



## COMMERCIAL AND GOVERNMENT SATELLITES INMARSAT-5



### DESCRIPTION & PURPOSE

Inmarsat-5 is comprised of four Boeing 702HP satellites providing Ka-band high-data-rate mobile communications services. The constellation is fully operational, with the first satellite launched in 2013, and the final satellite launched in 2017.

### CUSTOMER

Boeing has built three satellites and four payloads for Inmarsat since 1976. Marisat 1, 2 and 3 were three L- and C-band communications satellites built for the space segment of the world's first maritime system. Of the three Marisat satellites, all exceeded their contractual design life of five years and provided a combined 70 years of service.

The HS-356 spacecraft were launched in 1976 – one each on Feb. 19, June 9, and Oct. 14. The satellites were placed in geosynchronous orbit at 15 degrees west longitude, 176.5 degrees east longitude, and 72.5 degrees east longitude, respectively. Boeing also built the L-band payloads that launched on the four Inmarsat-2 satellites during the early 1990s and continue to operate without a single unit failure to date.

Following an order of three 702HP spacecraft in 2010, Inmarsat exercised an option for a fourth satellite in 2013.



### GENERAL CHARACTERISTICS

The satellites joined Inmarsat's fleet of geostationary satellites that provide a wide range of voice and data services through an established global network of distributors and service providers. Each Inmarsat-5 satellite carries 89 Ka-band beams that operate in geosynchronous orbit with flexible global coverage. The satellites are designed to generate approximately 15 kilowatts of power at the start of service and approximately 13.8 kilowatts at the end of their 15-year design life. To generate such high power, each spacecraft's two solar wings employ five panels each of ultra triple-junction gallium arsenide solar cells.

The Boeing 702HP carries the xenon ion propulsion system (XIPS) for all on-orbit maneuvering. The Inmarsat-5 satellites provide Inmarsat with a comprehensive range of global mobile satellite services, including mobile broadband communications for sea vessels, in-flight connectivity for airline passengers and streaming high-resolution video, voice and data. In a separate arrangement, Boeing also has entered into a distribution partnership with Inmarsat to provide L- and Ka-band capacity services to key users within the U.S. government. Leveraging Boeing's expertise in government environments and applications, the Inmarsat-5 satellites provide Inmarsat's customers with an array of secure voice and high-speed communications applications between land, sea and air services, and multinational coalitions. The Inmarsat-5 spacecraft is compatible with the Ariane, Sea Launch, Proton and Atlas launch vehicles.

## 702 BACKGROUND

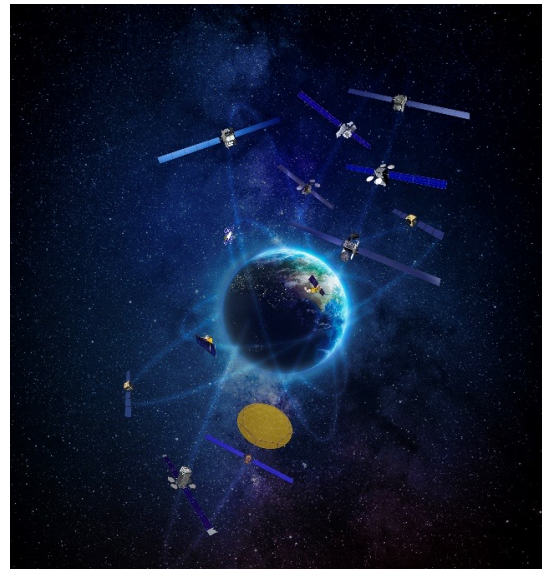
The scalable, flexible 702 product line is an orbit-proven platform that cost-efficiently serves a wide range of commercial and government customers. Boeing introduced the 702 spacecraft family in 1995, and today more than two dozen are on orbit, with almost a dozen more currently in production. The 702 family product line offers flexible designs supporting payload power levels from 3 to 25 kilowatts, meeting the needs of customers seeking satellites in wide power ranges.

## FLEXIBLE SATELLITES FOR GOVERNMENT AND COMMERCIAL OPERATORS

Boeing builds adaptable satellites to meet changing business cases and fulfill even the most demanding missions. We're well into our sixth decade of providing advanced space and communications systems for military, commercial and scientific uses.

Boeing satellites reliably deliver digital communications, mobile communications, broadband internet connectivity, streaming entertainment, and direct-to-home entertainment around the world.

We continue to invest in and create a continuum of products across all orbits to give customers tiered options based on size, weight and power, to deliver the capability they need to their end-users.



Artist rendering of Boeing satellites operating across all orbits

## MISSION ASSURANCE

Boeing's satellite systems business is located in El Segundo, Calif. The world's first geosynchronous communications satellite, Syncom, was built there by Boeing and launched in 1963. Since then, Boeing has delivered more than 300 satellites to more than 50 customers in more than 20 countries, and continues to design and build government and commercial satellites in its factory in El Segundo.



Exterior of Boeing Satellite Factory



High Bay



Thermal Vacuum



Payload Integration & Test

## STRONGER TOGETHER

In addition to Boeing's space capabilities, Spectrolab and Millennium are also a part of the Boeing team. Click on the company logos to learn more!



### MORE INFORMATION:

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