



SPECIFICATION SHEET

TACAN ANTENNA, MEDIUM APERTURE MODEL dBs 950E

dBs PART NUMBER 951300-10X



- Vertical gain pattern (typically > 8 dBi) optimized for distant aircraft
- Solid E-Glass composite radome structure provides superior structural strength
- Unique modulation technique provides unusually high efficiency
- Innovative mechanical design supports easy field maintenance
- COTS FAA flight-tested technology
- Small form factor, low cube, and mechanically affixed lifting sling supports easy deployment and maneuverability
- The 950E electronically scanned TACAN antenna is a state-of-the-art design that features high efficiency (low internal RF loss), high gain at low elevation angles, and very low gain below the horizon, resulting in exceptional coverage performance at sites with long cable runs or difficult terrain.

Designed as a smaller form factor version of the dBs 900E (the FAA flight tested antenna chosen by the United States Air Force to replace the existing 120 USAF TACAN installations worldwide), the dBs 950E offers many of the advantages of a tall aperture antenna in a smaller, lighter weight package. The 950E TACAN Antenna offers improved reliability, ease of field maintenance, and requires substantially less power to operate than previous TACAN Antennas. In addition, the dBs 950E is an all-frequency antenna. This means the dBs 950E operates on all DME/TACAN channels without tuning or adjustment.

Built in Test (BIT) assures the user that all antenna electronics are fully functional (which by itself is an excellent indicator of the overall RF pattern health of the antenna). The dBs 950E antenna has been sold to various international customers and is perfectly suited for Fixed-Base installations.

TACAN ANTENNA, MEDIUM APERTURE

Model dBs 950E
dBs PART NUMBER 951300-10X

SPECIFICATIONS/CHARACTERISTICS

TYPE: TACAN, Medium Vertical Aperture

FREQUENCY RANGE: 1X through 126X; 1Y through 126Y;
962 MHz - 1213 MHz (no adjustments or tuning required)

ARRAY, CENTRAL, RF: 10 Element, Collinear, Cylindrical
Dipole Array

MODES OF OPERATION: TACAN or DME Only

SCANNING: Electronically Scanned Using Ultra High
Efficiency Modulation Technique

SCANNING SPEED: 900 RPM \pm 0.015%, Crystal Controlled

ROTATION DIRECTION: Clockwise, looking down on the
antenna

POLARIZATION: Vertically Polarized

GAIN, MAIN BEAM: \geq 7 dB/iso peak gain, typically $>$ 8 dBi

GAIN, HORIZON: \geq 1 dB/iso peak gain

MAIN BEAM ELEVATION LOCATION: 5° to 7° above
horizon

SLOPE (VICINITY OF HORIZON): \geq 0.2 V/V/° (normalized to
value at horizon)

POWER HANDLING CAPABILITY: Up to at least 5 kW peak
RF power at 4% duty cycle (200 watts average)

VSWR: \leq 2.0:1 (960-1215 MHz) measured at end of low loss
cable not exceeding 5 feet in length.

GAIN BELOW THE HORIZON: The gain at angles between
10 and 50 degrees below the horizon shall be lower than the
gain at the peak of the major lobe above the horizon by at
least 12 dB. The energy radiated below the horizon shall not
exceed 20% of the total energy radiated.

GAIN ABOVE THE HORIZON: The radiation pattern of the
antenna in the vertical plane has a lobe of energy not less
than 6 degrees wide at the half-power points. 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.

IMPEDANCE: 50 Ω nominal

HARMONIC CONTENT:

- RSS of 30 & 45 Hz \leq 25% of 15 Hz
- RSS of 270 & 405 Hz \leq 25% of 135 Hz
- RSS of 105, 120, 150 & 165 Hz \leq 25% of 15 Hz

15 HZ MODULATION: From -2° to +45° vertical angle the 15
Hz percent modulation is 21% \pm 9%.

135 HZ MODULATION: From -2° to +20° vertical angle the
135 Hz percent modulation is 21% \pm 9%. From +20° to +45°
the modulation performance specification varies depending on
channel of operation.

HORIZONTALLY POLARIZED COMPONENT: The
horizontally polarized component \geq 26 dB below the vertically
polarized component.

CROSS POLARIZATION ERROR FOR 45° HORN TILT:
15 Hz RMS Error \leq \pm 3°
135 Hz RMS Error \leq \pm 1°

AZIMUTH ACCURACY:

- 15 Hz RMS Error \leq \pm 3°
- 15 Hz Peak Error \leq \pm 8°
- 135 Hz RMS Error \leq \pm 0.8°
- 135 Hz Peak Error \leq \pm 2.0°

WARM-UP TIME: \leq 5 Seconds

AC POWER: 95 to 260 VAC, 1 Phase, 47 to 63 Hz

DC POWER: +45 to +58 VDC.

