

SPECIFICATION SHEET

TACAN ANTENNA, TALL APERTURE MODEL dBs 900E

dBs PART NUMBER 901300-101



- State-of-the-art TACAN antenna enables excellent coverage performance
- Vertical gain pattern optimized for distant aircraft with high gain on the horizon
- Unique modulation technique provides unusually high efficiency
- Innovative mechanical design supports easy field maintenance
- COTS FAA flight-tested product
- The 900E electronically scanned TACAN antenna is a state-of-the-art design that features high efficiency (low internal RF power 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.
- The 900E antenna is a COTS product that has been sold to several overseas customers and has been successfully flight tested by the FAA.

The dBs 900E ESTA is a Low Power TACAN (Tactical Air Navigation) antenna intended for use with the FA-9996 and other TACAN beacon equipment located at VORTAC sites. It is designed to replace existing TACAN antennas which have reached the end of their economical service life and, in the process, provide a TACAN antenna which has greater reliability, ease of maintenance, and requires substantially less power to operate than previous TACAN antennas. In addition, the dBs 900E is an all-frequency antenna. Meaning, the dBs 900E 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 900E also includes a cantilevered lightning arrester assembly, which provides a 45° cone of protection over the antenna.

The dBs 900E TACAN is the FAA flight-tested antenna chosen by the United States Air Force to replace the existing 120 USAF TACAN installations worldwide.

TACAN ANTENNA, TALL APERTURE

Model dBs 900E
dBs PART NUMBER 901300-101

SPECIFICATIONS/CHARACTERISTICS

TYPE: TACAN, High Vertical Aperture

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

ARRAY, CENTRAL, RF: 14 Element, Co-linear, 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 9 dB/iso Peak Gain

GAIN, HORIZON: \geq 3 dB/iso Peak Gain

MAIN BEAM ELEVATION LOCATION: 5° to 7° above horizon, typically 7°.

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 1.8:1 (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 6 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 16 dB. The energy radiated below the horizon shall not exceed 10% of the total energy radiated.

GAIN ABOVE THE HORIZON: The power gain at angles between 6 and 20 degrees above the horizon shall be greater than a level which is 15 dB below the power gain at the peak of the major lobe above the horizon. The power gain at angles between 20 and 50 degrees above the horizon shall be greater than a level which is 25 dB below the power gain at the peak of the major lobe above the horizon.

HARMONIC CONTENT:

- RSS of 30 & 45 Hz \leq 25% of 15 Hz
- RSS of 270 & 405 Hz \leq 25% of 135 Hz

IMPEDANCE: 50 Ω nominal

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 6°
- 135 Hz RMS Error \leq \pm 0.8°
- 135 Hz Peak Error \leq \pm 1.5°

WARM-UP TIME: \leq 5 Seconds

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

DC POWER: +22 to +58 VDC

POWER CONSUMPTION: AC \leq 125 Watts; DC \leq 125 Watts

SIZE: Antenna: 118" Tall x 36" Dia.; ACU: 12.25" Tall x 19" Wide x 16.5" Deep

WEIGHT: Antenna with Lightning Protection: 600 lbs.
ACU: 25 lbs.

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

RELATIVE HUMIDITY: 0% to 100%

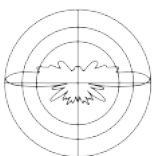
ALTITUDE: 10,000 feet above sea level, maximum

ICING: 7.5 lbs/ft² on exposed antenna surface, maximum

WIND LOADING: 100 mph, maximum

LIGHTNING PROTECTION: Integral Lightning Protection provided via RF Transparent Lightning Down Conductor. Located 24" to 30" from Radome O.D.

INTEGRAL MONITOR: Provides BIT to LRU Level. Monitors Azimuth Accuracy, RF Power Level and Percent Modulation. Issues Antenna Shutdown or Maintenance Alert Depending on Failure Mode.



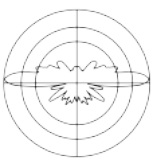
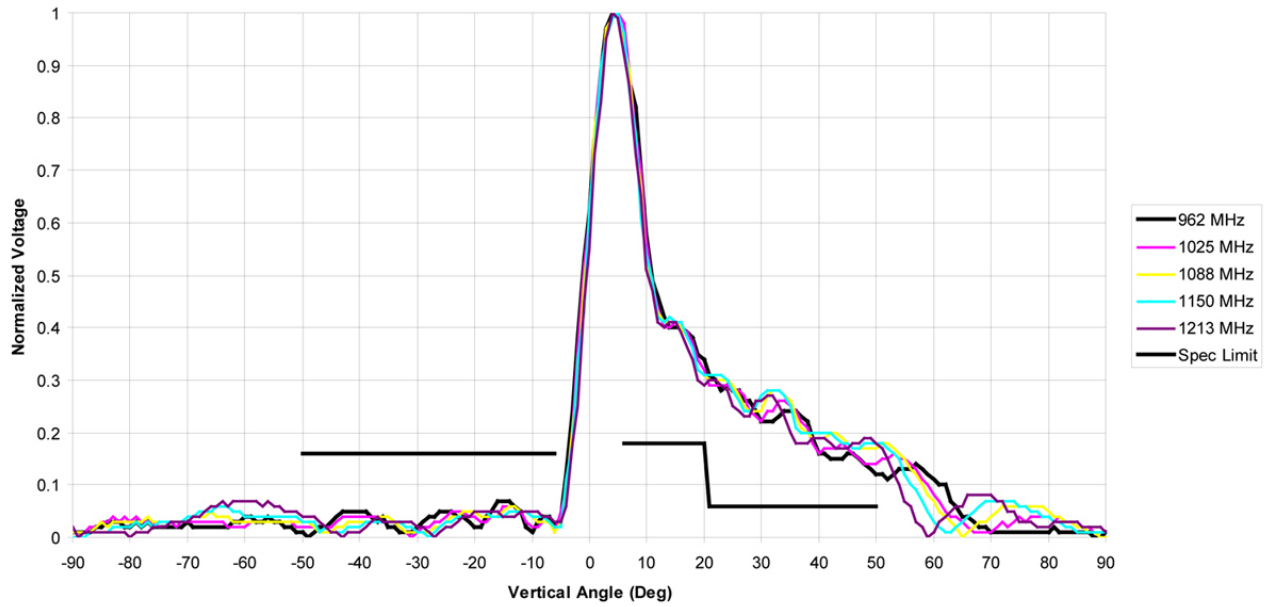
dB Systems Inc.

2501 S. Antenna Avenue
Hurricane, Utah 84737 USA

Email: sales@dbsant.com | Phone: (435) 635-3352 | www.dbsant.com

© March 2018. All information subject to minor changes without notice.

dBs 900E Vertical Pattern



dB Systems Inc.

2501 S. Antenna Avenue
Hurricane, Utah 84737 USA

Email: sales@dbsant.com | Phone: (435) 635-3352 | www.dbsant.com

© March 2018. All information subject to minor changes without notice.