CALIAN
Confidence. Engineered.

Advanced Technologies

9.2m High-Performance Antenna

The Calian 9.2m high-performance antenna is intended for a wider variety of applications beyond satcom, including electronic warfare, radar, astronomy, and fast-target tracking. These antenna platforms combine high-slew-rate motion systems, and adaptable antenna interfaces to accommodate different applications and frequencies. We offer high accuracy optics with optimized reflector shaping for elevated efficiency. Advanced control systems can be adapted to user requirements, enabling a variety of tracking or targeting capabilities.

Specifications

General Configuration

Configuration:	Dual reflector Cassegrain design 2 axis motion, elevation over azimuth
Main reflector:	9.2m diameter Precision formed aluminum Surface accuracy < 0.008” RMS
Sub reflector:	High accuracy composite Surface accuracy < 0.002” RMS
Hub:	6 ft. diameter with additional RF equipment mounting provisions
Pedestal:	State-of-the-art cable wrap systems with ample space for customer cables.
Optional:	8ft. diameter hub for internal RF equipment integration De-icing system Environmentally controlled hub Active 3rd Axis

M&C Interface

Ethernet interface for M&C and user interface.

Full remote operation and monitoring with multiple tracking options.

The antenna can be controlled via the provided computer software application or via a customer interface.

Mechanical Performance

Pointing accuracy:	< 0.013°
Tracking accuracy:	< 0.0055°
Speed:	up to 15°/s in azimuth up to 15°/s in elevation
Acceleration:	up to 15°/s2 in both axis
Travel range:	±270° in azimuth (540° continuous) 0°-180° in elevation
Tilt options:	Active or Fixed Tilt (up to 8.5°)
Drives:	Dual torque biased backlash-free drives in both axes

Power

Drive Systems:	208VAC 50/60Hz 3-phase
De-icing System:	208/220 3 phase
Auxiliary Circuits:	208VAC split phase 60 Hz 220VAC single phase 50 Hz (optional)

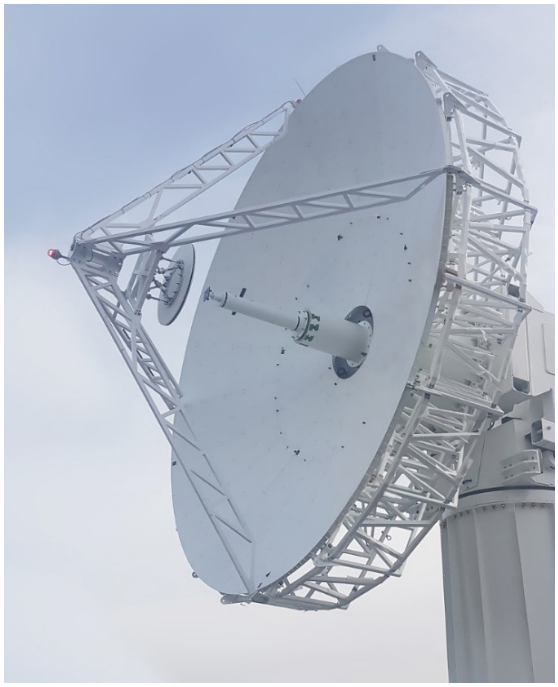
Feed

Supports single, dual, tri-band feeds, e.g., S to Ka, S/X, C/Ku, X/Ku, X/Ka, Ku/Ka, Q/V, S/X/Ka, etc.

LP and CP broadband feed options available

Tracking

Multiple open and closed loop tracking options include: Program track, NORAD TLE, IESS-412, Monopulse (optional), Step Track (optional)



Environmental Performance

Temperature:	Operational -30 to +60 °C Survival -40 to +70 °C
Seismic:	0.3g horizontal and vertical
Wind speed:	Operational 72kph (45 mph) Gusting up to 100 kph (62 mph) Survival, 200 kph (125 mph) in stow position
Humidity:	0 to 100% with condensation
Ice Accumulation:	30mm thick on all exposed surfaces
Corrosion:	Galvanized ASTM-A123, stainless and galvanized fasteners, multi-layer epoxy-based paint.

Shipping Configuration and Features

Modular design to allow for easy shipping in standard containers or crates.

Rapid deployment, assembly and commissioning at customer site.

