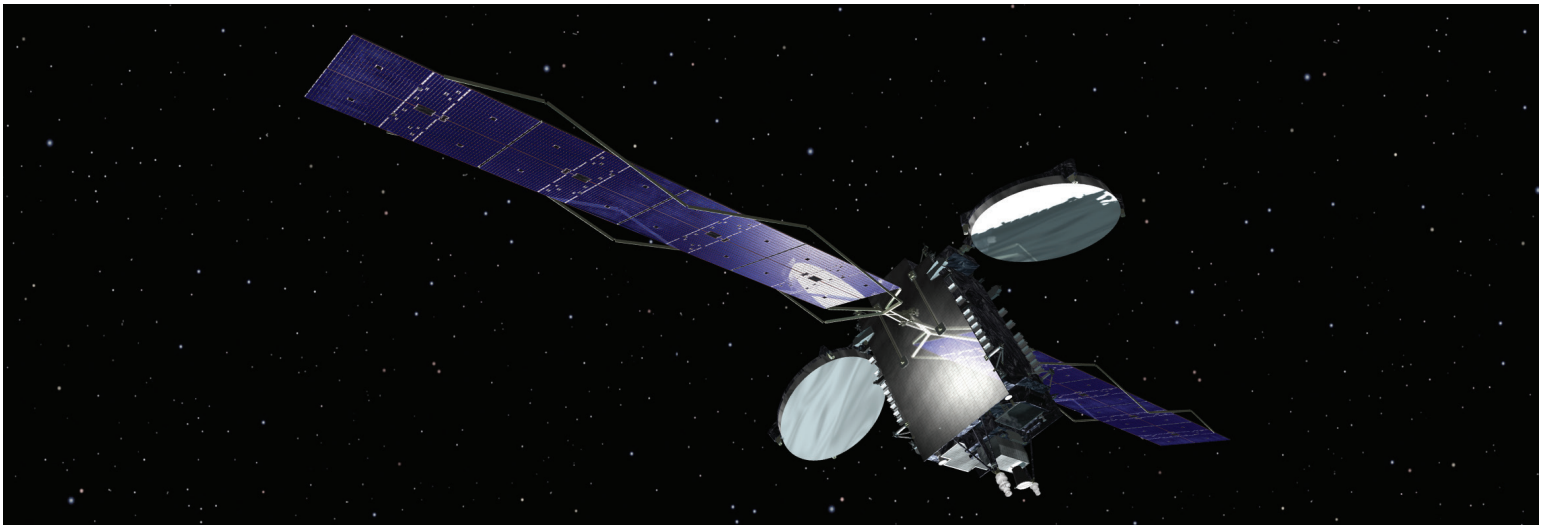
GEOStar™ Hosted Payloads

Hosted Secondary Payload Opportunities Provide Rapid/Low-Cost Access to Space

FACT SHEET



Orbital ATK's Hosted Payload Interface (HPI) allows small payloads for science, technology demonstration, and national security applications to be mounted onto Orbital ATK's GEOStar-2 bus Geosynchronous Earth Orbit (GEO) communications platform. This hosted payload program takes advantage of the high frequency of commercial satellite launches and the excess resources that typically exist on a commercial communications satellite to provide frequent and low-cost access to space.

Mission Opportunities

Hosted payloads provide a novel way to serve the needs of the science, technology demonstration, and security and defense communities as well as the space-based commercial telecommunications industry. Hosted payloads can be housed on spacecraft whose primary mission does not require full use of communications payload capacity over the 15-year mission life of the commercial satellite. The satellite owner/operator works with Orbital ATK and the hosted payload provider to make use of the available surplus spacecraft resources. By taking advantage of this excess, hosting can be done at a fraction of the cost of typical science and technology demonstration satellite missions using dedicated spacecraft.

The frequency of commercial spacecraft launches provides many opportunities for small payloads to gain access to space. Payload hosting on Orbital ATK's GEOStar Bus is available on an almost yearly basis for future launches. This robust launch pace and the quick turnaround and strict schedule requirements of commercial spacecraft programs (typically 24-27 months) ensure efficient access to space with minimal risk of delay.

