CALIAN
Confidence. Engineered.

13.5m Q/V GEO Earth station antenna

The Calian 13.5m Q/V-band GEO Earth station antenna is a very structurally stiff system with high surface accuracy and high efficiency Cassegrain optics making it ideal for high frequency applications in harsh environmental conditions.

It can be fitted with several different feeds to support your application. Our ground station integration experience in the satellite industry means this antenna is designed to meet the needs of your network.

Specifications

General configuration

Configuration	• Dual reflector Cassegrain design • 2 axis motion, elevation over azimuth
Main reflector	• 13.5m diameter • Precision formed aluminum • Surface accuracy below 0.006" 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 and electronics
Optional	• Platform with staircase and hoist • De-icing system • Environmentally controlled hub • Adjustable polarization

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	• 0.007°
Tracking accuracy	• < 0.0029°
Speed	• up to 1°/s in azimuth • up to 0.5°/s in elevation
Acceleration	• 0.5°/s2 in both axes
Travel range	• ±270° in azimuth (540° continuous) • 0°- 90° in elevation
Drive system 1	• Dual torque biased backlash-free drives in azimuth • Heavy duty jack in elevation
Drive system 2	• Dual torque biased backlash-free drives in both axes

Power

Drive systems	• 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)

Feed options

- Supports single, dual, tri-band feeds, e.g., Q/V, Ka/Q/V, etc.
- CP and LP Broadband feed options available

Tracking options

Multiple open and closed loop tracking options include:

- Table 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, 208 kph (130 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 containers
- Rapid deployment, assembly, and commissioning at customer site

QV-band performance

	Rx	Tx
Frequency (GHz)	37.500 – 42.500	47.200 - 52.400
Feed ports	2 + 2 Monopulse	2
Antenna gain	73.1 dBi @42.50 GHz	74.8 dBi @52.40 GHz
Beamwidth @ -3dB	0.04°	0.03°
G/T with 226 K LNA @ 10° Elevation Includes feed to LNA losses with LNA redundancy		
37.500 GHz	45.2 dB/K	
40.000 GHz	45.6 dB/K	
42.500 GHz	46.0 dB/K	
Power handling, per port (CW)		250 W
VSWR (Feed interface)	1.30	1.30
Cross Pol Isolation	32.78 dB	32.78 dB
Port to Port Isolation: Rx→Tx, Tx→Rx	85 dB	85 dB
Port to Port Isolation: Rx→Rx, Tx→Tx	16 dB	16 dB
Sidelobes	Meets ITU-R S-580-6	Meets ITU-R S-580-6

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For more information, contact: antennas@calian.com