

## SPECIFICATION SHEET

### ADS-B ANTENNA, UNI-DIRECTIONAL MODEL dBs 610-D/10°

**dBs PART NUMBER 610300-101**  
**APPROVED FOR USE BY FAA UNDER FAR PART 171**



The dBs 610-D/10° is a 4 element, extended aperture, high performance, full service, all band, uni-directional, Automatic Dependent Surveillance-Broadcast (ADS-B) antenna.

This uni-directional antenna has 4 active elements and other components, which produce high main lobe and horizon gain with wide beam width. The main lobe of the vertical pattern has been squinted to 10° above the horizon for improved multipath performance.

This antenna provides vertically polarized, uni-directional coverage with the 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 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.

The main RF input connector uses a Type N jack.

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

The model dBs 610-D/10° ADS-B 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 610-D/10° with Marine Option:** The dBs 610-D 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.

# ADS-B ANTENNA, UNI-DIRECTIONAL

Model dBs 610-D/10°  
dBs PART NUMBER 610300-101

## SPECIFICATIONS/CHARACTERISTICS

**TYPE:** Uni-directional

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

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

**ARRAY:** 4 radiator assemblies (35" tall)

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

**POLARIZATION:** Vertically Polarized

**GAIN, MAIN BEAM:** > 9 dB/iso, minimum

**GAIN, HORIZON:** > 7 dB/iso, minimum

**MAIN BEAM ELEVATION LOCATION:** 10° nominal above horizon

**SLOPE (VICINITY OF HORIZON):** 0.35 dB/° nominal

**POWER HANDLING CAPABILITY:** Up to at least 5 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 20 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 8 dB. The power gain at angles between 6 and 30 degrees above the horizon shall not pass under a straight line joining the points of co-ordinates (+6°, -15 dB) and (+30°, -25 dB) with values referenced to the peak of the major lobe above the horizon.

**SIZE:** 36" long, 4 radiator assemblies (driven elements), 6 1/4" OD radome. Has top cap and base flange.

**WEIGHT:** 21 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.

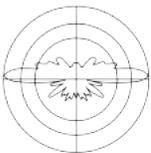
**WIND LOADING:** Withstands without damage 100 mph gusts

**MONITOR PORTS:** Optional coupling ports for monitoring the signal radiated by the antenna. Located within the radome can be provided as optional items. 50 Ω nominal impedance. Probe output level is 25 dB ± 1.5 dB (for J2 and J3) below power level applied to main RF input connector.

**CONNECTORS RF:** Type N Female. 2 each for optional monitor ports.

### 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.)



dB Systems Inc.

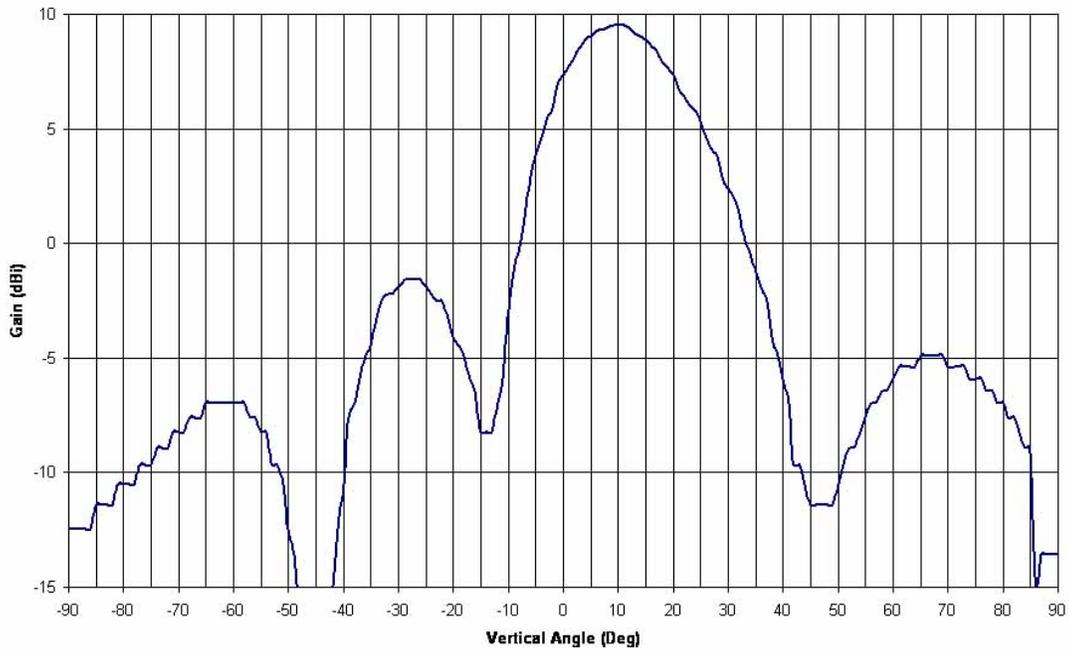
2501 S. Antenna Avenue  
Hurricane, Utah 84737 USA

