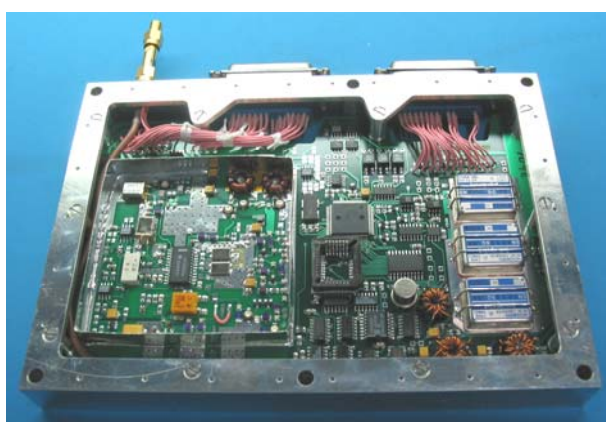
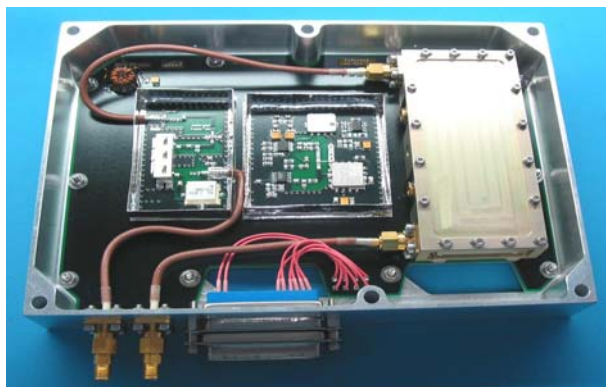


S-Band Uplink Receiver

Applications

- LEO Uplink Receiver
- Earth Observation Missions
- Space Science Missions

The S-band receiver supports low data rate TT&C uplink for Earth Observation and space science missions. TTL and LVDS data interfaces provide connection to on-board computers and CAN bus is used for telemetry and telecommand. A CAN Command Decoder is implemented, enabling CAN commands to be directly translated and passed on to the spacecraft CAN bus, bypassing the on-board computer if required. The receiver uses differentially encoded CPFSK modulation format and implements a Miller demodulator to recover 9.6kbps or 19.2kbps data.



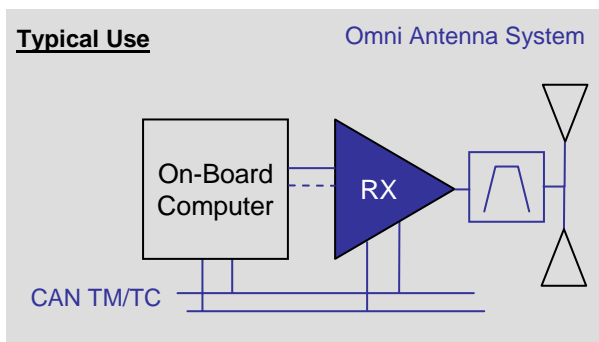
S-band Downconverter and IF Module

Features

- Flight heritage
- Manufactured to ECSS standards
- 9.6 kbps and 19.2 kbps data rates
- CPFSK modulation (BPSK receiver under development)
- 7.5 year design life

Heritage (launch date)

- AISAT (2003)
- UK-DMC (2003)
- NigeriaSat-1 (2003)
- GIOVE-A (2005)
- DMC+4 (2005)
- RapidEye constellation (2008)
- Deimos-1, UK-DMC2 (2009)
- NigeriaSat-2



S-band Uplink Receiver

Key Specifications

- Frequency 2025 – 2110 MHz
- Sensitivity -113dBm at BER of 10-5 (for 9.6kbps data rate)
- 28 V unregulated supply, 1.5 W
- 190 x 135 x 60 mm (2 tray design)
- Mass 1.3 kg

S-Band Uplink Receiver

Interfaces

- CAN Bus TMTC
- LVDS - 6 channels
- TTL - 3 channels
- 50 Ohm antenna interface (SMA)
- Dual-redundant CAN TM/TC interface

Other SSTL Products

- S-band Downlink Transmitter
- X-band Downlink Transmitter
- S-band Quadrifilar Helix Antenna
- S-band Patch Antenna
- X-band Antenna Pointing Mechanism

SSTL is ISO9001:2008 certified

Subsystems are manufactured to:

- ECSS Q-ST-70-08-C
- ECSS Q-ST-70-38-C
- 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

Frequency Range	2025 to 2100 MHz (<3 kHz Synthesiser Drift)
Sensitivity (at BER 10 ⁻⁵)	9k6 RSSI of -113 dBm 19k2 RSSI of -110 dBm
Modulation & Data Rate	CPFSK - 9.6kbps or 19.2kbps
IIP3	- 65 to - 60 dB
Noise Figure	< 8.5 dB
Power	1.5 W at 28 V
Operating Temperature	-20 to +50 °C operating -30 to +60 °C non-operating
Dimensions	190 mm x 135 mm x 60 mm
Mass	1.3 Kg
Connectors	44-pin DD (Data/Clock/TMTC) SMA Female 3.5 mm
Telemetry and Telecommand	TLM – Temp, Current, RSSI, Disc, Lock-status TC – Frequency Channel Selection
Random Vibration	15 G _{rms} in all axes
Radiation tolerance	10 kRad (Si)

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.

Changing the economics of space
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Slide 2

SM2

Changes:

- Date/ref#/revision
- Added disclaimer
- ECSS paragraph updated/re-aligned

Simon Meik, 24/11/2010