DC POWER (OPTIONAL): For situations where a wider DC
input voltage range is preferred the system can be outfitted for
an input range of +18 to +72 VDC.

POWER CONSUMPTION: AC $<$ 75 Watts; DC $<$ 75 Watts

SIZE: Antenna: 70" H x 31.5" Dia. (33" Dia. at top cap);
ACU: 12.25" H x 19" W x 16.5" D

WEIGHT: Antenna: 240.0 lbs.; ACU: 20.0 lbs.

TEMPERATURE: Antenna: -50° C to +70° C
ACU: -10° C to +50° C

RELATIVE HUMIDITY: 0% to 100%

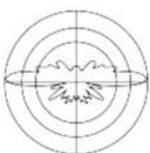
ALTITUDE: 10,000 feet above sea level, maximum

ICING: 4.5 lbs./sq. ft. on exposed antenna surface, maximum

WIND LOADING: 100 mph, maximum

LIGHTNING PROTECTION: Optional lightning protection
(P/N: 510300-106) provided via RF transparent lightning down
conductor. Typically located on shelter roof.

INTEGRAL MONITOR: Provides BIT to LRU level. Issues
antenna shutdown or maintenance alert depending on failure
mode. Optional azimuth monitor available to monitor azimuth,
RF power output, pulse trains, etc.



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dBs 950E Vertical Pattern

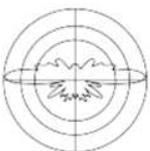
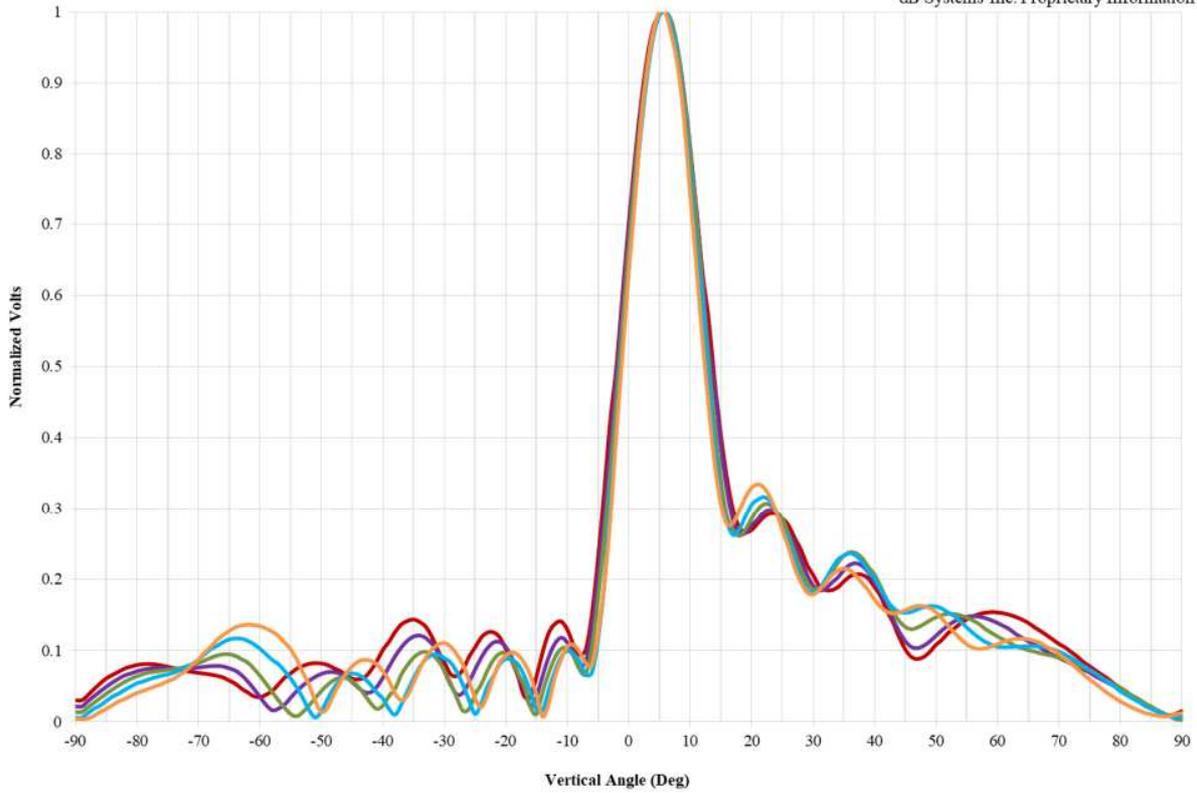


dB Systems Inc.

dBs 950E Vertical pattern

962 MHz 1025 MHz 1088 MHz 1150 MHz 1213 MHz

dB Systems Inc. Proprietary Information



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