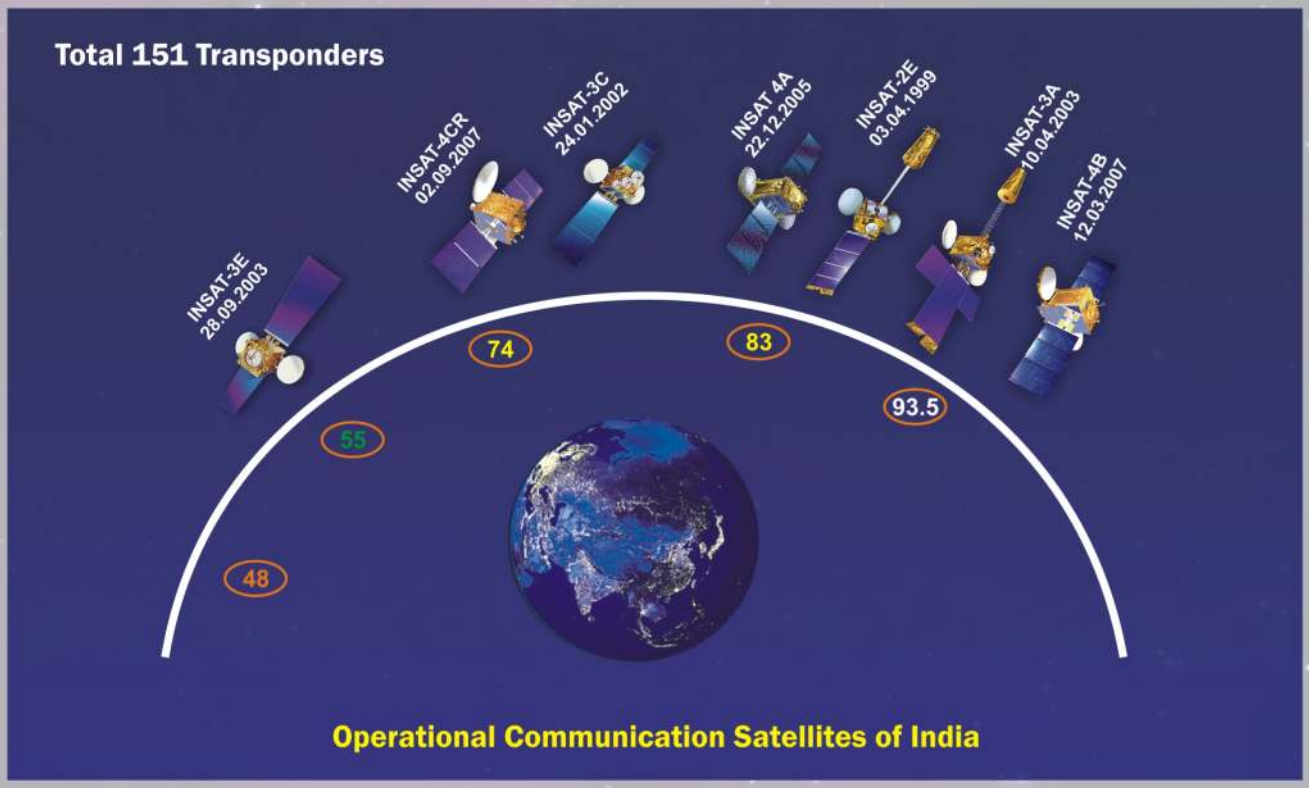
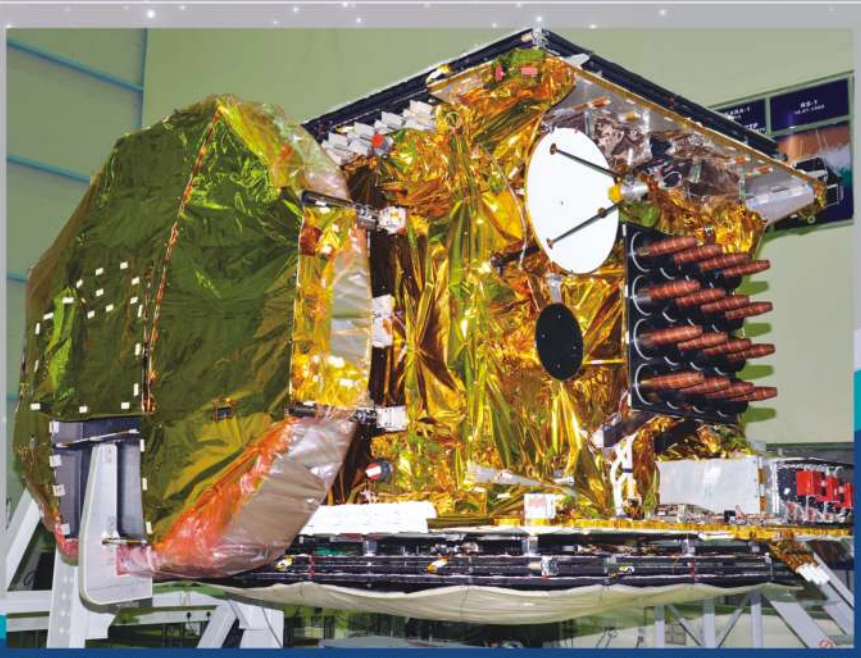

