Calian Radio Telescopes have been used by NASA over the last decade for their VLBI program. They provide high accuracy, high efficiency Cassegrain optics and high-speed slewing systems. The use of advanced manufacturing techniques results in a major step forward in affordable precision antenna and telescope systems design. They offer exceptional pointing precision and reflector surface accuracy, making them ideal for advanced VLBI, Scientific, Radar and other array applications. This antenna has been deployed widely and is field-proven. The antenna can be fitted with several different feeds to support your application. Our ground station integration experience in the scientific, radar and satellite industry means this antenna is designed to meet the needs of your network.

**Specifications**

**General Configuration**

- **Configuration:** Dual reflector Cassegrain design
- **Main reflector:** 12 - 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
- **System:** 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:** < 0.005°
- **Speed:**
  - up to 12°/s in azimuth
  - up to 6°/s in elevation
- **Acceleration:**
  - 3°/s² in both axis
- **Travel range:**
  - ±270° in azimuth (540° continuous)
  - 0° - 90° in elevation
- **Drives:**
  - Dual torque biased backlash-free drives 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/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)
Shipping Configuration and Features

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

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

12m Antenna Performance

<table>
<thead>
<tr>
<th>Frequency</th>
<th>2 GHz</th>
<th>14 GHz</th>
<th>30 GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feed Ports</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Antenna Gain</td>
<td>45.9 dB</td>
<td>62.7 dB</td>
<td>68.9 dB</td>
</tr>
<tr>
<td>Beamwidth @ -3dB</td>
<td>0.91°</td>
<td>0.13°</td>
<td>0.06°</td>
</tr>
<tr>
<td>G/Ts at Clear Sky @ 20° Elevation</td>
<td>25.4 dB/K w/ 45K LNA</td>
<td>41.7 dB/K w/ 60K LNA</td>
<td>44.9 dB/K w/ 110K LNA</td>
</tr>
<tr>
<td>VSWR (Feed interface)</td>
<td>1.25</td>
<td>1.25</td>
<td>1.30</td>
</tr>
<tr>
<td>Cross Pol Isolation</td>
<td>32.78 dB</td>
<td>35 dB</td>
<td>32.78 dB</td>
</tr>
<tr>
<td>Port to Port Isolation $R_x \rightarrow T_w \rightarrow T_x \rightarrow R_x$</td>
<td>85 dB</td>
<td>85 dB</td>
<td>85 dB</td>
</tr>
<tr>
<td>Port to Port Isolation $R_x \rightarrow R_w \rightarrow T_x \rightarrow T_x$</td>
<td>20 dB</td>
<td>35 dB</td>
<td>18 dB</td>
</tr>
</tbody>
</table>

Contact Rob or Mohamed today.

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