Ka-Band Performance

	Rx	Tx
Frequency (GHZ)	17.70 - 21.50	27.50 - 31.00
Feed Ports	2CP + 2 Monopulse	2CP
Antenna Gain	64.37 dBi @21.5 GHz	67.20 dBi @31 GHz
Beamwidth @ -3dB	0.12°	0.08°
G/Ts at Clear Sky with 120 K LNA @ 20° Elevation		
17.70 GHz	39.76 dB/K	
19.60 GHz	40.47 dB/K	
21.50 GHz	40.71 dB/K	
Power handling, per port (CW)	500 watts	500 watts
VSWR (Feed interface)	1.25	1.25
Cross Pol Isolation (Axial Ratio)	32.78 dB (1.047)	32.78 dB (1.047)
Port to Port Isolation $R_x \rightarrow T_x$, $T_x \rightarrow R_x$	85 dB	85 dB
Port to Port Isolation $R_x \rightarrow R_x$, $T_x \rightarrow T_x$	20 dB	20 dB
Sidelobes	Meets ITU-R S-580-6	Meets ITU-R S-580-6

Ku-Band Performance

	Rx	Tx
Frequency (GHZ)	10.70 – 12.75	12.70 – 14.50
Feed Ports	2LP + 2 Monopulse	2LP
Antenna Gain	60.01 dBi @12.75 GHz	61.24 dBi @14.50 GHz
Beamwidth @ -3dB	0.20°	0.17°
G/Ts at Clear Sky with 59 K LNA @ 20° Elevation		
10.70 GHz	37.63 dB/K	
11.75 GHz	38.37 dB/K	
12.75 GHz	39.06 dB/K	
Power handling, per port (CW)	500 watts	500 watts
VSWR (Feed interface)	1.25	1.25
Cross Pol Isolation	35 dB	35 dB
Port to Port Isolation $R_x \rightarrow T_x$, $T_x \rightarrow R_x$	85 dB	85 dB
Port to Port Isolation $R_x \rightarrow R_x$, $T_x \rightarrow T_x$	35 dB	35 dB
Sidelobes	Meets ITU-R S-580-6	Meets ITU-R S-580-6

X-Band Performance

	Rx	Tx
Frequency (GHZ)	7.25 – 7.75	7.90 – 8.40
Feed Ports	2CP + 2 Monopulse	2CP
Antenna Gain	55.78 dBi @7.75 GHz	56.46 dBi @8.40 GHz
Beamwidth @ -3dB	0.32°	0.29°
G/Ts at Clear Sky with 50 K LNA @ 10° Elevation		
7.25 GHz	34.83 dB/K	
7.50 GHz	35.11 dB/K	
7.75 GHz	35.39 dB/K	
Power handling, per port (CW)	500 watts	500 watts
VSWR (Feed interface)	1.30	1.30
Cross Pol Isolation (Axial Ratio)	32.78 dB (1.047)	32.78 dB (1.047)
Port to Port Isolation $R_x \rightarrow T_x$, $T_x \rightarrow R_x$	85 dB	85 dB
Port to Port Isolation $R_x \rightarrow R_x$, $T_x \rightarrow T_x$	18 dB	18 dB
Sidelobes	Meets ITU-R S-580-6	Meets ITU-R S-580-6

C-Band Performance

	Rx	Tx
Frequency (GHZ)	3.400 – 4.200	5.725 – 6.725
Feed Ports	2CP + 2 Monopulse	2CP
Antenna Gain	50.69 dBi @4.200 GHz	54.75 dBi @6.725 GHz
Beamwidth @ -3dB	0.62°	0.38°
G/Ts at Clear Sky with 30 K LNA @ 20° Elevation		
3.400 GHz	29.64 dB/K	
3.800 GHz	30.60 dB/K	
4.200 GHz	31.47 dB/K	
Power handling, per port (CW)	5000 watts	5000 watts
VSWR (Feed interface)	1.25	1.25
Cross Pol Isolation (Axial Ratio)	32.78 dB (1.047)	32.78 dB (1.047)
Port to Port Isolation $R_x \rightarrow T_x$, $T_x \rightarrow R_x$	85 dB	85 dB
Port to Port Isolation $R_x \rightarrow R_x$, $T_x \rightarrow T_x$	20 dB	20 dB
Sidelobes	Meets ITU-R S-580-6	Meets ITU-R S-580-6

S-Band Performance

	Rx	Tx
Frequency (GHZ)	2.170 – 2.300	1.980 – 2.120
Feed Ports	2CP + 2 Monopulse	2CP
Antenna Gain	45.47 dBi @2.300 GHz	44.76 dBi @2.120 GHz
Beamwidth @ -3dB	1.06°	1.16°
G/Ts at Clear Sky with 45 K LNA @ 20° Elevation		
2.170 GHz	24.79 dB/K	
2.235 GHz	25.05 dB/K	
2.300 GHz	25.30 dB/K	
VSWR (Feed interface)	1.25	1.25
Cross Pol Isolation (Axial Ratio)	32.78 dB (1.047)	32.78 dB (1.047)
Port to Port Isolation $R_x \rightarrow T_x$, $T_x \rightarrow R_x$	85 dB	85 dB
Port to Port Isolation $R_x \rightarrow R_x$, $T_x \rightarrow T_x$	20 dB	20 dB
Sidelobes	Meets ITU-R S-580-6	Meets ITU-R S-580-6

Contact Rob or Mohamed today.

Rob Vance, Director, Satellite Antenna Ground Systems T: 408-221-5728
Mohamed Saad, President, Calian InterTronic, T: 450-424-5666
E: antennas@calian.com
https://www.calian.com/products/group/antennas/

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