The Calian 13.5m full motion antenna system provides high accuracy, high efficiency Cassegrain optics and high-speed slewing making it suitable for tracking faster targets, including low-earth-orbit (LEO) or medium-earth-orbit (MEO). The use of advanced manufacturing techniques results in a major step forward in affordable precision antenna design. The antenna 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
3 axis motion (no keyhole), elevation over azimuth, with tilt
Main reflector: 13.5m 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

Mechanical Performance

Pointing accuracy: < 0.019°
Tracking accuracy: < 0.0029°
Speed: up to 12°/s in azimuth
up to 6°/s in elevation
Acceleration: 3°/s² in both axis
Travel range: ±400° in azimuth
0°– 90° in elevation
±180° in 3rd tilt axis
Tilt: Active or Fixed Tilt (up to 8.5°)
Drives: Dual torque biased backlash-free drives in all 3 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, L/S/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: 72kph (45mph)
  - 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
- Rapid deployment, assembly, and commissioning at customer site

### Ka-band Performance

<table>
<thead>
<tr>
<th></th>
<th>Rx</th>
<th>Tx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency (GHz)</td>
<td>17.70 - 21.50</td>
<td>27.50 - 31.00</td>
</tr>
<tr>
<td>Feed Ports</td>
<td>2 + 2 Monopulse</td>
<td>2</td>
</tr>
<tr>
<td>Antenna Gain</td>
<td>67.3 dBi @21.5 GHz</td>
<td>70.3 dBi @31 GHz</td>
</tr>
<tr>
<td>Beamwidth @ -3dB</td>
<td>0.08°</td>
<td>0.06°</td>
</tr>
<tr>
<td>G/Ts at Clear Sky with 120 K LNA @ 20° Elevation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.70 GHz</td>
<td>42.7 dB/K</td>
<td></td>
</tr>
<tr>
<td>19.60 GHz</td>
<td>43.4 dB/K</td>
<td></td>
</tr>
<tr>
<td>21.50 GHz</td>
<td>43.7 dB/K</td>
<td></td>
</tr>
<tr>
<td>Power handling, per port (CW)</td>
<td>650 W</td>
<td></td>
</tr>
<tr>
<td>VSWR (Feed interface)</td>
<td>1.25</td>
<td>1.25</td>
</tr>
<tr>
<td>Cross Pol Isolation</td>
<td>32.78 dB</td>
<td>32.78 dB</td>
</tr>
<tr>
<td>Port to Port Isolation $R_x \rightarrow T_x$, $T_x \rightarrow R_x$</td>
<td>85 dB</td>
<td>85 dB</td>
</tr>
<tr>
<td>Port to Port Isolation $R_x \rightarrow R_{xx}$, $T_x \rightarrow T_x$</td>
<td>20 dB</td>
<td>20 dB</td>
</tr>
</tbody>
</table>

### 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