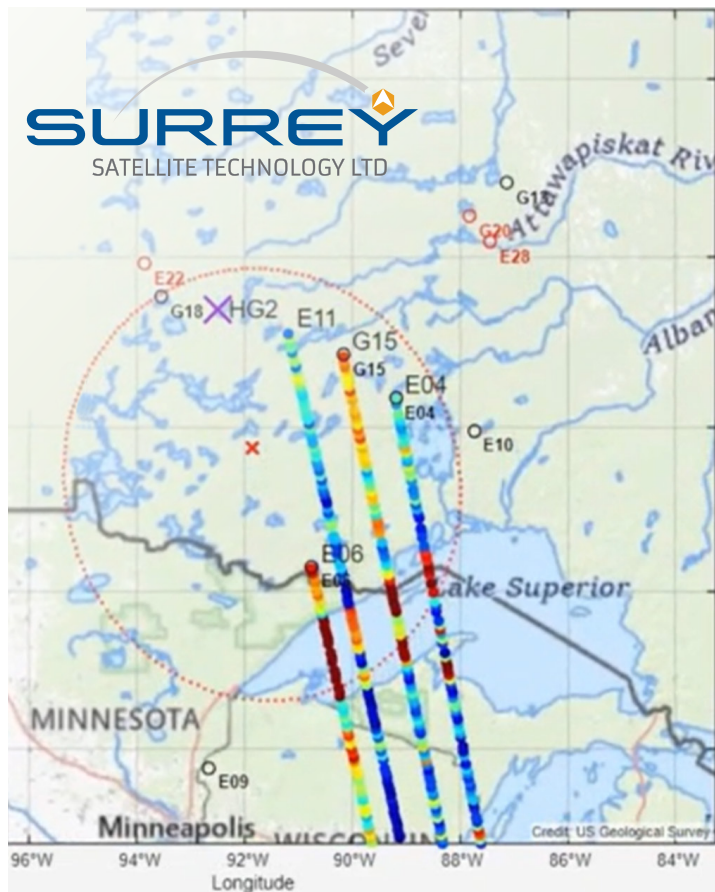
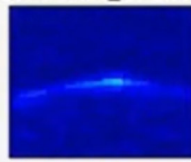
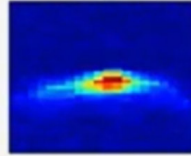




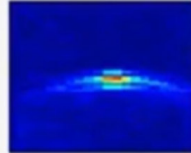
E11 Galileo_E1 LHCP



E6 Galileo_E1 LHCP



E4 Galileo_E1 LHCP



G15 GPS_L1 LHCP

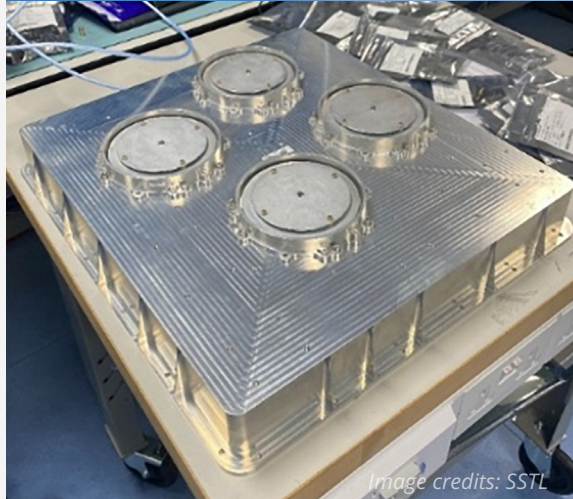
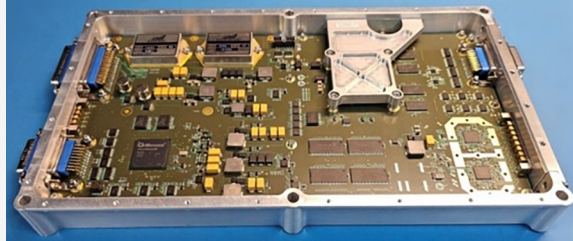
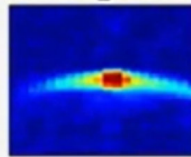


Image credits: SSTL

SGR-ReSI-Z – GNSS Remote Sensing Instrument

Overview

The SGR-ReSI is a remote sensing instrument based upon SSTL's GNSS (Global Navigation Satellite System) technology, targeting ocean, land, cryospheric and atmospheric applications. Measurement of GNSS signals reflected off the ocean surface can be used to determine ocean roughness, and hence sea state. In a similar way, ice crossings can be detected and mapped, and measurements off land can be used to assess soil moisture and assist in flooding extent knowledge. Atmospheric monitoring can also be performed using reflectometry or radio-occultation techniques.

