Satellite Name: RISAT-2B R2

Brief Description:

RISAT-2B R1: RISAT-2B R1 is a repeat of RISAT-2B satellite with capability for highly agile SAR based imaging is envisaged as a follow on mission to the on-going RISAT-2A spacecraft project. It carries 3.6 m Radial Rib Antenna.

Mission Objective & Application:

- To develop a SAR Payload operating in X-band, providing imagery in Spotlight, Mosaic and Strip modes of operation with fine and high spatial resolution for special users & Disaster management support
- Provides All weather & Day/Night Imaging capability

Satellite Name: GISAT-1

GISAT-1	
Overall Configuration	
Payload	Geo Imaging payloads: Multispectral & Hyperspectral payloads ▪ Mx VNIR 42 m Resolution; ▪ HySI VNIR 320 m resolution ▪ HYSI SWIR 191 m
Lift of Mass	~2275 kg
Power	~2kW

Brief Description: GISAT-1 is a Geo imaging satellite in Geo stationary height after INSAT-3D & INSAT-3DR. The satellite provides enhancement to the extent of 42m as against 1 km resolution in INSAT-3D & INSAT-3DR.

In addition to this, the satellite supports various application areas like Disaster monitoring, Land and Ocean monitoring, Atmospheric monitoring as well as meteorological applications. This imaging satellite along with LEO imaging satellite can provide substantial improvement to all the above areas.

Satellite Name: Microsat-2A

Microsat 2A & 2B	
Overall Configuration	
Payload	MWIR & long wave infrared Payload (LWIR) with 6m resolution
Lift of Mass	140kg
Power	300 watts

Brief Description:

Microsat 2A is an advanced optical remote sensing satellite designed to be operated in Infra-Red (IR) bands with high spatial resolution. It is envisaged to be launched on-board Small Satellite Launch Vehicle (SSLV). The bus configuration is derived from IMS-1 bus.

Satellite Name: GSAT-12R

GSAT-12R	
Overall Configuration	
Payload	12 Extended-C band transponders
Lift of Mass	1425 Kg
Power	1.6KW

Brief Description: GSAT-12R is envisaged to provide replacement capacity in extended-C band from the same orbital location as GSAT-12 to ensure continuity of communication services**.** The spacecraft is configured compatible to PSLV.

Satellite Name :RISAT- 1A

RISAT- 1A	
Overall Configuration	
Payload	▪ SAR in C-Band operating at 5.35 Ghz ▪ Payload Mode: ✓ Coarse Resolution ScanSAR Mode (CRS), ✓ Medium Resolution ScanSAR Mode (MRS), ✓ Fine Resolution Stripmap Mode-1 (FRS-1),Full-Pol, High Resolution Spotlight Mode (HRSlinear & circular pol) ✓ Resolution:1m to 50m
Lift of Mass	1753 Kg
Power	~ 4775W (Total Peak power requirement)

Brief Description:

RISAT-1A: RISAT 1A is a repeat Satellite of RISAT-1 and configured with a Synthetic Aperture Radar operating in C Band. This provides imaging for various applications related to Land, Water & environment which is required for Agriculture, Forestry and Water resource management. The satellite has the capability to operate in day, night and all-weather conditions.

Satellite Name : GSAT-20

GSAT-20 (High Throughput Satellite)	
Overall Configuration	
Payload	24 KaTransponders with 3 Reflectors Spot Beam Coverage over Indian Region Split bands for In Flight Connectivity (IFC)
Lift of Mass	4250 kg
Power	~6 kW at EOL

Brief Description: GSAT-20 is a Ka-Band High Throughput Satellite (HTS) with multiple spot beams over Indian region. It consists of wideband Ka x Ka transponders to support broadband services and In-flight connectivity (IFC) over entire Indian region with enhanced throughput over Northeast region..

Satellite Name: XPOSAT

XPOSAT	
Overall Configuration	
Payload	X-ray payload ▪ POLIX: Polarimeter Instrument in X-ray ▪ XSPECT: X-ray Spectroscopy and timing
Lift of Mass	454 Kg
Power	1145W

Brief Description: This is scientific mission on IMS-3 bus carrying X-ray payload.

The primary objective of the mission is to build X-ray polarimeter satellite using modified IMS-2 bus carrying Thomson scattering POLIX (Polarimeter Instrument in X-rays) intended for space based polarization measurements of X-ray emission from celestial sources and auxiliary payload XSPECT (from Space Astronomy Group, URSC) for Spectroscopic measurement in the energy band 0.8-15 keV. URSC will develop XPoSat mainframe bus and Raman Research Institute(RRI-Bangalore) will have the responsibility to develop POLIX instrument under the support from ISRO.

POLIX : This payload measures and studies the degree and angle of polarization of X-ray emission from 5 potential emission sources

XSPECT : X-day spectroscopic measurement in the energy band of 0 – 15 kev. The platform will be rotating at 0.2 rpm during sosmic source observations.

