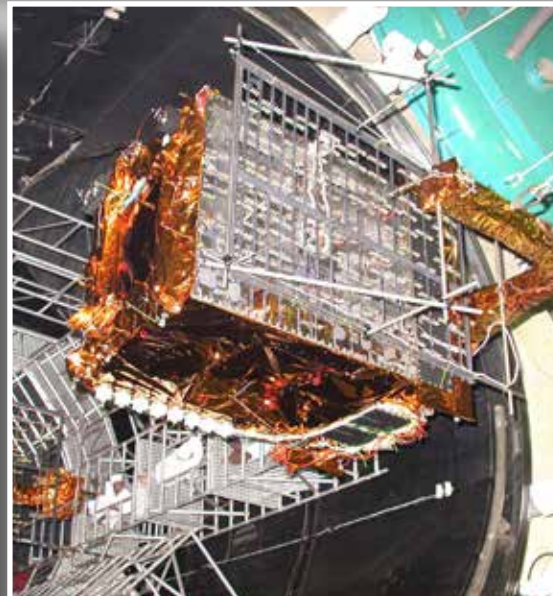
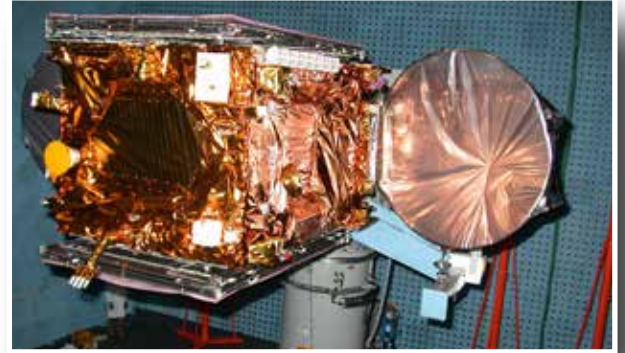


INSAT-4A MISSION

22 December, 2005

THE MISSION

The Indian National Satellite (INSAT-4A) on-board the Ariane 5-V169 lifted-off from Kourou, French Guiana at 4:03 AM (IST) on December 22, 2005. INSAT-4A is the heaviest satellite of ISRO and the first in INSAT-4 series. About 30 minutes after lift-off, INSAT-4A was placed in the Geosynchronous Transfer Orbit (GTO) in three axis stabilised mode with a perigee (nearest point to Earth) of 622 km and an apogee (farthest point to Earth) of 36152 km and an inclination of 4.02° with respect to the Equator.



Ariane 5-V169

INSAT-4A

THE SATELLITE

INSAT-4A is a high power communication satellite of size 2000 mm x 2800 mm x 1770 mm and having the capacity to generate 5.5 KW of power. It is co-located with INSAT-2E and INSAT-3B at 83° East longitude in Geostationary Orbit and is planned for a minimum operational life of 12 years.

With 12 high power Ku-band transponders INSAT-4A is the first satellite to meet the requirement of Direct-To-Home (DTH) television services apart from carrying 12 C-band transponders to augment the INSAT capacity for communication and TV services.

INSAT-4A measures 15.16 m with its solar arrays fully deployed in orbit. The spacecraft propulsion system employs a 440 N Liquid Apogee Motor with 1500 kg of MON-3 (Mixed Oxides of Nitrogen) and MMH (Mono Methyl Hydrazine) to take the satellite from GTO to its final Geosynchronous Orbit. The satellite will be three axis body stabilised in orbit using sensors, momentum and reaction wheels, magnetic torquers and eight 10 Newton and eight 22 Newton Reaction Control Thrusters. The satellite has two solar arrays together generating 5,500 Watt of electrical power backed up by three 70 Ah Nickel Hydrogen Batteries. The satellite has two deployable antennas and one fixed antenna for various transmit and receive functions.

INSAT-4A carries the following payloads:

- 12 Ku-band 36 MHz bandwidth Transponders employing 140 W TWTAs to provide an EIRP of 52 dBW over the footprint covering Indian Mainland.
- 12 C-band 36 MHz bandwidth transponders employing 63 W TWTAs to provide an EIRP 39 dBW with expanded radiation patterns encompassing Indian geographical boundary, area beyond India in Southeast region and in Northwest regions and some parts of Asia Pacific and Gulf countries.

SPECIFICATIONS

Weight	3081 kg
Power	Solar Array: 5922W Batteries (3 No): Ni-H2 70 Ah
Stabilisation	3-axis body stabilised using Momentum/Reaction Wheels, Magnetic Torquers, Sensors and Thrusters
Type of Satellite	Communication
Payloads	<ul style="list-style-type: none">• 12 Ku-band Transponders• 12 C-band Transponders
Mission Life	12 Years

