The Calian 4m Q/V-Band LEO Earth Station antenna combines high accuracy, high efficiency Cassegrain optics with high-speed slewing to track faster targets, including LEO and MEO satellites. The third tilt axis ensures uninterrupted tracking through overhead passes. This design approach combined with advanced manufacturing techniques results in a major step forward in affordable precision antenna design. Several different feeds can be fitted to support your band of operation. Calian’s experience in ground station system engineering and integration has been incorporated into making this product better suited to a terminal or gateway application; examples include ease of maintenance for mechanical components and a hub designed to support a higher level of integration.

Specifications

General Configuration

Configuration: Dual reflector Cassegrain design
3 axis motion (no keyhole), elevation over azimuth, with Tilt
Main reflector: 4m diameter
High accuracy composite
Surface accuracy < 0.008” RMS
Sub reflector: High accuracy composite
Surface accuracy < 0.002” RMS
Hub: Up to 4 ft. diameter for RF equipment integration available upon request
Pedestal: High stiffness reinforced pedestal
Optional: 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: 0.018°
Tracking accuracy: < 0.0082°
Speed: up to 15°/s in azimuth
up to 15°/s in elevation
Acceleration: up to 15°/s² in both axis
Travel range: ±200° in azimuth (400° continuous)
Up to 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: 200 to 240VAC and 380 to 430VAC 3-phase, frequency 50/60Hz
De-icing System: 208/220 3 phase
Auxiliary Circuits: 208VAC split phase 60 Hz
220VAC single phase 50 Hz (optional)

Optional Frequency Bands

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

Tracking Options

Multiple open and closed loop tracking options include program track, NORAD TLE, IESS-412, monopulse, and step track
Environmental Performance

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Rx</th>
<th>Tx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency (GHz)</td>
<td>37.50 – 42.50</td>
<td>47.20 – 52.40</td>
</tr>
<tr>
<td>Feed Ports</td>
<td>2CP + 2 Monopulse</td>
<td>2CP</td>
</tr>
<tr>
<td>Antenna Gain</td>
<td>Typical 61.95 dBi @42.50 GHz</td>
<td>Typical 63.64 dBi @52.40 GHz</td>
</tr>
<tr>
<td>Beamwidth @ -3dB</td>
<td>0.14°</td>
<td>0.11°</td>
</tr>
<tr>
<td>G/Ts at clear sky with 250 K LNA @ 20° elevation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37.50 GHz</td>
<td>34.20 dB/K</td>
<td></td>
</tr>
<tr>
<td>40.00 GHz</td>
<td>34.63 dB/K</td>
<td></td>
</tr>
<tr>
<td>42.50 GHz</td>
<td>35.00 dB/K</td>
<td></td>
</tr>
<tr>
<td>EIRP with 250W HPA</td>
<td></td>
<td>Typical 81.34 dBW @ 52.40 GHz</td>
</tr>
<tr>
<td>Power handling, per port (CW)</td>
<td></td>
<td>250 watts</td>
</tr>
<tr>
<td>VSWR (Feed interface)</td>
<td>1.25</td>
<td>1.25</td>
</tr>
<tr>
<td>Cross Pol Isolation</td>
<td>30.85 dB</td>
<td>30.85 dB</td>
</tr>
<tr>
<td>Port to Port Isolation $R_s \rightarrow T_s$, $T_s \rightarrow R_s$</td>
<td>85 dB</td>
<td>85 dB</td>
</tr>
<tr>
<td>Port to Port Isolation $R_s \rightarrow R_s$, $T_s \rightarrow T_s$</td>
<td>17 dB</td>
<td>17 dB</td>
</tr>
</tbody>
</table>

Shipping Configuration and Features

- Modular design to allow for easy shipping in standard containers or crates
- Rapid deployment, assembly, and commissioning at customer site

Q-V-Band Performance

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