dB Systems Inc.

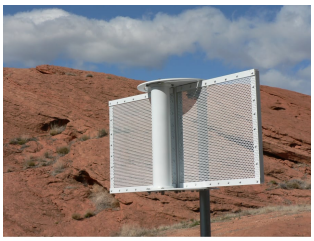
2501 S. Antenna Avenue
Hurricane, Utah 84737 USA

SPECIFICATION SHEET

ADS-B ANTENNA, OMNI-DIRECTIONAL

MODEL dBs 620-D

dBs PART NUMBER 620300-101
APPROVED FOR USE BY FAA UNDER FAR PART 171



dBs 620-D in 180° Reflector Position, Produces 155° HPBW

dBs 620-D in 260° Reflector Position, Produces 210° HPBW

The dBs 620-D, Variable Beamwidth, is a 2 element high performance, full service, omni-directional, Automatic Dependent Surveillance-Broadcast (ADS-B) antenna. Frequency range is 978, 1030, and 1090 MHz (no adjustments or tuning required).

This omni-directional antenna has 2 active elements and other components, which produce high main lobe and horizon gain. Gain, main beam from 13.2 dB/iso min HPBW (35°) to 6.8 dB/iso at max HPBW (210°). Gain, horizon 2 dB down from main beam peak gain. The main lobe of the vertical pattern has been squinted to 10° above the horizon for improved multipath performance. The main lobe of the vertical pattern can be adjusted between 0° and +30° above the horizon upon request.

The antenna is lightweight, small, and 100% metal tubular construction making it extremely rugged.

The main RF input connector uses a Type N jack.

The model dBs 620-D Variable Beamwidth 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 620D with Marine Option: The dBs 620D 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 620-D
dBs PART NUMBER 620300-101

SPECIFICATIONS/CHARACTERISTICS

TYPE: Variable azimuth beamwidth

AZIMUTH PATTERN: Half power beamwidth bariable and settable from 35° to 210° azimuth HPBW

FREQUENCY RANGE: 978, 1030 & 1090 MHz (no adjustments or tuning required)

ARRAY: 2 dipoles and 2 chokes in vertical plane

- **POLARIZATION:** Vertically Polarized

GAIN, MAIN BEAM: From 13.2 dB/iso at min HPBW (35°) To 6.8 dB/iso at Max HPBW (210°)

GAIN, HORIZON: Approximately 2 dB down from main beam peak gain

MAIN BEAM ELEVATION LOCATION: Between 0° and +30° above horizon

SLOPE (VICINITY OF HORIZON): Approximately 0.05 dB/°

POWER HANDLING CAPABILITY: Up to at least 5 kW peak RF power at 3% duty cycle

IMPEDANCE: 50 Ω nominal

VSWR: 2.5:1 (1030 & 1090 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 15 degrees wide at the half-power points. The power gain at angles between 30 and 90 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: 19" tall, 2 radiator assemblies (driven elements) plus a choke assembly at each end, 3 1/4" OD radome. Has top and base flange. Antenna width extends to a maximum of 38° when reflector wings set to 180°.

WEIGHT: 15 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 is 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 1.5” diameter vertical pipe (1.5” pipe has a nominal O.D. of 1.90”). Pipe sleeve overlaps mounting pipe by 5”. Two 3/8” bolts secure antenna to mounting pipe.