Email: [sales@dbsant.com](mailto:sales@dbsant.com) | Phone: (435) 635-3352 | [www.dbsant.com](http://www.dbsant.com)

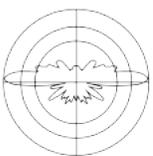
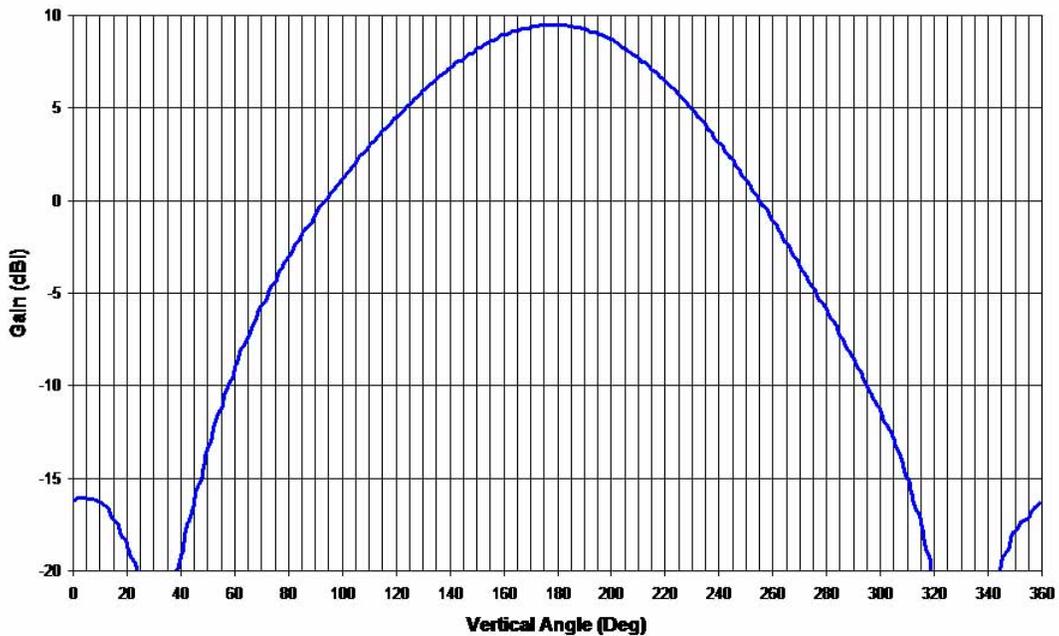
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# dBs 610-D/10° Vertical & Azimuth Patterns

dBs 610D/10 Vertical Pattern, 1090 MHz



dBs 610D/10 Azimuth Pattern, 1090 MHz



dB Systems Inc.

2501 S. Antenna Avenue  
Hurricane, Utah 84737 USA

Email: [sales@dbsant.com](mailto:sales@dbsant.com) | Phone: (435) 635-3352 | [www.dbsant.com](http://www.dbsant.com)

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