CALIAN
Confidence. Engineered.

Advanced Technologies

10m – 15m
High Performance Antenna

Calian high performance antennas are platforms 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:	10 - 15m diameter Precision formed aluminum Surface accuracy below 0.008 RMS
Sub reflector:	High accuracy composite Surface accuracy below 0.002 RMS
Hub:	Up to 10 ft. diameter for RF equipment integration available upon request
Pedestal:	State of the art cable wrap systems with ample space for customer cables
Optional:	Platform with staircase and hoist De-icing system Environmentally controlled hub

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:	0.022°
Speed:	up to 12°/s in azimuth up to 6°/s in elevation
Acceleration:	3°/s^2 in both axis
Travel range:	±270° in azimuth (540° continuous) 0°-90° in elevation
Drives:	Dual torque biased backlash-free in both axes

Power

Drive Systems:	380 to 480VAC 50/60Hz 3-phase
De-icing System:	208/220 3 phase
Auxiliary Circuits:	208VAC split phase 60 Hz 220VAC single phase 50 Hz (optional)

Optional Frequency Bands

Supports single, dual, and multi-band feeds, e.g., S to Ka, S/X, C/Ku, X/Ku, X/Ka, Ku/Ka, etc.

CP and LP Broadband feed options available

Tracking Options

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, up to 100 kph gusting (62 mph gusting)
	Survival, up to 200 km/hr (125 mph) in stow position wind
	Drive-to-stow wind, 125 kph (77 mph)
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 40ft containers.

Rapid deployment, assembly, and commissioning at customer site.

15m Ka-band Performance

	Rx	Tx
Frequency (GHz)	17.70 - 21.50	27.50 - 31.00
Feed Ports	2 + 2 Monopulse	2
Antenna Gain	68.0 dBi @21.5 GHz	70.6 dBi @31 GHz
Beamwidth @ -3dB	0.07°	0.05°
G/Ts at Clear Sky with 120 K LNA @ 20° Elevation		
17.70 GHz	43.4 dB/K	
19.60 GHz	44.1 dB/K	
21.50 GHz	44.3 dB/K	
Power handling, per port (CW)		650 W
VSWR (Feed interface)	1.25	1.25
Cross Pol Isolation	32.78 dB	32.78 dB
Port to Port Isolation $R_x \rightarrow T_x$, $T_x \rightarrow R_x$	85 dB	85 dB
Port to Port Isolation $R_x \rightarrow R_x$, $T_x \rightarrow T_x$	20 dB	20 dB
Sidelobes	Meets ITU-R S-580-6	Meets ITU-R S-580-6

15m Ku-band Performance

	Rx	Tx
Frequency (GHz)	10.70 – 12.75	12.70 – 14.50
Feed Ports	2 + 2 Monopulse	2
Antenna Gain	63.7 dBi @12.75 GHz	64.9 dBi @14.50 GHz
Beamwidth @ -3dB	0.12°	0.11°
G/Ts at Clear Sky with 59 K LNA @ 20° Elevation		
10.70 GHz	41.4 dB/K	
11.75 GHz	42.2 dB/K	
12.75 GHz	42.8 dB/K	
Power handling, per port (CW)		1.5 KW
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

15m X-band Performance

	Rx	Tx
Frequency (GHz)	7.25 – 7.75	7.90 – 8.40
Feed Ports	2 + 2 Monopulse	2
Antenna Gain	55.5 dBi @7.75 GHz	60.2 dBi @8.40 GHz
Beamwidth @ -3dB	0.19°	0.18°
G/Ts at Clear Sky with 50 K LNA @ 10° Elevation		
7.25 GHz	38.6 dB/K	
7.50 GHz	38.9 dB/K	
7.75 GHz	39.1 dB/K	
Power handling, per port (CW)		2 KW
VSWR (Feed interface)	1.30	1.30
Cross Pol Isolation	32.78 dB	32.78 dB
Port to Port Isolation $R_x \rightarrow T_x$, $T_x \rightarrow R_x$	85 dB	85 dB
Port to Port Isolation $R_x \rightarrow R_x$, $T_x \rightarrow T_x$	18 dB	18 dB
Sidelobes	Meets ITU-R S-580-6	Meets ITU-R S-580-6

15m C-band Performance

	Rx	Tx
Frequency (GHz)	3.400 – 4.200	5.725 – 6.725
Feed Ports	2	2
Antenna Gain	54.5 dBi @4.200 GHz	58.5 dBi @6.725 GHz
Beamwidth @ -3dB	0.38°	0.23°
G/Ts at Clear Sky with 30 K LNA @ 20° Elevation		
3.400 GHz	33.4 dB/K	
3.800 GHz	34.4 dB/K	
4.200 GHz	35.2 dB/K	
Power handling, per port (CW)		2.5 KW
VSWR (Feed interface)	1.25	1.25
Cross Pol Isolation	32.78 dB	32.78 dB
Port to Port Isolation $R_x \rightarrow T_x$, $T_x \rightarrow R_x$	85 dB	85 dB
Port to Port Isolation $R_x \rightarrow R_x$, $T_x \rightarrow T_x$	20 dB	20 dB
Sidelobes	Meets ITU-R S-580-6	Meets ITU-R S-580-6

15m S-band Performance

	Rx	Tx
Frequency (GHz)	2.170 – 2.300	1.980 – 2.120
Feed Ports	2	2
Antenna Gain	49.2 dBi @2.300 GHz	48.5 dBi @2.120 GHz
Beamwidth @ -3dB	0.65°	0.71°
G/Ts at Clear Sky with 45 K LNA @ 20° Elevation		
2.170 GHz	28.6 dB/K	
2.235 GHz	28.8 dB/K	
2.300 GHz	29.1 dB/K	
Power handling, per port (CW)		5 KW
VSWR (Feed interface)	1.25	1.25
Cross Pol Isolation	32.78 dB	32.78 dB
Port to Port Isolation $R_x \rightarrow R_x$, $T_x \rightarrow T_x$	85 dB	85 dB
Sidelobes	20 dB	20 dB
	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
www.calian.com/products/antenna-systems

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