इसरो ISRO
GSAT-8

Indian National Satellite (INSAT) system, established in 1983, is one of the largest domestic communication satellite systems in the Asia Pacific Region. It presently comprises of seven satellites – INSAT-2E, INSAT-3A, INSAT-3C, INSAT-3E, INSAT-4A, INSAT-4B and INSAT-4CR – providing 151 transponders in S, C, Ext-C and Ku-bands.

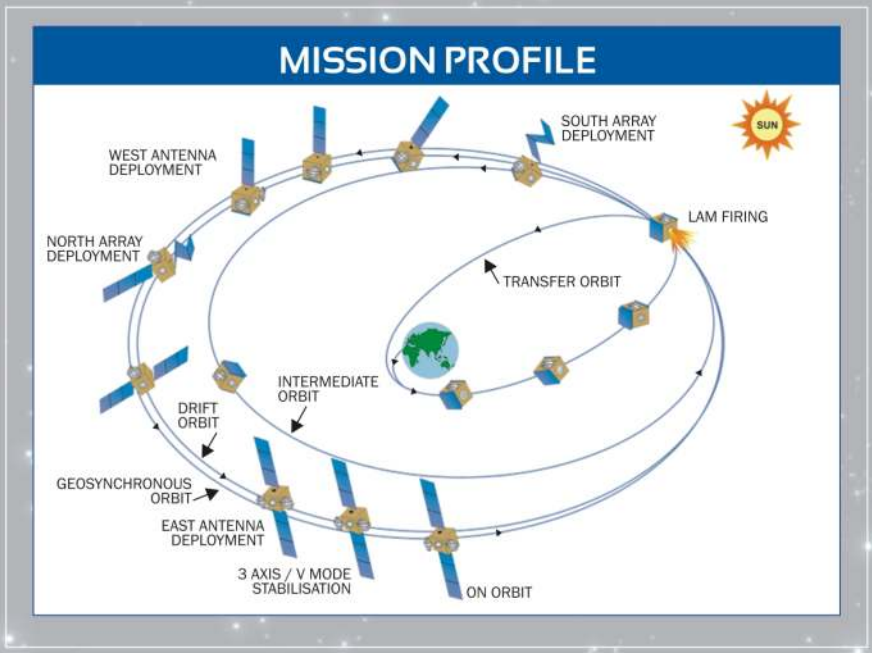


GSAT-8, India's advanced communication satellite, is a high power satellite being inducted into the INSAT system. Weighing about 3100 kg at lift-off, GSAT-8 is configured to carry 24 high power transponders in Ku-band and a two-channel GPS Aided GEO Augmented Navigation (GAGAN) payload operating in L1 and L5 bands.



GSAT-8 in clean room at ISRO Satellite Integration and Test Establishment (ISITE)

GSAT-8 is launched into a Geosynchronous Transfer Orbit (GTO) by Ariane-5 VA-202 launch vehicle from Kourou, French Guiana. After its injection into the GTO, the Master Control Facility at Hassan takes control of the satellite and performs the initial orbit raising manoeuvres by using the Liquid Apogee Motor (LAM) on-board the satellite, placing it in the circular Geostationary Orbit. After this, the deployment of appendages such as the solar panels, antennas and three axis stabilisation of the satellite will be performed. GSAT-8 will be positioned at 55 deg. E longitude and co-located with INSAT-3E satellite. The designed in-orbit mission life of GSAT-8 is more than 12 years.



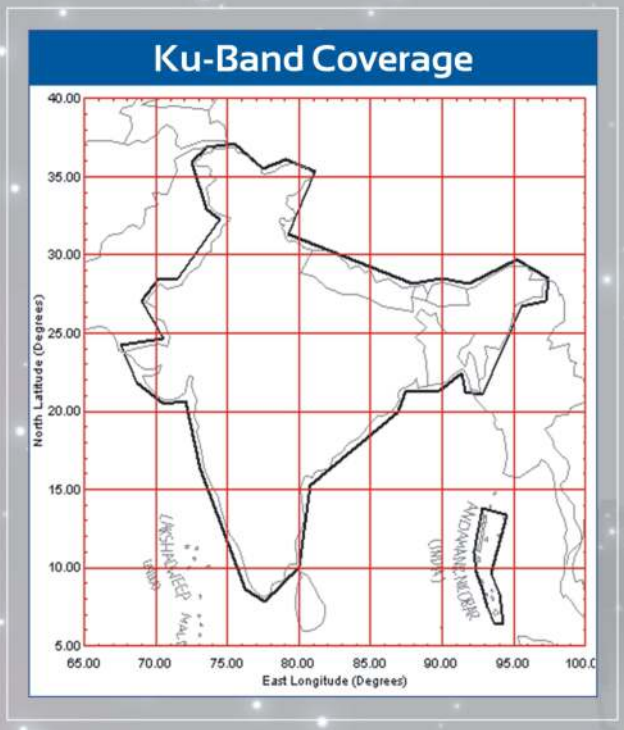
The 24 Ku-band transponders will augment the capacity in the INSAT system. The GAGAN payload provides the Satellite Based Augmentation System (SBAS), through which the accuracy of the positioning information obtained from the GPS satellite is improved by a network of ground based receivers and made available to the users in the country through the geostationary satellites.