FACTS AT A GLANCE

Programs

- Orbital ATK integrated the Geostationary Communication and Control Segment onto Intelsat's Galaxy 15 spacecraft for the Federal Aviation Administration's Wide Area Augmentation System. Galaxy 15 was launched in October 2005 and continues operation.
- The Commercially Hosted Infrared Payload Flight Demonstration Program (CHIRP) is for the Air Force's Third Generation Infrared Surveillance (3GIRS) program. The SAIC wide-field of view sensor was integrated onto the Orbital ATK-built SES-2 commercial GEO communications satellite to validate missile warning technologies from geosynchronous orbit in a fast and cost-effective manner. SES-2 was successfully launched in September 2011.

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Specifications

Core Features

Payload Mass Capability:	<150 kg (negotiable based on size of primary payload)
Avail. Payload Vol.:	Up to 165 x 63 x 101 cm (negotiable)
Orbit:	Geosynchronous
Launch Vehicle:	Ariane, Soyuz, Land Launch, Proton, and similar
Typical Mission Life:	1-4 years
Program Schedule:	24 months from ATP to launch

Structure

Construction of Payload Platform:	Composite/aluminum facesheets over aluminum honeycomb core
Thermal Control:	Passive; payload may elect its own active control

Power Subsystem Available

Payload Power:	500 W-1,000 W BOL (negotiable)
Bus Voltage:	+36 VDC (nominal)

Attitude Control Subsystem

Stability Mode:	3-axis; zero momentum
Pointing Control:	0.01° granularity in maintaining pointing
Pointing Knowledge:	<0.03° During nominal operations (standard Earth sensor/Sun sensor suite)
Rate/Stability: upon	Provided upon request; dependent time increment

Command and Data Handling Subsystem

Payload Interface:	Independent via Orbital ATK's HPI Modem interface or as Remote Terminal on 1553 bus (dependent upon data rate)
Radiation Tolerance:	100 Krad for Spacecraft (15 years at GEO) HPI Modem at 20 Krad (1 to 4 years at GEO)
RF Uplink:	Up to 2 Mbps (based on ground station parameters)
Data Downlink: station	Up to 75 Mbps (based on ground parameters)

More Information

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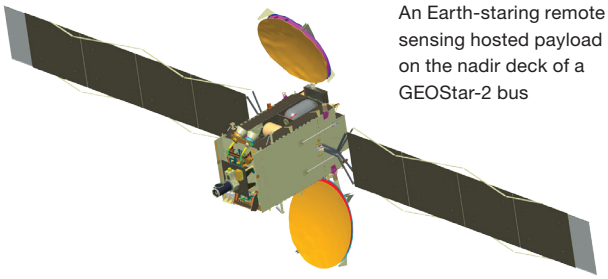
Hosted Payload Accommodation

Depending on the design of the host spacecraft, a wide variety of hosted payload configurations can be supported. The payload is mounted on the nadir-facing deck providing excellent field of view for Earth-viewing instruments and for thermal radiators. Non-Earth-staring payloads can be accommodated on the nadir deck as well by canting the boresight of the instrument at an angle. Deep-space viewing instruments may also be mounted on the zenith end of the spacecraft using a modified antenna support bracket.

The payload panel structure consists of aluminum face-sheets over an aluminum honeycomb core with embedded heat pipes and conductors, providing stability and thermal control. Increased platform stability for specific missions can be achieved by using a mission-specific platform with quasi-kinematic mounts. A combination of an inertial reference unit, earth sensor assembly, and sun sensors are used to offer accurate attitude knowledge needed to meet 0.1 degree pointing accuracy or better. Downlink data rates of up to 75 Mbps can be provided (based on ground station parameters). No solid state recorder is needed because, during nominal operation, the spacecraft continually transmits data to a known location on Earth with a pre-specified minimum effective isotropic radiated potential.



An Earth-staring remote sensing hosted payload on the nadir deck of a GEOStar-2 bus