PSLV-C26 / IRNSS-1C Mission

16 October, 2014

THE MISSION

PSLV-C26 carrying on-board the IRNSS-1C Satellite lifted-off from the Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota at 01:32 AM (IST) on October 16, 2014. About 20 minutes 18 seconds after lift-off, IRNSS-1C was injected to an elliptical orbit of 282.56 km X 20,670 km, which is very close to the intended orbit.

After injection, the solar panels of IRNSS-1C were deployed automatically. ISRO's Master Control Facility assumed the control of the satellite. Four orbit manoeuvres were conducted from Master Control Facility to position the satellite in the Geostationary Orbit at 83^0 East longitude.

IRNSS-1C is the third of the seven satellites constituting the space segment of the Indian Regional Navigation Satellite System (IRNSS). The satellite has been realized in less than six months after the launch of its predecessor. IRNSS-1C carries two types of payloads – navigation payload and ranging payload.

PSLV-C26

THE LAUNCH VEHICLE

PSLV-C26 in its 28th flight used 'XL' variant of PSLV. This is the 7th time 'XL' configuration is being flown.

SPECIFICATIONS

Height	44.4 m
Lift-Off Mass	320 t
No of Stages	4
Payloads	IRNSS-1C
Inclination (deg)	17.86^0
Apogee	20,670 km
Perigee	282.56 km
Launch Pad	First Launch Pad (SDSC, SHAR)

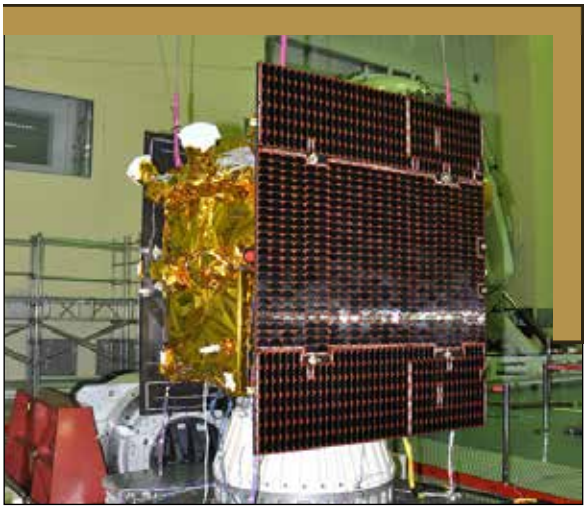
STAGE CHARACTERISTICS

	Stage-1	**Stage-2**	**Stage-3**	**Stage-4**
Nomenclature	Core Stage PS1 + 6 Strap-on Motors	PS2	PS3	PS4
Propellant	Solid (HTPB based)	Liquid ($UH25 + N_2O_4$)	Solid (HTPB based)	Liquid (MMH + MON-3)
Propellant Mass (T)	138.2 (Core), 6 x 12.2 (Strap-on)	42.0	7.6	2.5
Max Thrust (kN)	4819 (Core) 6 x 716 (Strap-on)	804	240	7.3 x 2
Stage Dia (m)	2.8 (Core), 1 (Strap-on)	2.8	2.0	2.8
Stage Length (m)	20 (Core), 12 (Strap-on)	12.8	3.6	3.0

IRNSS-1C

THE SATELLITE

The configuration of IRNSS-1C was similar to that of it's predecessors. The satellite is powered by two solar arrays, which generate power up to 1,660 W. IRNSS-1C carries two types of payloads – navigation payload and ranging payload. The navigation payload of IRNSS-1C transmits navigation service signals to the users. This payload is operating in L5-band and S-band. A highly accurate Rubidium Atomic Clock is part of the navigation payload of the satellite. The ranging payload of IRNSS-1C consists of a C-band transponder which facilitates accurate determination of the range of the satellite. IRNSS-1C also carries Corner Cube Retro Reflectors for LASER ranging.



Applications of IRNSS

- Terrestrial, Ariel and Marine Navigation
- Vehicle tracking and fleet management
- Terrestrial navigation aid for hikers and travellers
- Disaster Management
- Integration with mobile phones
- Mapping and Geodetic data capture
- Visual and voice navigation for drivers
- Precise Timing

SPECIFICATIONS

Weight	1425.4 kg
Power	1660 W, one Li-Ion battery of 90 Ampere-hour capacity
Stabilisation	Zero momentum system, orientation input from Sun and Star Sensors and Gyroscopes; Reaction Wheels, Magnetic Torquers and 22 Newton thrusters as actuators
Propulsion	440 Newton Liquid Apogee Motor, twelve 22 Newton Thrusters
Type of Satellite	Navigation
Payloads	• L5 and S-band Navigation with Rubidium Atomic Clocks • C-band Ranging Payload • Corner Cube Retro Reflectors for LASER Ranging
Mission Life	10 Years