SES-1, SES-2 and SES-3

Three Commercial Communications Satellites

Mission Description

The SES program consists of three virtually identical satellites, SES-1, -2 and -3, built for SES. The satellites, part of a 2007 contract for up to five similar satellites, are hybrid C- and Ku-band spacecraft that serve the CONUS and replace satellites currently in orbit. The satellites also incorporate a redundant Ka-band payload. In addition, the SES-2 satellite incorporated the Commercially Hosted InfraRed Payload (CHIRP) developed for the U.S. Air Force. A wide field of view sensor was integrated onto the satellite to validate missle warning technologies from geosynchronous orbit.

The GEOStar™ Advantage

Orbital ATK's highly successful Geosynchronous Earth Orbit (GEO) communications satellites are based on the company's GEOStar spacecraft platform, which is able to accommodate all types of commercial communications payloads and is compatible with all major commercial launchers. The company's GEOStar product line includes the GEOStar-2 design, which is optimized for smaller satellite missions that can support up to 5.0 kilowatts of payload power. Orbital ATK has also developed the higher-power GEOStar-3 spacecraft design, delivering the next increment of payload power for applications between 5.0 and 8.0 kilowatts, allowing Orbital ATK to offer its innovative and reliable satellite design to the medium-class of communications satellites.

FACTS AT A GLANCE

Coverage:
CONUS

Mission:
C- and Ku-band communications for North America, and Ka-band payload

Customer:
SES

SES-1 in Orbital ATK's Dulles, Virginia satellite manufacturing facility

SES-1, SES-2 and SES-3

Specifications

Spacecraft

Launch Mass:	3,152 kg (6,949 lb.)
Solar Arrays:	Four panels per array, UTJ Gallium Arsenide cells
Stabilization:	3-axis stabilized
Propulsion:	Monopropellant (hydrazine) on-orbit system
Batteries:	Two >4840 W-Hr capacity Li-Ion batteries
Mission Life:	15 years

Payload

Ku-band

Repeater:	Two groups of 16-for-12 linearized TWTAs
TWTA Power:	90 W RF
Antenna:	2.3 m dual grid shaped deployable reflector

C-band

Repeater:	Two groups of 16-for-12 SSPAs
SSPA Power:	20 W RF
Antenna:	2.3 m dual grid shaped deployable reflector

Ka-band

Repeater:	2-for-1 TWTA
TWTA Power:	39 W RF
Antenna:	Receive and transmit horns

Launch

SES-1:	Proton, April 24, 2010
SES-2:	Ariane 5, September 21, 2011
SES-3:	Proton, July 16, 2011

Mission Partners

SES

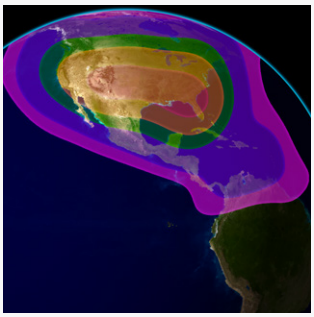
A leading global satellite operator providing a broad range of communications services

Orbital ATK

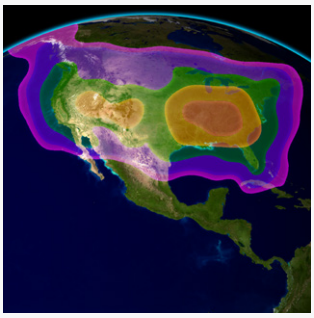
Prime contractor for the SES program

Coverage Contour Maps

C-band 101° West Longitude



Ku-band 101° West Longitude



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