PSLV-C24 / IRNSS-1B Mission

04 April, 2014

THE MISSION

PSLV-C24 carrying on-board the IRNSS-1B Satellite lifted-off from the Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota at 05:14 PM (IST) on April 04, 2014. About 19 minutes after lift-off, IRNSS-1B was injected to an elliptical orbit of 283 km X 20,630 km, which is very close to the intended orbit.

After injection, the solar panels of IRNSS-1B 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 55^0 East longitude.

IRNSS-1B is the second of the seven satellites constituting the space segment of the Indian Regional Navigation Satellite System (IRNSS).

The satellite carries two types of payloads – navigation payload and ranging payload.

PSLV-C24

THE LAUNCH VEHICLE

PSLV-C24 in its 26th flight used 'XL' variant of PSLV. This is the 6th time 'XL' configuration is being flown.

SPECIFICATIONS

Height	44.4 m
Lift-Off Mass	320 t
No of Stages	4
Payloads	IRNSS-1B
Inclination (deg)	19.2^0
Apogee	20,630 km
Perigee	283 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)
Mass (T)	138 (Core), 6 x 12 (Strap-on)	41.7	7.6	2.5
Max Thrust (Kn)	4819 (Core) 6 x 716 (Strap-on)	804	240	7.3 x 2
Burn Time (s)	101.5 (Core), 49.5 (Strap-on)	149	112.1	513
Stage Dia (m)	2.8 (Core), 1 (Strap-on)	2.8	2.0	2.8
Stage Length (m)	20 (Core), 14.7 (Strap-on)	12.5	3.6	2.6

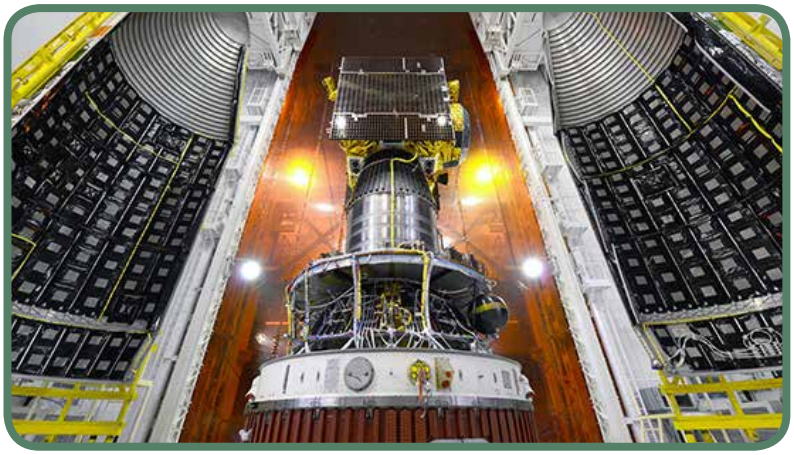
IRNSS-1B

THE SATELLITE

The configuration of IRNSS-1B was similar to that of it's predecessors. The satellite is powered by two solar arrays, which generate power up to 1,660 watts. IRNSS-1B carries two types of payloads – navigation payload and ranging payload. The navigation payload of IRNSS-1B 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-1B 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	1432 kg
Power	1660 W, one Li-Ion battery of 90 Ampere-hour capacity
Stabilisation	Zero momentum system, orientation input from Sun and Stars 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