Handholding Start-ups: Towards a Vibrant Space Ecosystem

June 1, 2024

Following the sectoral reforms the Indian Space arena is witnessing a rapid growth of start-ups and private firms. ISRO, towards facilitating a vibrant space ecosystem in India, has been extending its technical support and sharing its expertise. Its support for a recent suborbital mission Agnibaan SOrTeD, conducted by M/s Agnikul Cosmos, an Indian start-up showcases the willingness of the organisation to support and nurture private startups in India's space sector.

For the Agnibaan mission, SDSC-SHAR/ISRO supported in selection of suitable site for suborbital flight and assisted in setting up the Launchpad and Control Centre. A robust network for seamless data and communication between the launch pad, the Control Centre, and ISRO Control Centre was facilitated. SHAR developed comprehensive safety plans and procedures to ensure all operations are conducted safely and efficiently. They coordinated launch clearances and NOTAM for all launch attempts and provided extensive range systems, including tracking, timing, real-time data processing, and master control operations.

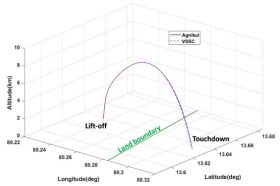
Additionally, SHAR supplied historical wind data for flight planning and real-time atmospheric data for launch commit criteria, alongside crucial logistics support for system realization and launch campaigns.

VSSC/ISRO provided its expertise and facilitated 15-second hot testing of the semi-cryogenic engine. They conducted acoustic tests for the launch vehicle's inter-tank structure at CSIR-NAL's state-of-the-art acoustic testing facility. The mission design underwent thorough verification and validation by VSSC. VSSC provided a comprehensive end-to-end Flight Termination System, including pyro charges, batteries, telecommand decoders, and tracking transponders, ensuring the mission's range safety. It extended on-site support for assembly, integration, wiring, and last-minute pyro operations during the launch campaign, pre-countdown, and countdown phases.

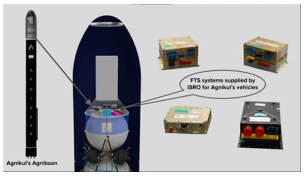
ISTRAC/ISRO provided telemetry and tracking support for this launch, through a Memorandum of Understanding with the start-up. Detailed discussions between the teams led to the finalization of critical systems, including the onboard telemetry system configuration and the tracking ground station network. ISTRAC supported the launch campaign from its two ground stations at Shriharikota, offering integration, testing, and real-time tracking. They developed and deployed Vehicle Data Acquisition software to filter real-time data flow to the control center and display systems. On the day of launch, ISTRAC's ground station network provided real-time support, confirming the successful launch.

ISRO's extensive and multifaceted support for such missions undertaken by Indian start-ups underscores the collaborative framework made available to startups in the Indian space sector. ISRO assures its support, invites and encourages non-governmental entities to engage themselves in the space sector, paving the way for a vibrant space ecosystem in the country.

15 s duration Hot-test of Agnilet semi-cryogenic engine at VSSC



Trajectory verification and validation



End-to-end Flight Termination System supplied by VSSC

Address

ISRO Headquarters, Antariksh Bhavan, New BEL Road
Bengaluru-560 094

Phone: +91 80 22172294 / 96
Email: cio[at]isro[dot]gov[dot]in

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