

HOSTED PAYLOAD FACT SHEET

Why Hosted Payloads?

Hosted Payloads allows Governments, Scientific Institutions, and Organizations the benefit of having their mission payload on board a GEO satellite with shorter lead times at reduced costs.

Hosted Payload Benefits with SS/L

Affordable Access to Space: Large cost reductions can result from shared integration, launch and operations with the host satellite, especially over dedicated missions. Costs are also low if the experimental requirements adequately match the capabilities and available resources of the host spacecraft

Frequent Space Access: SS/L supplies all major satellite operators with 5-7 new satellite programs per year and 5-7 launches per year in multiple orbit locations. SS/L currently has 22 satellites in backlog with many of these spacecraft able to accommodate hosted payloads. SS/L has multiple operators ready to partner at the appropriate program phase

Fast Access to Space: Hosted payloads can be integrated and launched within the typical commercial GEO satellite timeframe of 22 to 36 months. Depending upon the test requirements, hosted payloads can be received for satellite integration as late as 6-12 months prior to launch.

Fixed Cost: Hosted payloads benefit from the highly competitive Firm Fixed Price contracts typical of commercial satellites.

Heritage and Reliability: SS/L's 1300 bus is particularly well suited for hosted payloads and secondary missions because of its large size, high power and heat dissipation capability, as well as its standard interfaces and environments. With 50+ years of experience, SS/L has developed expert knowledge in building reliable communication satellites with 66 GEO satellites currently operating worldwide

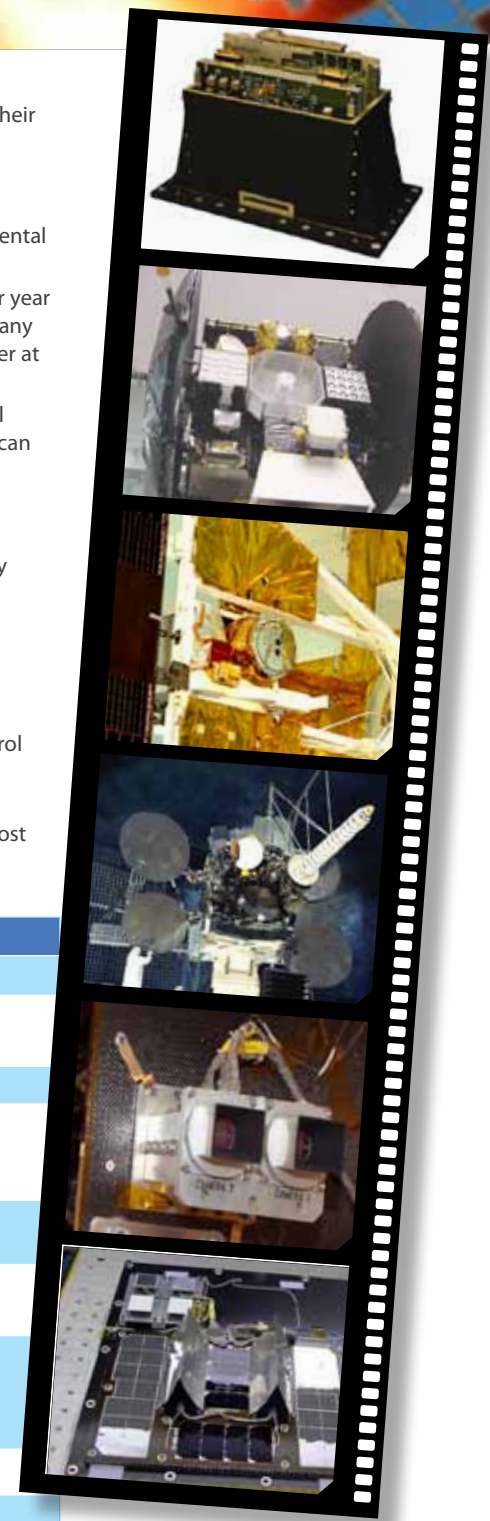
Data Downlink Options: Hosted payloads on a commercial communications satellite can benefit by leasing commercial services already on board the satellite in which to transmit data back to earth

Shared Operations: Hosted payloads take advantage of existing satellite operations facilities for control of the satellite and/or the hosted payload as needed

