

PSLV-C29 Mission

Commercial Satellite Launch

16 December, 2015

THE MISSION

PSLV-C29 carrying on-board TeLEOS-1 which is the primary satellite of this mission, along with 5 other co-passenger satellites of Singapore, lifted-off from the Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota at 06:00 PM on December 16, 2015. All six satellites of Singapore were placed into a 550 km circular orbit inclined at 15° to the Equator. TeLEOS-1 is an Earth Observation satellite whereas the 5 co-passenger satellites included 2 Microsatellites and 3 Nanosatellites.

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THE LAUNCH VEHICLE

PSLV-C29 was in its 32nd flight for this mission and it's the 11th flight of PSLV in 'Core-alone' configuration without the use of solid strap-on motors.

SPECIFICATIONS

Height	44.4 m
Lift-Off Mass	227.6 t
No of Stages	4
Payloads	6 International Customer Satellites
Orbit Height	550 km
Inclination (deg)	15°
Launch Pad	First Launch Pad (SDSC, SHAR)



STAGE CHARACTERISTICS

	Stage-1	Stage-2	Stage-3	Stage-4
Nomenclature	Core Stage PS1 + 6 Strap-on Motors	PS2	PS3	PS4
Propellant	Solid (HTPB based)	Liquid (UH25 + N ₂ O ₄)	Solid (HTPB based)	Liquid (MMH + MON-3)
Propellant Mass (t)	138.2	41.35	7.6	0.82
Stage Dia (m)	2.8	2.8	2.0	1.34
Stage Length (m)	20	12.8	3.6	3.0

THE INTERNATIONAL CUSTOMER SATELLITES

TeLEOS-1

TeLEOS-1 is the primary satellite of this mission. It is the first Singapore Commercial Earth Observation satellite designed and developed by ST Electronics. This electro-optical satellite is to be launched into a Low Earth Orbit for Remote Sensing applications.



SPECIFICATIONS

Weight	400 kg
Imaging Resolution	1 m Panchromatic (at Nadir)
Altitude	550 km
Type of Satellite	Earth Observation
Payloads	<ul style="list-style-type: none">• S-band Telemetry• X- band Downlink
Mission Life	5 Years

VELOX-CI

VELOX-CI is a 123 kg Microsatellite for research in tropical environment monitoring using radio occultation techniques. The satellite was operated from the ground station located in Nanyang Technological University, Singapore (NTU).

VELOX-II

VELOX-II is a 13 kg 6U-Cubesat Technology Demonstrator with 3 payloads:

- Communications Payload
- GPS Experimental Payload
- Fault Tolerant Payload

This satellite was operated from the ground station in NTU.



VELOX-II

Athenoxat-1

It is a Technology Demonstrator Nanosatellite for Earth Remote Sensing based on a 3U-Cubesat form factor and launched as piggyback on a slot arranged by NTU, Singapore.



Athenoxat-1

Kent Ridge-1

Kent Ridge-1 is a 78 kg Microsatellite with two primary payloads:

- Medium Resolution VNIR Hyperspectral Camera (GSD 44 m)
- Short Wave Infrared (SWIR) Hyperspectral Camera (GSD 110 m)

Its secondary payload is a Real-time High Resolution Video (resolution 6 m) camera. The modes of communication are UHF Telemetry link and X-band data downlink.



Kent Ridge-1

Galassia

Galassia is a 3.4 kg 2U-Cubesat. It carries two payloads. One measures the total electron count in the Ionosphere above Singapore and the other is a Small Photon-Entangling Quantum System to acquire quantum correlation data in space. The modes of communication are UHF uplink and VHF downlink.



Galassia