dB Systems Inc.

2005 Turf Sod Rd.
Hurricane, Utah 84737 U.S.A.

SPECIFICATION SHEET

SSR ANTENNA, OMNI-DIRECTIONAL
MODEL dBs 560

APPROVED FOR USE BY FAA UNDER FAR PART 171

The dBs 560 is an omni-directional broadband, 12 element, Secondary Surveillance Radar (SSR) side lobe suppression, collinear dipole phased array designed specifically for use with the ASR-3 Radar. It exhibits very low side lobe levels and negative angle radiation (minimizes multipath). The above-the-horizon null-filled pattern minimizes the radiated cone of silence and optimizes the side lobe suppression performance of the radar system. The antenna handles input power to 4,000 watts at the standard SSR pulse duty cycle and operates over its entire frequency range with an input VSWR at 50 Ω of less than 2.0:1.

This antenna provides vertically polarized, omni-directional coverage with the main beam of radiation tilted upward to minimize the effects of ground reflections.

The array is enclosed and effectively weatherproofed within a lightweight, small diameter, filament wound, and ground smooth fiberglass radome for prolonged trouble-free use under severe environmental conditions.

SSR ANTENNA, OMNI-DIRECTIONAL

Model dBs 560

SPECIFICATIONS/CHARACTERISTICS

TYPE: Collinear cylindrical dipole array. Shaped vertical beam and omni-directional azimuth beam.

CIRCULARITY: Omni-directional to within ± 1 dB

OPERATING FREQUENCY: 1030 MHz (no adjustments or tuning required)

ARRAY: 12 radiator assemblies (86° aperture)

POLARIZATION: Vertically polarized

GAIN, MAIN BEAM: 8 dB/iso, minimum

GAIN, HORIZON: 6 dB/iso, minimum

MAIN BEAM ELEVATION LOCATION: 4° ± 1° above horizon

SLOPE (VICINITY OF HORIZON): 1 dB/° min

POWER HANDLING CAPABILITY: At least 4 kW peak RF power at 1 µsec pulse width and a pulse repetition frequency of 300 Hz.

IMPEDANCE: 50 Ω nominal

VSWR: Not greater than 1.5:1 (1030 MHz)

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 8 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 16 dB. The power gain at angles between 4 and 60 degrees above the horizon shall not pass under a straight line joining the points of co-ordinates (+4°, 0 dB), (+10°, -2 dB), (+20°, -8 dB), (+30°, -11 dB), (+40°, -14 dB), (+50°, -19 dB) and (+60°, -24 dB) with values referenced to the peak of the major lobe above the horizon. See Figure 1 for Gain Mask and Typical Vertical Pattern.

SIZE: 132.5" long, 12 radiator assemblies (driven elements) plus a choke assembly at each end, 3 1/4" O.D. radome. Has top cap, base flange, and air terminal assembly.

WEIGHT: 32 lbs. (including air terminal and base adapter)

PHYSICAL DESIGN: A metal tube, 1.75" O.D. x 0.040" wall thickness runs through center of antenna for full length which acts as the lightning down conductor. RF transmission line assembly is located within this tube.

WEATHERPROOFING: Entire antenna, including all cable connectors, is weatherproofed such that removal/replacement of radome is possible without sealing compounds.

ANTENNA MOUNTING AND MATERIAL: 8 each 0.397 dia. through holes on 10” dia. bolt circle. Antenna base adapter is aluminum finished in chemical film (Iridite).

TEMPERATURE: -50° C to +50° C

HUMIDITY: 5 to 100%

RAIN: 4 inches per hour

VIBRATION: 10 Hz ± 2 kHz/10g peak

SHOCK: Basic transportation

WIND LOADING: Withstands without damage 100 mph gusts

ICE LOAD: 56 lbs./sq. ft.

ELEVATION: 0 to 10,000 ft. above sea level

LIGHTNING PROTECTION: The lightning arrester tip is greater than 30” above the highest point of the antenna. The combined height of the antenna and lightning arrester is greater than 11 feet. Total down conductor current carrying capability is at least 155 amps. Two ¼-20 bolts located at antenna base serve as ground point connection points.

CONNECTORS RF: Type N Female per MIL-C-39012. Connector is centered in the base of the antenna for easy interconnection.

RADOME COLOR: White; air terminal is left raw aluminum and is not painted

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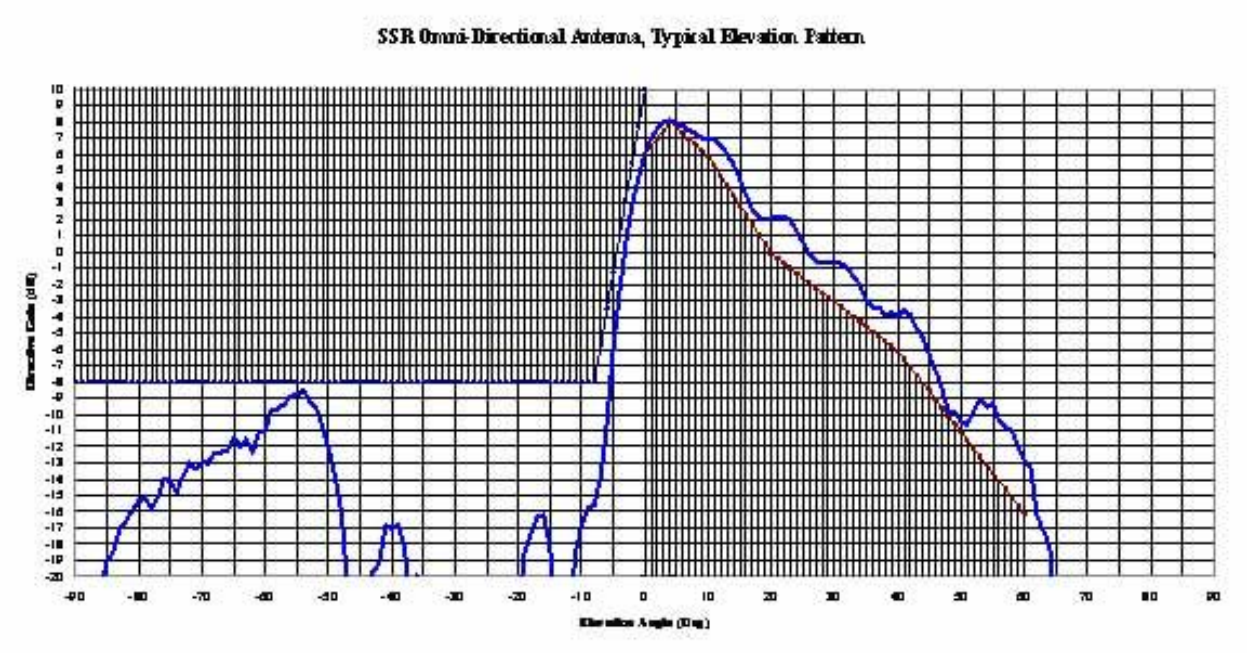
dBs 560 Vertical Pattern



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