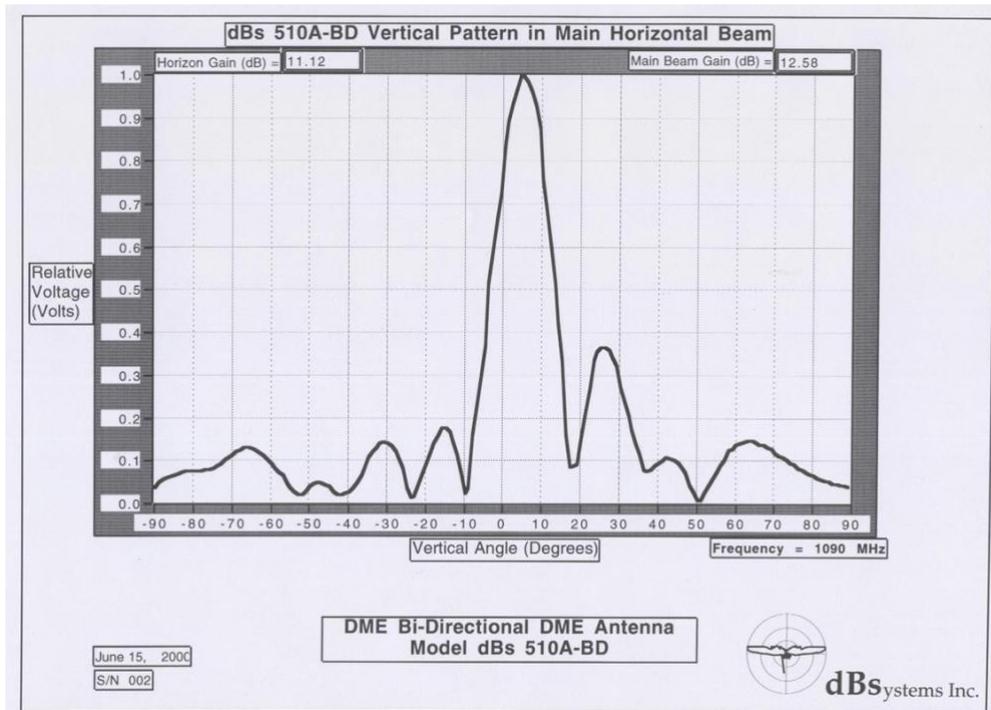
- **OBSTRUCTION LIGHT:** Optional, red dual lamp obstruction light fixture with two red globe covers. Connector is MS-3112E8-3P (P/N 510600-101: 9" H x 12" W x 5.5" D @ 6 lbs.)
- **LIGHTNING ROD ASSEMBLY:** Optional, air terminal and bracket, powder coat painted white, aluminum (P/N 510625-100: Rod 18" L x 0.5" Dia @ 6 oz. Bracket 4.5" L x 2.5" W x 0.75" H @ 1 lb.)
- **PIPE ADAPTER:** Optional, solid cast aluminum (A356-T6) Powder coat painted white. Adapts 4" O.D. pipe to antenna base (P/N 510500-100: 12" H x 8" Dia. @ 8.3 lbs.)
- **COVER FOR PIPE ADAPTER:** Optional, Stainless Steel, protects connector area from environment (P/N 510490-100: 25.5" L x 5" H @ 1.5 lbs.)
- **PLATE ADAPTER:** Optional, interfaces with pipe adapter for mounting antenna to building side, steel weldment, powder coat painted white (P/N 510460-100: 12" x 12" with 18" L, 4" O.D. pipe @ 37.5 lbs.)



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dBs 510A-BD Vertical & Horizontal Patterns



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