

Antenna Pointing Mechanism (APM) & High Gain X-Band Antenna

Applications

- LEO High Speed Payload Downlink
- Earth Observation Missions
- Space Science Missions
- Ideal for use on Agile Satellite Platforms such as SSTL 300

The APM supports high-speed data return for Earth Observation and Space Science missions.

Features

- Highly Agile Pointing Capability
- Narrow Beam, High Gain Antenna
- Integral Drive Electronics
- Low Mass
- Small Volume
- Manufactured to ECSS standards
- 7.5 year design life



APM with Horn Antenna

Interfaces

- 50 Ohm RF interface (SMA)
- Dual-redundant CAN TM/TC interface

Key Specifications

- Elevation: ± 110 deg, Azimuth: ± 270 deg
- Rate 19 deg/s, Pointing within 1 deg
- Antenna Gain: 15 dBiC (Boresight)
- Frequency Range: 8.0 to 8.5 GHz
- 5 V regulated and 28 V unregulated supply, 3.5 W
- 276 mm height x 190 mm Dia.
- 2.7 kg

Heritage (launch date)

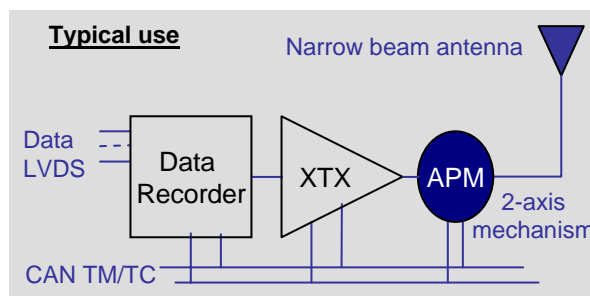
- NigeriaSat-2 (2009)
- Baselined for Future Missions

SSTL Associated Products

- X-Band Transmitter 10 – 400 Mbps
- High Speed Data Recorder

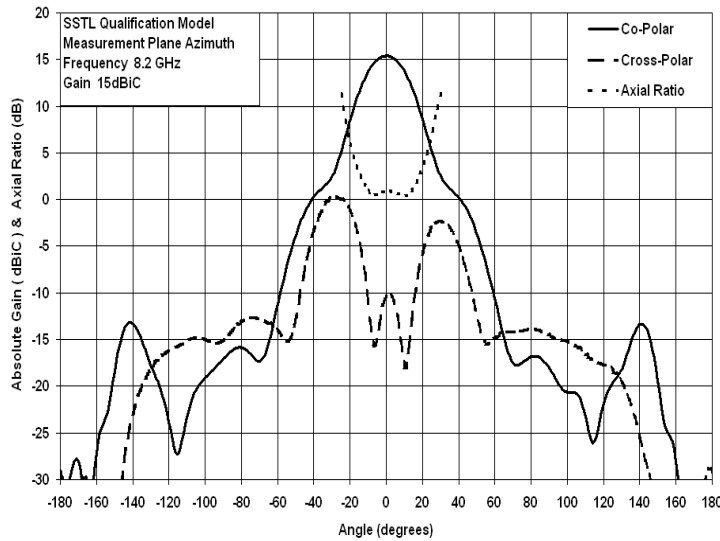
Options

- Alternative antenna solutions
- Versatile mechanical interfaces
- Drive electronics mounted underneath or can be repackaged
- Scalable for larger antenna
- Can be used as a solar array deployment mechanism



Space Downlink Solution

Antenna Pointing Mechanism (APM) & High Gain X-Band Antenna



SSSL qualification model. Measurement plane azimuth, frequency 8.2GHz, gain 15dBIC

2-axis tracking	El. ± 110 deg Az. ± 270 deg
Resolution	0.02 deg steps
Rate	19 deg/s
Pointing Knowledge	Within 0.5 deg
Frequency	8.0 to 8.5 GHz (RHCP/LHCP)
Gain	15 dBIC on boresight
Axial Ratio	<2 dB on boresight at 8.2 GHz
Mass	2.7 kg
Dimensions	276 mm height x 190 mm Dia.
Power	5 V Regulated and 28 V Unregulated, 3.5 W
Temperature	-40 to +60 °C operating -50 to +70 °C non-operating
Random Vibration	15Grms in all axis
Radiation tolerance	10kRad (Si)

SSTL is ISO9001:2008 certified

Subsystems are manufactured to:

- ECSS Q-ST-70-08C
- ECSS Q-ST-70-38C
- All work overseen by ESA-trained assembly staff

Standard delivery service includes:

- compliance testing
- vibration test
- thermal cycling
- user manual
- test results
- export license and shipping
- thermal vacuum testing available
- unit can be supplied prior to environmental testing

Surrey Satellite Technology Limited

SSTL has launched over 34 satellites gaining almost 200 years in-orbit experience. SSTL draws on its world-class expertise in both small satellite platform technology and high and medium resolution optical instruments. SSTL provides complete turn-key system solutions; spacecraft, ground station, launch, operations and image processing.

SSTL is unique in the space industry; able to design, manufacture and integrate multiple satellites in-house.

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Updates:

- Date
- Bold headings on page 2
- ISO numbers (all)
- Disclaimer at end

Simon Meik, 24/11/2010