dB Systems Inc.

2501 S. Antenna Avenue
Hurricane, Utah 84737 USA

SPECIFICATION SHEET

ADS-B ANTENNA, OMNI-DIRECTIONAL
MODEL dBs 510A-L

dBs PART NUMBER 510300-105
APPROVED FOR USE BY FAA UNDER FAR PART 171

The dBs 510A-L is an 8 element, high performance, full service, all band, omni-directional, Automatic Dependent Surveillance-Broadcast (ADS-B) antenna. It is a lightweight version of the FAA certified dBs 510A.

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

This antenna provides vertically polarized, omni-directional coverage with main beam of radiation up tilted to minimize the effects of ground reflections. The array has two integral monitor probes which constantly sample the RF signal delivered to the antenna.

The antenna is very lightweight (10.2 lbs.), small, and 100% metal tubular construction, making it extremely rugged. The integral pipe adapter permits direct attachment of the antenna to a 2 7/8" O.D. pipe.

Monitor probes are not provided.

The main RF input connector uses a Type N jack.

The model dBs 510A-L antenna has been designed for ruggedness, lightweight, minimum size, long life, and in accordance with FAA-E-2754 and FAA-G-2100.

dBs 510A-l with Marine Option (P/N: 510300-125): The dBs 510A-L Marine Version antenna is an optional upgrade as well. The RF transmission assembly is completely sealed and weatherproofed to protect in harsh environments such as salt water, extreme humidity, wind, sand, snow, and ice. Contact our factory for more details

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ADS-B ANTENNA, OMNI-DIRECTIONAL

Model dBs 510A-L
dBs PART NUMBER 510300-105

SPECIFICATIONS/CHARACTERISTICS

TYPE: Omni-directional

CIRCULARITY: ± 1 dB max on horizon

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

ARRAY: 8 radiator assemblies

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

POLARIZATION: Vertically Polarized

GAIN, MAIN BEAM: 8 dB/iso, minimum

GAIN, HORIZON: 6 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 10 degrees wide at the half-power points. The power gain at angles between 6 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 8 dB. The power gain at angles between 6 and 15 degrees above the horizon shall be greater than a level which is 20 dB below the power gain at the peak of the major lobe above the horizon. The power gain at angles between 15 and 45 degrees above the horizon shall be greater than a level which is 30 dB below the power gain at the peak of the major lobe above the horizon.

SIZE: 64" long, 8 radiator assemblies (driven elements) plus a choke assembly at each end, 3 1/4" O.D. radome. Has top cap and base collar.

WEIGHT: 10.2 lbs.

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 to a supporting 2 7/8" O.D. pipe or conduit.

TEMPERATURE: -50° C to +70° C

WIND LOADING: Withstands without damage 100 mph gusts

MONITOR PORTS: Not provided

OBSTRUCTION LIGHT(S): Interface not provided

CONNECTORS RF: Type N Female, 1 each

ENVIRONMENTAL:
Meets FAA-G-2100c Environment III and FAA-E-2754
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:

- **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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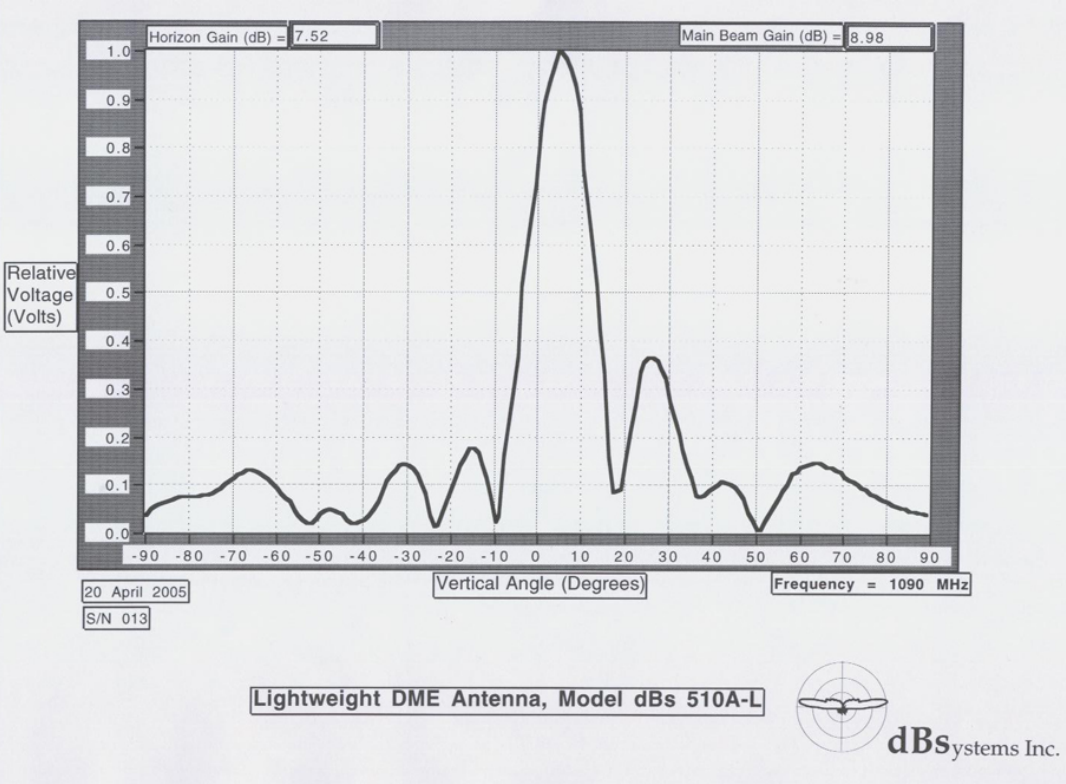
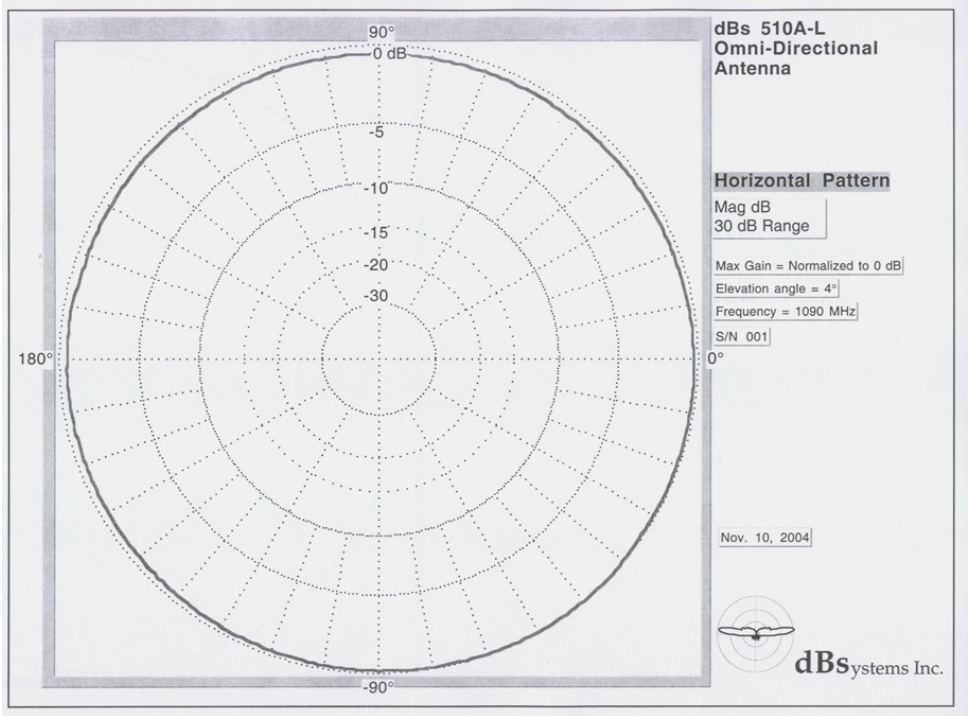
dBs 510A-L Vertical & Horizontal Patterns





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