Satellite Name :SPADEX **Launch Vehicle :SSLV**

SPADEX – 2 Satellites	
Overall Configuration	
Payload	▪ Chaser: High Resolution camera ▪ Target: Miniature Multispectral Payload &Radiation Environment Monitor
Lift of Mass	185 Kg each satellite – 2 Satellites
Power	500 W

Brief Description: This project will develop and demonstrate the technologies needed for docking two spacecraft (Chaser & Target) and to control one spacecraft from the Attitude Control System of other spacecraft in the docked condition. Subsequent to docking, the Chaser and Target will be separated so that they would carry-out their designated experiments with payloads

Satellite Name :Aditya-L1
Satellite Specifications:

Aditya-L1	
Overall Configuration	
Payload	7 Payloads*
Lift of Mass	1410 ± 10 Kgs
Orbit	• Halo Orbit Class-2 at Sun-Earth L1 point, S/C sun pointing attitude with orbital period of 178 days

Brief About Payloads

Sl.No	Payloads	Science/Capability	Institution
1.	Visible Emission Line Coronagraph (VELC)	Corona/ Imaging & Spectroscopy	IIA
2.	Solar Ultraviolet Imaging Telescope (SUIT)	Photosphere and Chromosphere/ Imaging	IUCAA
3.	Aditya Solar wind Particle Experiment (ASPEX)	Solar wind/ Particle Analyzer	PRL
4.	Plasma Analyser Package For Aditya (PAPA)	Solar wind/ In-situ measurement	SPL, VSSC
5.	Solar Low Energy X-ray Spectrometer (SoLEXS)	Soft X-ray/ In-situ measurement	ISAC
6.	High Energy L1 Orbiting X-ray Spectrometer (HEL1OS)	Hard X-ray/ In-situ measurement	ISAC
7.	Advanced Triaxial High Resolution Digital Magnetometers	Measure Magnetic Field/ In-situ measurement	LEOS

Brief Description: A science mission for observing and understanding the solar chromospheres and corona dynamics from Sun-Earth L1 point.

The payloads are being developed by premier institutes and labs in the country and consists of corona imaging, chromospheres imaging, Solar wind analyses , X-ray measurements, measurement of magnetic field.

Satellite Name :Oceansat-3
Satellite Specifications:

OceanSat-3	
Overall Configuration	
Payload	4 payloads ▪ Scatterometer ▪ Ocean Color Monitor(OCM-3) ▪ Sea Surface Temperature Monitor (SSTM-1) ▪ ARGOS-4 of CNES under international co-operation
Lift of Mass	~1206 kg

Brief Description: The prime objective of the mission is to ensure the data continuity with improved payload specification of Ocean colour and wind vector data to sustain the operational applications. This satellite is expected to improve the applications by providing additional data such as Sea Surface Temperature (SST), with more number of bands in Optical region and in Infrared region for atmospheric corrections.

Satellite Name :RISAT- 2A
Satellite Specifications:

RISAT- 2A	
Overall Configuration	
Payload	▪ SAR in X-Band ▪ AIS Payload
Lift of Mass	1250 Kg
Power	3.8 kW

Brief Description:

RISAT 2A mission has an agile SAR payload operating in X band with single, dual and circular polarization. Payload provides imaging capability in spot, strip and mosaic modes.

Satellite Name : GISAT-2
Launch Vehicle : GSLV-F12 (Mk II)
Satellite Specifications:

GISAT-2	
Overall Configuration	
Payload	Geo Imaging payloads: Multispectral & Hyperspectral payloads
Lift of Mass	~2275 kg
Power	~2kW

Brief Description: GISAT-2 is a Geo imaging satellite in Geo stationary height after GISAT-1. The satellite provides enhancement to the extent of 42m as against 1 km resolution in INSAT-3D & INSAT-3DR.

GISAT-2 is a Geo imaging satellite in Geo stationary height after INSAT-3D & INSAT-3DR. The satellite provides enhancement to the extent of 42m as against 1 km resolution in INSAT-3D & INSAT-3DR.

Satellite Name: GSAT-24
Launch Vehicle: Procured
Satellite Specifications:

GSAT-24	
Overall Configuration	
Payload	24 Ku band transponders
Lift of Mass	4400 Kg
Power	~ 10.7 Kw

Brief Description: The satellite carrying 24 Ku band transponders are for adding in-orbit transponder capacity and to add capacity for DTH applications.

Satellite Name: IRNSS-1J
Satellite Specifications:

IRNSS-1J	
Overall Configuration	
Payload	• L5 and S Band Navigation Payload (Existing) • L1 band Navigation Payload (Additional) • C x C Ranging payload (Existing)
Lift of Mass	2200 kg
Power	2.4 kW

IRNSS-Follow on Spacecraft viz., IRNSS-1J/1K/1L/1M/1N spacecrafts will provide continuity for the existing navigation services of IRNSS with inclusion of L1 signals. IRNSS 1J satellite - to be realized and launched with indigenous RAFS (at 82.5°E)

Satellite Name: HRSAT Series
Satellite Specifications:

HRSAT-1,2,3	
Overall Configuration	
Payload	• PAN (0.45-0.9 µm) • Mx (B2,B3 & B4) • LWIR (7.7-11 µm)
Lift of Mass	470 kg
Power	815 W

The primary objective of the mission is the Design, Development and Launch of Three High Resolution Satellites for Spot imaging and Systematic Coverage with nadir imaging in a Single PSLV. The mission carries three payloads PAN, Mx& LWIR. It has Imaging resolution 1m (PAN, Nadir viewing) with a swath of 15 km, 4m (MX) with swath of 15 km, 20m (LWIR) with a swath of 6 km.

Satellite Name: IDRSS-1
Satellite Specifications:

IDRSS-1	
Overall Configuration	
Payload	• Ka Band & S Band User Links • Ka Band Feeder Link for P/L Data • Ku Band Feeder Link for TTC of LEO • Ka Band Tracking System
Lift of Mass	2400 kg

The objective of Indian Data Relay Satellite Series (IDRSS) is to initiate a GEO-data relay infrastructure to provide space-space-ground and ground-space-space communication services.