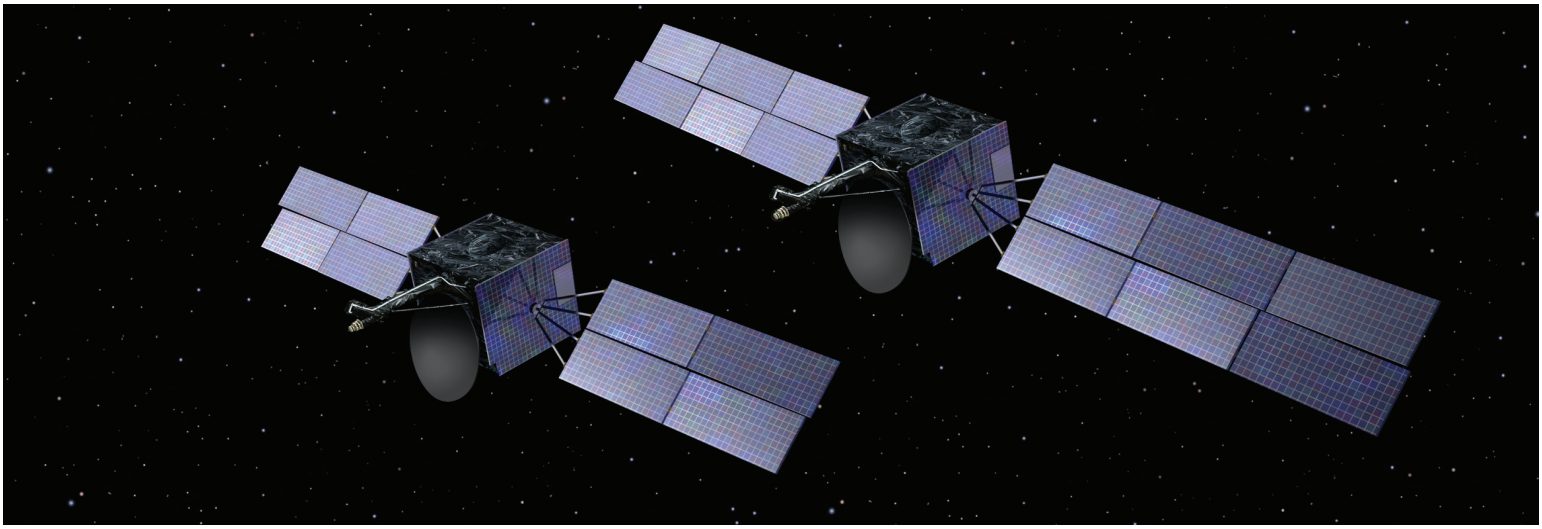
BSAT-2 Series

DTH Ku-band Commercial Communications Satellites

FACT SHEET



Mission Description

The BSAT-2 satellites were designed to provide direct-to-home digital high-definition television throughout Japan. Built for the Broadcasting Satellite System Corporation (B-SAT), these satellites relayed channels at higher resolution and in a wider-screen format than traditional analog systems.

BSAT-2a was launched March 8, 2001. BSAT-2b, an in-orbit backup to BSAT-2a was placed into an incorrect orbit by an Ariane 5 rocket in July 2001. Orbital ATK was awarded the contract to supply BSAT-2c, the replacement for BSAT-2b, in October 2001 and the satellite was launched June 11, 2003. The entire system, including the ground segment, was fully redundant, helping to ensure reliable television service.

Spacecraft

The BSAT-2 satellities are based on Orbital ATK's highly successful Geosynchronous Earth Orbit (GEO) communications satellites which are able to accommodate all types of commercial communications payloads and are 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:
Japan

Mission:
Ku-band digital broadcast satellite (DBS) for Japanese television

Customer:
(B-SAT)

BSAT-2 Series

Specifications

Spacecraft

Launch Mass:	1,317 kg (2,904 lb.)
Redundancy:	Full dual string
Solar Arrays:	Silicon panels
Stabilization:	3-axis momentum bias, nadir oriented, precise pointing
Propulsion:	Solid apogee kick motor, redundant liquid monopropellant system
Mission Life:	10 years (fueled for over 11.5 years)
Orbit:	110° East Longitude

Payload

Payload:	4-channel digital TV transmission repeater
Power:	4 of 8 130 W Ku-band conduction-cooled TWTAs amplify the four selected channels
Antenna:	2.2 m (7.2 ft.) offset focus-shaped reflector
Frequency:	Ku-band, Receive signal: 17.3-17.6 GHz, Transmit signal: 11.7-12.0 GHz

Launch

Launch Vehicle:	Ariane 5
Site:	Kourou, French Guiana
Date:	BSAT-2a: March 8, 2001 BSAT-2b: July 12, 2001* BSAT-2c: June 11, 2003

BSAT-2 Mission Update

The BSAT-2a spacecraft was launched from Kourou, French Guiana, on March 8, 2001. Following final test of the communications payload, the satellite was handed over to the customer on April 25, 2001 as planned.

BSAT-2c was launched from Kourou, French Guiana on June 11, 2003 and was placed in geosynchronous earth orbit at 110 degrees East Longitude collocated with BSAT-2a. Following the final test of the communications payload, the satellite was handed over to the customer and began commercial operations on July 15, 2003. BSAT-2a acted as an on-orbit backup to BSAT-2c.

In January 2013, BSAT-2a was deactivated and transitioned to a disposal orbit. The spacecraft exceeded its mission lifetime by nearly two years.

In August 2013, BSAT-2c was deactivated and transitioned to a disposal orbit.

* BSAT-2b placed into incorrect orbit by launch vehicle

Mission Partners

Broadcasting Satellite System Corporation (B-SAT)

Tokyo-based company founded by NHK, WOWOW and major private broadcasters of Japan

Orbital ATK

Prime contractor for BSAT-2 system, including in-orbit spacecraft payload provider and ground control stations

Arianespace

Launch provider

The BSAT-2 satellites were launched aboard Ariane 5 rockets from their launch site in South America near the equator.

BSAT-2a in production