



Gravitational Reference Advanced Technology Test in Space

Title: Experimental Space Station Transmitter
Attachment for Part 5 Applications

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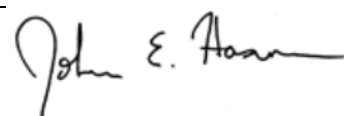
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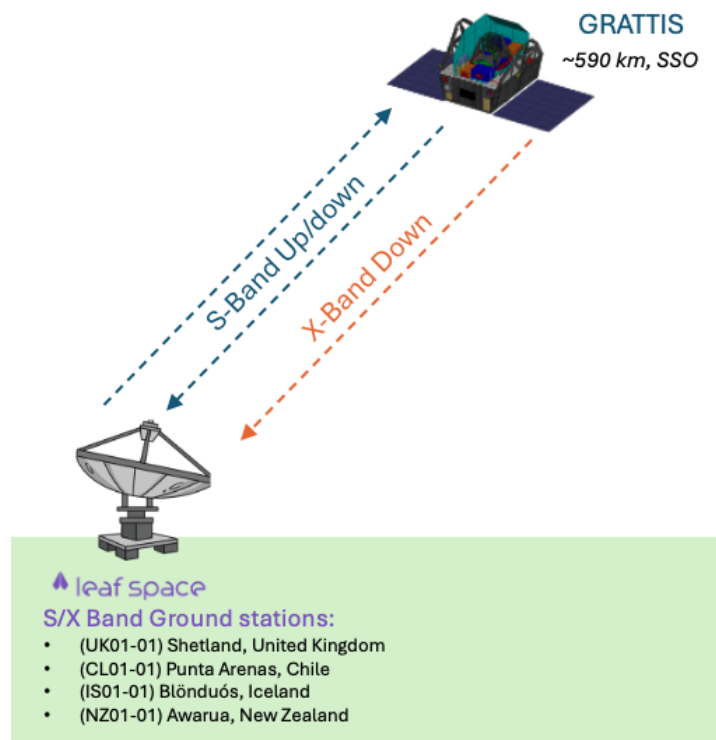
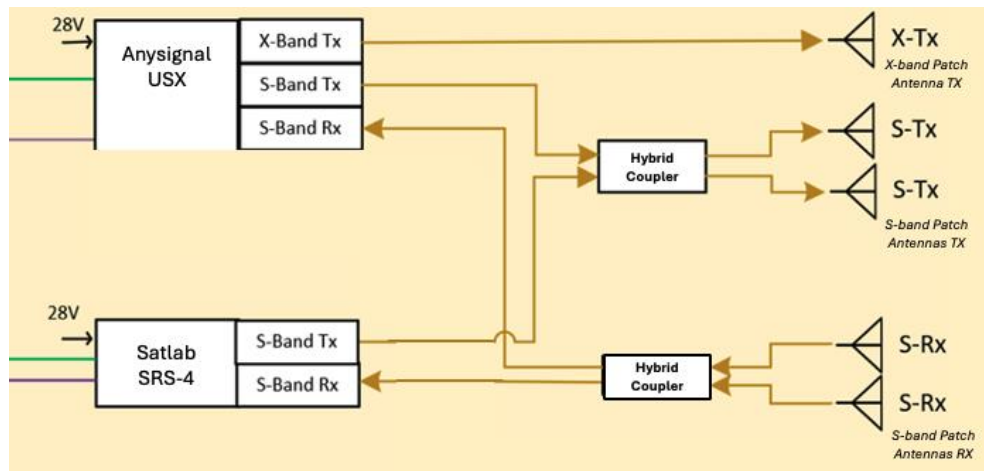
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Experimental Space Station Transmitter Attachment for Part 5 Applications Rev A

Reference: Below summarizes the GRATTIS comm system and the links defined in this document. GRATTIS will be utilizing Leaf Space commercial ground stations. Note: the S/X band antennas are identical at each Ground station location.



1. Transmit Antennae

- a. S-Band Transmit Antenna (x2)
 - i. Manufacturer: *Haigh-Farr*
 - ii. Size (meters): *0.0762m x 0.762m x 0.00635m Patch (3" x 3" x 0.25")*
 - iii. Polarization (e.g. RHCP, LHCP, dual): *RHCP*
 - iv. Single or Multibeam: *Single*
 - v. Traffic Type (e.g. payload, telemetry, telecommand): *Spacecraft Telemetry & Telecommand, Payload*
- b. X-Band Transmit Antenna (x1)
 - i. Manufacturer: *Haigh-Farr*
 - ii. Size (meters): *0.0762m x 0.762m x 0.00635m Patch (3" x 3" x 0.25")*
 - iii. Polarization (e.g. RHCP, LHCP, dual): *RHCP*
 - iv. Single or Multibeam: *Single*
 - v. Traffic Type (e.g. payload, telemetry, telecommand): *Spacecraft Telemetry & Telecommand, Payload (high-speed)*

2. Transmitters

- a. S-band *Anysignal USX* Transmitter (Primary)
 - i. Center Frequency: *2250.0 MHz*
 - ii. Channel Bandwidth: *198.5 kHz*
 - iii. Emission Designator: *199KG1D*
 - iv. Polarization: *RHCP*
 - v. Beamwidth: *60 deg*
 - vi. Antenna Gain (dBi at a specified frequency): *4.4 dBi*
 - vii. Max EIRP Per Carrier (dBW): *2.1 dBW*
 - viii. Max EIRP Density per Carrier (dBW/kHz): *-55.01 dBW/kHz*
- b. S-band *Satlab SRS-4* Transmitter (Secondary)
 - i. Center Frequency: *2250.0 MHz*
 - ii. Channel Bandwidth: *198.5 kHz*
 - iii. Emission Designator: *199KG1D*
 - iv. Polarization: *RHCP*
 - v. Beamwidth: *60 deg*
 - vi. Antenna Gain (dBi at a specified frequency): *4.4 dBi*
 - vii. Max EIRP Per Carrier (dBW): *2.1 dBW*
 - viii. Max EIRP Density per Carrier (dBW/kHz): *-58.01 dBW/kHz*
- c. X-band *Anysignal USX* Transmitter (Primary)
 - i. Center Frequency: *8212.5 MHz*
 - ii. Channel Bandwidth: *38400 kHz*

- iii. Emission Designator: *38M4G1D*
- iv. Polarization: *RHCP*
- v. Beamwidth: *24 deg*
- vi. Antenna Gain (dBi at a specified frequency): *16.6 dBi*
- vii. Max EIRP Per Carrier (dBW): *17.1 dBW*
- viii. Max EIRP Density per Carrier (dBW/kHz): *-58.94 dBW/kHz*

3. Receivers

- a. S-band *Anysignal USX* Receiver (Primary)
 - i. Center Frequency: *2067.5*
 - ii. Emission Designator: *199KG1D*
 - iii. Polarization: *RHCP*
 - iv. Antenna Gain (dBi at a specified frequency): *4.4 dBi*
 - v. Gain over Temperature (G/T): *-21.16 dB/K*
- b. S-band *Satlab SRS-4* (Secondary)
 - i. Center Frequency: *2067.5*
 - ii. Emission Designator: *199KG1D*
 - iii. Polarization: *RHCP*
 - iv. Antenna Gain (dBi at a specified frequency): *4.4 dBi*
 - v. Gain over Temperature (G/T): *-21.16 dB/K*