SSLV-D2
EOS-07 MISSION

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Launch:
February 10, 2023
0918 hours IST

MISSION

Small Satellite Launch Vehicle (SSLV) is capable of launching mini, micro or nano satellites (10 to 500 kg mass) in to 500 km planar orbit. SSLV is a three-stage vehicle with all solid propulsion stages and liquid propulsion based Velocity Trimming Module (VTM), as terminal stage. Design drivers of SSLV are low cost, low turn-around time, flexibility in accommodating multiple satellites, launch-on-demand feasibility and minimal launch infrastructure requirements.

Satellites onboard SSLV-D2

Mission Objectives

- Demonstration of in-flight performance of SSLV vehicle systems.
- Injection of EOS-07 satellite & two co-passenger satellites Janus-1 and AzaadiSAT-2 into 450 km circular orbit.

SSLV-D2 Vehicle Characteristics

Vehicle Height	34 m
Vehicle Diameter	2 m
Lift-off Mass	~119 t
Vehicle Configuration	SS1 + SS2 + SS3 + VTM

SSLV-D2 Mission Specifications

Parameter	Specifications
Altitude (km)	450
Inclination (°)	37.2
Launch Pad	First Launch Pad
Launch Azimuth (°)	135

SSLV-D2 stages at a glance

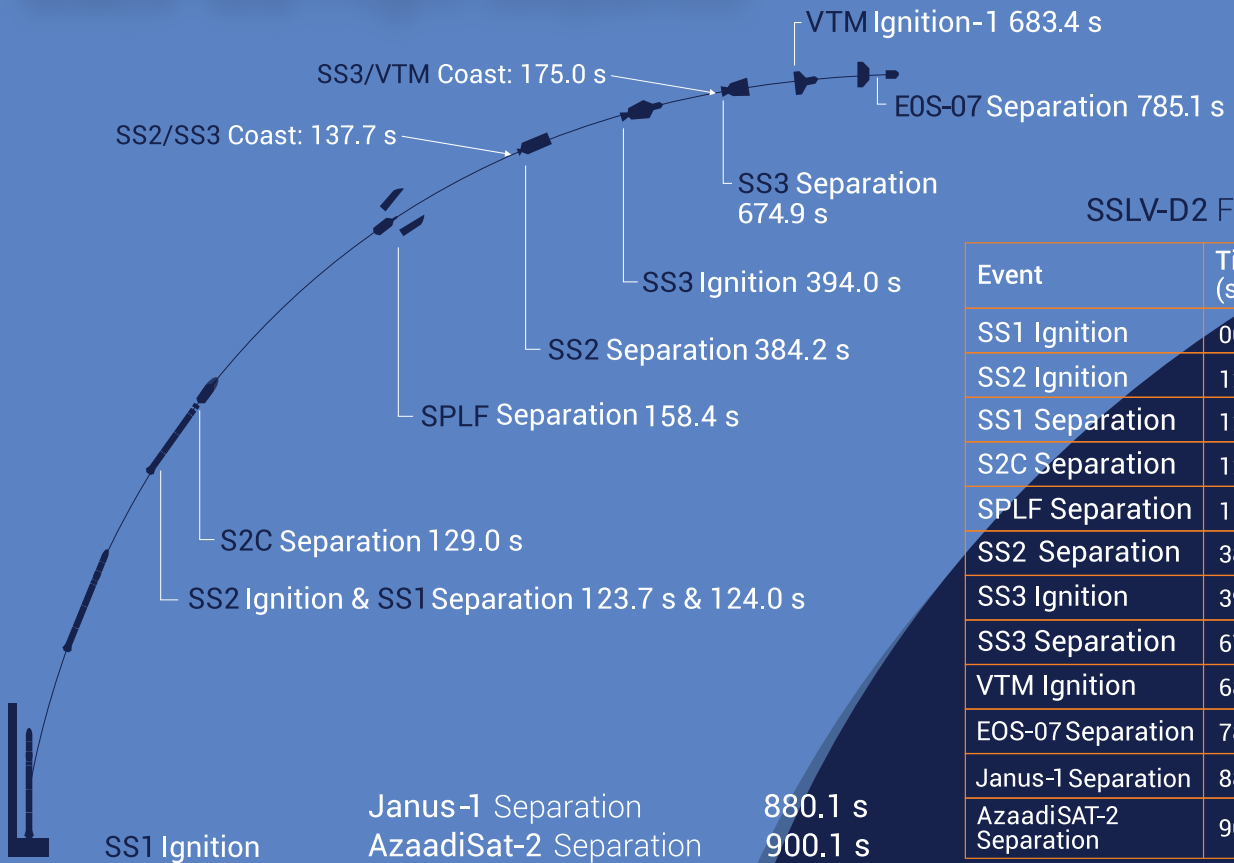
	Stage 1 (SS1)	Stage 2 (SS2)	Stage 3 (SS3)	VTM
Length (m)	22.5	3.2	2.8	-
Diameter (m)	2	2	1.7	2
Propellant	Solid (HTPB) based	Solid (HTPB) based	Solid (HTPB) based	Liquid (MMH+ MON3)
Propellant Mass (t)	87	7.7	4.5	0.05
Action Time (s)	115.0	124.0	104.0	-