Payload Control Options: Command and control of the hosted payload can range from a completely dedicated and separate system operated by the hosted payload owner to being shared through the host satellite command and control system

SS/L Hosted Payload Experience

Name	Host Satellite	Host Satellite	Launch
SXI	Solar X-ray Imager for NASA	GEOS L & M	2000/01
UHF, X, Ka Comm	UHF, X, Ka-band Comm for Australian Defense Forces	Optus-C1	2003
Experiments	Various pallet experiments	Telstar-14	2004
Nav/Aviation Comm	Japan GPS augmentation and Air Traffic Control Communications	MTSAT-1/1R	2005
JAMI	Japan Meteorological Imager (Visible & IR)	MTSAT-1/1R	2005
X-band Comm	NATO configured X-band payload for Spain	XTAR-EUR	2005
IRMA	In-orbit Reconfigurable Multibeam Antenna, X-band receive phased array payload for XTAR	Spainsat	2006
CCD Camera	CCD visual cameras	Echostar-XI	2008
CCD Camera	CCD visual cameras	ICO-G1	2008
IRIS	Cisco Internet Router In Space	Intelsat-14	2009
Ka-Band Comm	Canadian Ka-band hosted payload	ViaSat-1	2011
X-band Comm	Commercial X-band payload for Military	Anik-G1	2012
EGNOS	European GPS Navigation Overlay System	SES Sirius-5	2012





GEO Comsats for Hosted Payloads / GEO Orbit Benefits

- Current and future science missions can use GEO hosted payload approach
- GEO offers unique temporal and spatial resolution
- GEO orbits allow continuous observations of the same geographic region
- Spatial and temporal changes can be distinguished
- Eliminate ambiguity inherent to observations from low Earth orbit (LEO)
- Near-global coverage can be provided with only three geostationary satellites (i.e. positioned to view Europe/Middle East/Africa, Asia/Australasia, and the Americas)

SS/L's Proven Heritage

- 10+ years experience with optical and communication hosted payloads on GEO Comsats
- Industry leader in commercial GEO satellite manufacturing
- 22 satellites currently in production, most of which can easily accommodate hosted payloads
- One of the highest satellite on-orbit availability in the industry
- Government contractor for over 50 years

Hosted Payloads with SS/L

Available Opportunities Now

- GEO Comsat owners, manufacturers, and payload developers are eager to pursue hosting opportunities now
- 22 satellites currently in production at SS/L, many of which can easily accommodate hosted payloads
- SS/L launches 5-7 satellites per year in multiple orbit locations

SS/L can provide:

- Concept development
- Winning proposal support
- Space Qualification / early development demos
- Spacecraft/payload level testing (i.e. dynamics, thermal, environments)
- Mission planning
- Launch and on-orbit operations support

SS/L 1300 Bus Capabilities for Hosted Payloads

	Small	Medium	Large	Yes We Can
Mounting Area	12" x 12" x 12" 1-2 Unit	24" x 24" x 24" 3-5 Units	36" x 36" x 36" 6-10 Units	> 36" x 36" x 36" Multiple Units
DC Power	< 100W	100 – 1000W	1 - 3kW	> 3 kW
Thermal	< 100W	100 – 500W	500 - 1kW	> 1 kW
Mission Link Data Rate	< 400 kbps	400K – 80Mbps	400K – 80Mbps	> 80 Mbps
Frequency of downlink	Continuously	Continuously	Continuously	Continuously
Commanding	< 1 Kbps	< 1 Kbps	< 2 Kbps	> 2 Kbps
Frequency of Commands	Once a month	Once a week	Daily	> Daily
Real TimeCmd/Tlm	Optional	Optional	Occasionally	Yes
Encryption	Optional	Optional	Optional	Optional
Field of View	Earth Disk, East/West, Sun, Deep Space	Earth Disk, East/West, Sun, Deep Space	Earth Disk, East/West, Sun, Deep Space	Earth Disk, East/West, Sun, Deep Space
Stability/Jitter	Std bus pointing	Std bus pointing	Std bus pointing / Optical Bench	Std bus pointing / Optical Bench

For more information, contact: Al Tadros at hostedpayload@ssd.loral.com
 Visit us on our website at http://ssloral.com/html/payload/hosted_payload.html

