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ISRO TO SEND UNCREWED ROCKET AS PART OF GAGANYAAN MISSION

Relevant for: Science & Technology | Topic: Space Technology & related matters

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ISRO successfully launched Singapore's TeLEOS-2 satellite on April 22, 2023. Videograb: Youtube/ISRO Official

The Indian Space Research Organisation (ISRO) will launch its first uncrewed test rocket Geosynchronous Satellite Launch Vehicle (GSLV) as a part of the human space mission — Gaganyaan.

"We are targetting to send the first uncrewed GSLV rocket in February 2024 as part of the Gaganyaan (India's human space mission) mission. The human module will land in the sea," ISRO Chairman S. Somanath said after the successful launch of PSLV-C55/TeLEOS-2. He further noted that there would be a test Gagayaan mission in June this year where the rocket will go up to 12-14 km and test its safety systems.

Mr. Somanath also said that there are several space missions that are coming up. Citing examples, he said, "We will send the Aditya L1 (the first space based Indian mission to study the Sun), Navigation satellites, a commercial launch with the heavier rocket GSLV and a mission with Small Satellite Launch Vehicle (SSLV)."

ISRO's Polar Satellite Launch Vehicle (PSLV-C55) carrying Singapore's TeLEOS-2 as primary satellite and Lumelite-4 as a co-passenger satellite took off from the Satish Dhawan Space Centre, Sriharikota at 14.19 hours on Saturday.

PSLV-C55/TeLEOS-2 was launched successfully at 1419 hours from Satish Dhawan Space Centre at Sriharikota in Andhra Pradesh on April 22, 2023. | Photo Credit: B. Jothi Ramalingam

According to details provided by ISRO, PSLV-C55 is a dedicated commercial PSLV mission of NewSpace India Limited (NSIL), for the international satellite customer from Singapore. In this mission, TeLEOS-2 a Synthetic Aperture Radar satellite will be the primary satellite and Lumelite-4 a technology demonstration nano-satellite will be co-passenger satellite. This is the 57th flight of PSLV and 16th mission using the PSLV Core Alone configuration (PSLV-CA).

After the lift off, Mr.Somanath said that PSLV-C55/TeLEOS-2 mission is accomplished successfully and placed both the satellites in the intended orbit.

The TeLEOS-2 satellite is developed under a partnership between DSTA (representing the Government of Singapore) and ST Engineering. Once deployed and operational, it will be used to support the satellite imagery requirements of various agencies within the Government of Singapore. TeLEOS-2 carries a Synthetic Aperture Radar (SAR) payload. TeLEOS-2 will be able to provide all-weather day and night coverage, and capable of imaging at 1m full-polarimetric resolution.

The LUMELITE-4 satellite is co-developed by the Institute for Infocomm Research (I2R) of A*STAR and Satellite Technology and Research Centre (STAR) of the National University of Singapore. LUMELITE-4 is an advanced 12U satellite developed for the technological demonstration of the High-Performance Space-borne VHF Data Exchange System (VDES). Using the VDES communication payload developed by I2R and STAR's scalable satellite bus platform, it aims to augment Singapore's e-navigation maritime safety and benefit the global shipping community.

PSLV- C55/TeLEOS-2 mission is accomplished successfully.

In a textbook launch, the vehicle placed TeLEOS-2 and LUMELITE-4 satellites precisely into their intended 586 km circular orbit.@NSIL_India@PIB_India

PSLV-C55 mission will carry out in-orbit scientific experiments by using the spent PS4 stage as an orbital platform. This is the third time that PS4 will be used after satellite separations as a platform for experiments. There will be non-separable payloads mounted on MSA (multi satellite adapter). Payloads will be powered ON by a command, after all satellites are separated.

The platform will have solar panel mounted around PS4 tank which will be deployed after confirmation of the stage achieving stabilization. The deployment of the solar panels will be through a ground command. The platform will ensure that the deployed solar panel points towards the Sun optimally using appropriate sun pointing mode, which will increase the power generation capability of the platform. The power will be provided to payloads and avionic packages based on their requirements.

As a part of POEM-2 (PSLV Orbital Experimental Module), there are 7 experimental non-separable payloads: PiLOT (PSLV In orbitaL Obc and Thermals) a OBC package from IIST; ARIS-2 (Advanced Retarding Potential analyser for Ionospheric Studies) experiment from IIST; HET based ARKA200 Electric Propulsion System from Bellatrix; DSOD-3U and DSOD-6U deployer units along with DSOL-Transceiver in S- & X- bands from Dhruva Space; and Starberry Sense Payload from Indian Institute of Astrophysics (IAP).

logging into their accounts on Vuukle.

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