SSLV-D2

Satellites onboard SSLV-D2

Satellite	Agency	Mass (kg)
EOS-07	ISRO	156.3
Janus-1	ANTARIS, USA	10.2
AzaadiSAT-2	Space Kidz India	8.7

SSLV-D2 Flight Sequence



Janus-1 Separation 880.1 s

AzaadiSat-2 Separation 900.1 s

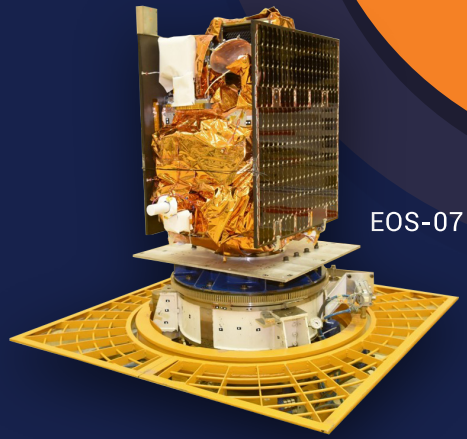
SSLV-D2 Flight Profile

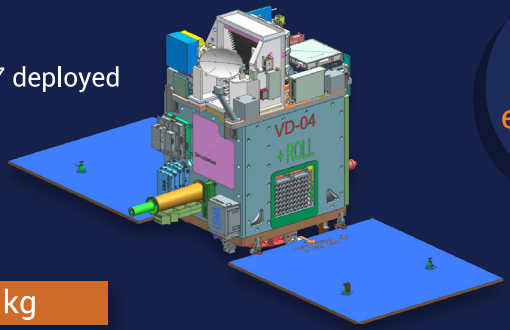
Event	Time (s)	Altitude (km)
SS1 Ignition	000.0	-
SS2 Ignition	123.7	94
SS1 Separation	124.0	94
S2C Separation	129.0	103
SPLF Separation	158.4	149
SS2 Separation	384.2	423
SS3 Ignition	394.0	429
SS3 Separation	674.9	450
VTM Ignition	683.4	450
EOS-07 Separation	785.1	450
Janus-1 Separation	880.1	450
AzaadiSAT-2 Separation	900.1	450

EOS-07

Mission Objectives

- Design & develop payload instruments compatible with micro satellite bus and new technologies that are required for future operational satellites.
- Design & develop a micro satellite accommodating new technology payloads in a quick turn-around time.





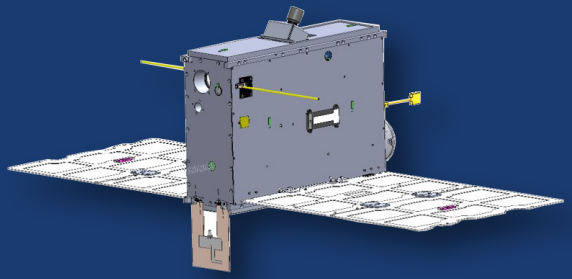
New technology experiments

- mm-Wave Humidity Sounder (MHS)
- Spectrum Monitoring Payload (SMP)

Mission Parameter

Lift-off mass	156.3 kg
Mission Life	~ 1 year
Power	Li-ion battery of 27.2 Ah capacity

Power generation of 357 W at EOL, equinox



Janus -1 deployed

Janus-1

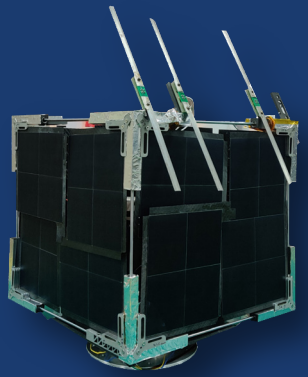
Satellite mass 10.2 kg

JANUS-1 is a technology demonstrator, smart satellite mission, based on Antaris software platform. JANUS-1 demonstrates modular bus and multi-tenant payloads with onboard edge computing, programmable smart EPS, S/X band SDR, secure TT&C & digital twinning with SaaS platform.

AzaadiSAT-2

8U NanoSAT weighing about 8.8 kg

AzaadiSAT-2 mission aims to demonstrate LoRa and Amateur Radio communication capabilities, measure radiation levels in space, & demonstrate expandable satellite structure, etc. About 750 girls students were guided to develop the payloads. The student team of 'Space Kidz India' integrated these payloads.



AzaadiSAT-2