WIND LOADING: Withstands without damage 100 mph gusts

MONITOR PORTS: Not supported; contact factory if required

CONNECTORS RF: Type N female 1 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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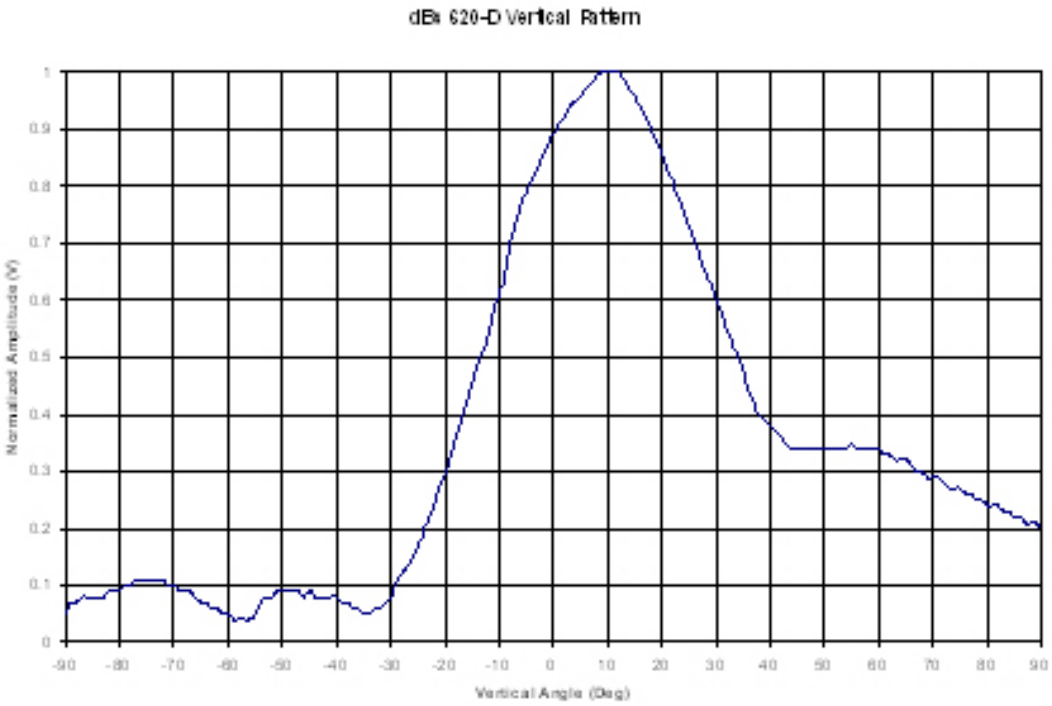
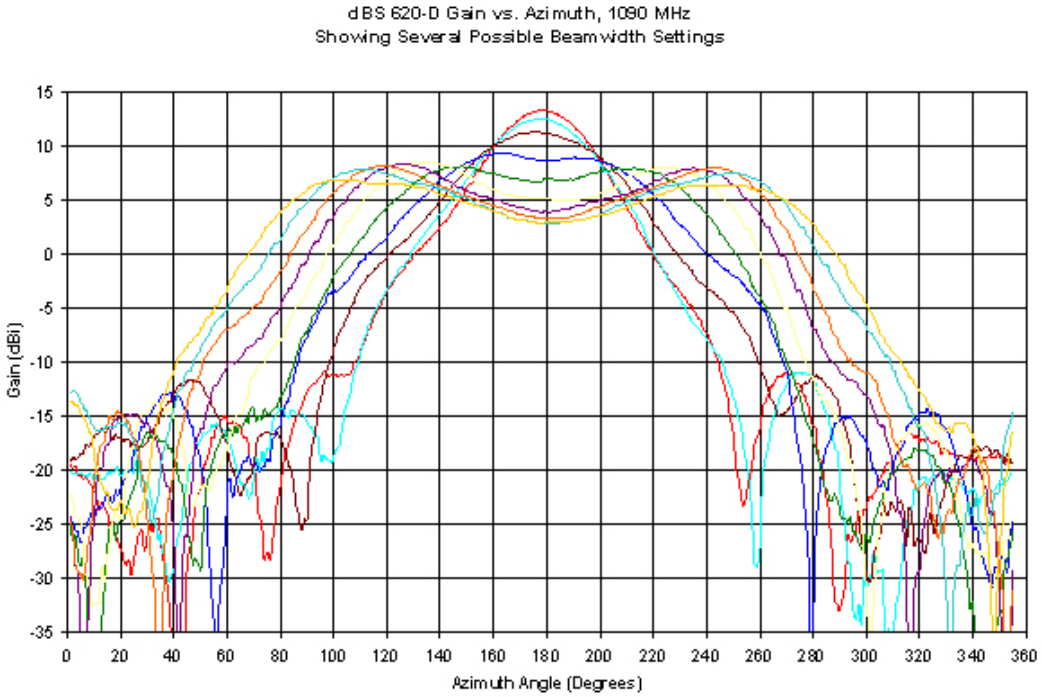
dBs 620-D Vertical & Azimuth Patterns





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