SSTL is a world leader in spaceborne GNSS detection and measurement, and its GNSS receivers have been used on many satellites for positioning, timing and orbit determination. SSTL provided the payloads for TechDemoSat-1 and the NASA CYGNSS constellation, and the SGR-ReSI-Z is used for the ESA Scout HydroGNSS mission to measure hydrological variables connected to Essential Climate Variables.

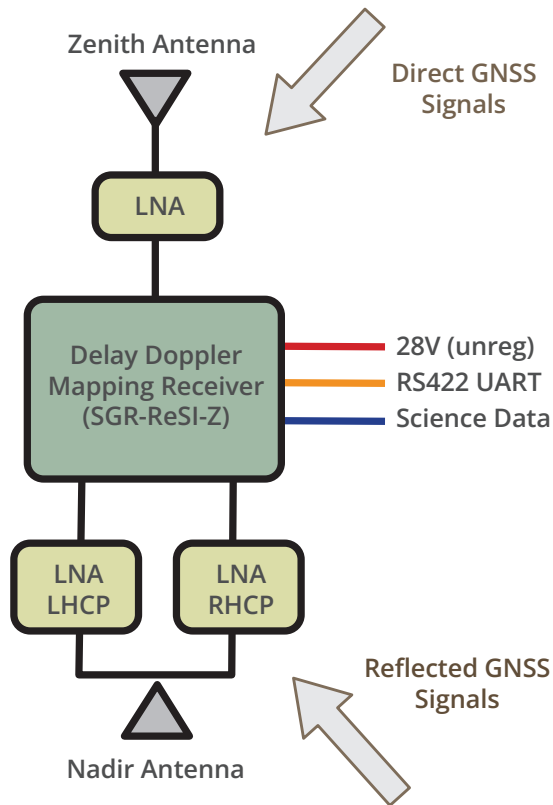
Benefits

- Proven L-Band Bistatic radar sensing without transmitter
- Compact low power unit as a secondary payload or primary payload on a small satellite
- Technology proven on NASA and ESA missions
- The payload can also provide GNSS capability for the satellite platform if required

Features

- Dual frequency bands, L1/E1 and L5/E5a
- Up to 32 channels for direct signal tracking GPS and Galileo signals
- Supports dual polarisation reception
- Up to 16 reflection channels of 52 x 20 pixel Delay Doppler Maps
- Higher rate complex coherent channels

SGR-ReSI-Z – GNSS Remote Sensing Instrument



Flight Heritage:

Flown on ESA Scout HydroGNSS HG-1, and HG-2

Delivered for INPE Amazonia-1B mission

Technology from SGR-ReSI flown on TDS-1 and CYGNSS

SSTL is ISO9001/14001:2015 certified

All work overseen by ESA certified assembly staff.

Standard delivery service includes:

- Compliance testing
- Vibration test
- Thermal cycling
- User manual and test results
- Export license and shipping

Related GNSS products:

SGR-Ligo: Single frequency, dual antenna, dual constellation space GNSS receiver for small satellites.

Characteristics	Values
Receiver Dimensions	310 x 173 x 43 (mm)
Nadir Antenna module incl. 2 x LNA	496 x 460 x 96 (mm)
Zenith Antenna	90 x 90 x 35 (mm)
Zeneth LNA	220 x 70 x 31 (mm)
Total Payload Mass	Approx 12 kg
Approx Nadir Peak Gain	12 dBi in each polarisation
Power Consumption	18 watts average at 28V supply
TM/TC Interface	RS422 UART, CAN
Science Data Interface	Gigabit Serial (Aurora) / LVDS
Temperature	-20°C to +50°C operating -30°C to +60°C non-operating

Characteristics	Values
No. Zenith Channels	32
Frequency Bands	1575 MHz (L1/E1) LHCP, RHCP 1176 MHz (L5/E5a) LHCP, RHCP
Signals	GPS C/A and Galileo E1OS
Typical PVT*	5 m, 10 cm/s, 200 ns
No. Nadir Channels	16
Delay Doppler Maps	52 x 20 pixel incoherent (1-4 ms coherent)
Coherent Channel	3 pixels mag and phase
Geolocation	On-board geoid and DEM
Signals retrievable	< -140 dBm
Dynamic Gain for RFI Compensation	Adjusts gain for optimal sampling and reports levels
Raw Data	Scheduled short captures of samples from all channels

*Accuracies validated through controlled simulations.
Values have a dependency on altitude, attitude, antenna visibility and ionosphere.