dB Systems Inc.

2501 S. Antenna Avenue
Hurricane, Utah 84737 USA

# SPECIFICATION SHEET

## DME ANTENNA, UNI-DIRECTIONAL
## MODEL dBs 510A-D, 90° HPBW

**dBs PART NUMBER 510300-101**
**APPROVED FOR USE BY FAA UNDER FAR PART 171**

The dBs 510A-D is an 8 element, high performance, full service, all band, uni-directional Distance Measuring Equipment (DME) antenna.

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

The antenna is lightweight, 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-D DME antenna has been designed for ruggedness, lightweight, minimum size, long life, and in accordance with FAA-E-2754 and FAA-G-2100. It also exceeds the requirements of the UK CAA specification.

**dBs 510A-D, 90° HPBW with Marine Option**: The dBs 510A-D, 90° HPBW 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.

# DME ANTENNA, UNI-DIRECTIONAL

### Model dBs 510A-D, 90° HPBW
### dBs PART NUMBER 510300-101

## SPECIFICATIONS/CHARACTERISTICS

**TYPE:** Uni-directional

**CIRCULARITY (AZIMUTH PATTERN):** 90° Nominal HPBW

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

**ARRAY:** 8 radiator assemblies (77.8" tall)

**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 2.5:1 (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:** 77.8" long, 8 radiator assemblies (driven elements) plus a choke assembly at each end, 6 1/4" OD radome. Has top cap and base flange.

**WEIGHT:** 38 lbs. (excluding obstruction light, mounting fixtures, and other optional items)

**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 weatherproofed 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. 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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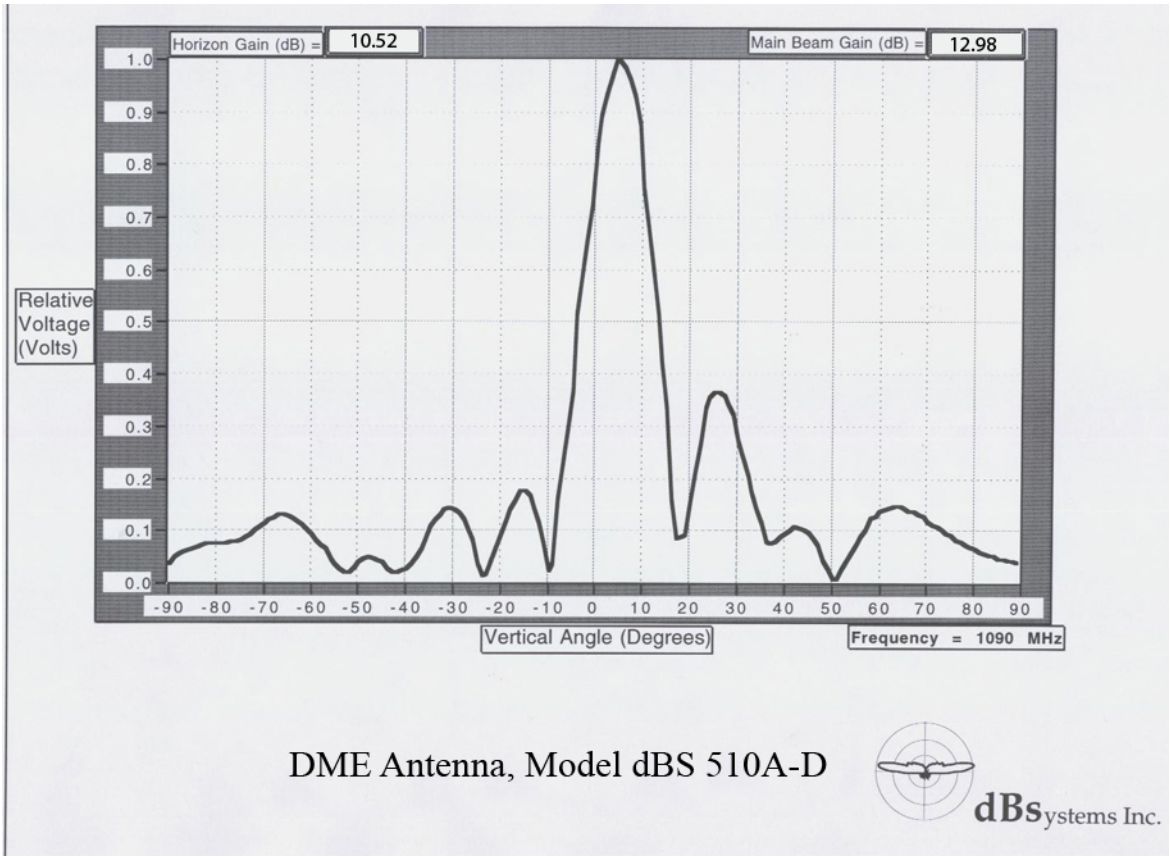
## dBs 510A-D, 90° HPBW Vertical Pattern

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