SALIENT FEATURES

Orbit	Geostationary (55 deg E longitude) co -located with INSAT-3E
Lift-off Mass	3093 kg
Dry Mass	1426 kg
Physical Dimensions	2.0 x 1.77 x 3.1 m cuboid
Propulsion	440 Newton Liquid Apogee Motor (LAM) with Mono Methyl Hydrazine (MMH) as fuel and Mixed Oxides of Nitrogen (MON-3) as oxidiser for orbit raising
Stabilisation	3-axis body stabilised in orbit using Earth Sensors, Sun Sensors, Momentum and Reaction Wheels, Magnetic Torquers and eight 10 Newton and eight 22 Newton bipropellant thrusters
Power	Solar array providing 6242 Watts and three 100 Ah Lithium Ion batteries
Antennas	Two indigenously developed 2.2 m diameter transmit/receive polarisation sensitive dual grid shaped beam deployable reflectors with offset-fed feeds illumination for Ku-band; 0.6 m C-band and 0.8 x 0.8 sq m L-band helix antenna for GAGAN
Mission Life	More than 12 years

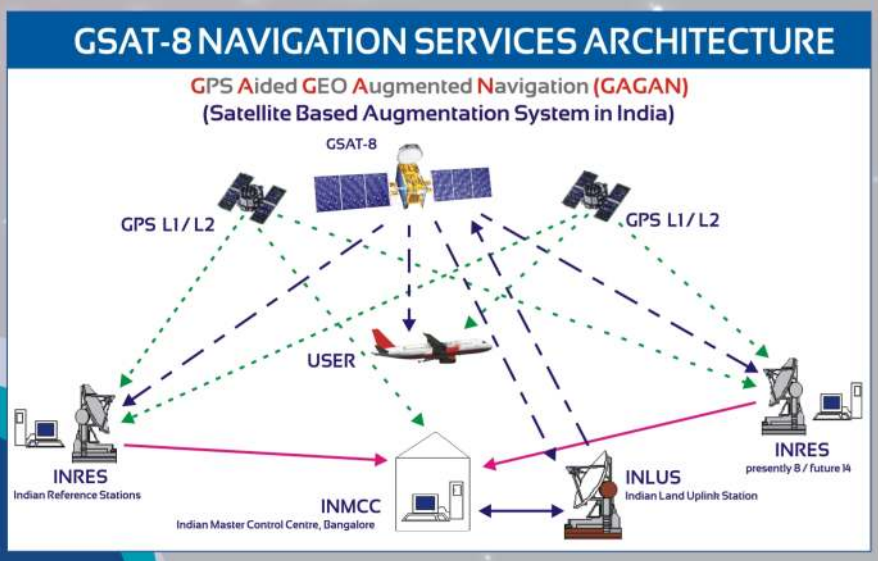
COMMUNICATION PAYLOAD

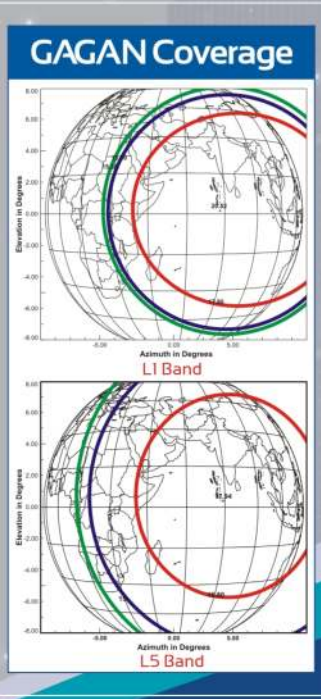
24 Ku-band transponders each with 36 MHz usable bandwidth employing 140 W TWTAs with footprint covering Indian mainland with an Edge Of Coverage EIRP of 52 dBW and Andaman and Nicobar islands with an EIRP of 51dBW



NAVIGATION PAYLOAD

Two-channel GAGAN payload operating in L1 and L5 bands provides Satellite-based Navigation services with accuracy and integrity required for civil aviation applications over Indian Air Space





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