COMMERCIAL AND GOVERNMENT SATELLITES
O3B MPOWER

DESCRIPTION & PURPOSE

In Sept. 2017, SES ordered seven medium earth orbit (MEO) Boeing satellites. The O3b mPOWER satellites carry Boeing's most advanced digital payload. The fleet complements SES's existing MEO to deliver ubiquitous coverage, ultimate flexibility and massive throughput for SES Network's customers, serving dynamic and rapidly growing markets of mobility, fixed data and governments around the world.

CUSTOMER

SES is the world-leading satellite operator and the first to deliver a differentiated and scalable GEO-MEO offering worldwide. SES focuses on value-added, end-to-end solutions in two key business units: SES Video and SES Networks. The company provides satellite communications services to broadcasters, content and internet service providers, mobile and fixed network operators, governments and institutions. The satellites are controlled from the SES ground stations in Betzdorf, Luxembourg; Woodbine, Maryland; and Gibraltar, United Kingdom. For more information on SES: www.ses.com. The O3b mPOWER preliminary design review (PDR) was successfully completed in June 2018, and the critical design review (CDR) was successfully completed in July 2019. The first three satellites are targeted for launch in 2022.

Continuing a relationship spanning more than 25 years, SES, with this latest contract, has now ordered 25 satellites from Boeing. The O3b mPOWER satellites support the SES Networks business unit, which serves fixed data, mobility and government customers with high-performance data services. SES Networks is comprised of SES's existing data business and the recently acquired O3b Networks, the only operator of MEO satellites.

GENERAL CHARACTERISTICS & BACKGROUND

SES ordered its first satellite from Boeing, called Astra 1C, in late 1990; followed in late 1991 by an order for a second spacecraft, Astra 1D; in 1992 for Astra 1E; in 1993 for Astra 1F; in 1994 for Astra 1G; in 1995 for 1H; and in 1996 for 2A. In August 1999, SES ordered two new satellites, Astra 2C, a 601HP, and Astra 2D, a 376 model; followed by ASTRA 3A, another 376, in August 2000. In 2012, SES ordered SES-9, which was launched in 2016. SES-15, ordered in 2015, was launched in 2017. SES ordered an additional 4 satellites in 2019, and an additional two in the summer of 2020.

The full eleven-satellite fleet of O3b mPOWER satellites are built using electronics from the flight-proven Boeing 702 satellite platform, customized to support the unique MEO environment and mission requirements, including the ability to launch up to four spacecraft at a time, depending on launch vehicle. The constellation will have approximately 30,000 fully-shapeable and steerable beams that can be shifted and switched in real time to align with customers' quickly changing growth opportunities, making it a highly flexible and bandwidth-efficient system. O3b mPOWER will provide unrivalled coverage to an area of nearly 400 million square kilometres (approx. 154 million square miles).

702 BACKGROUND

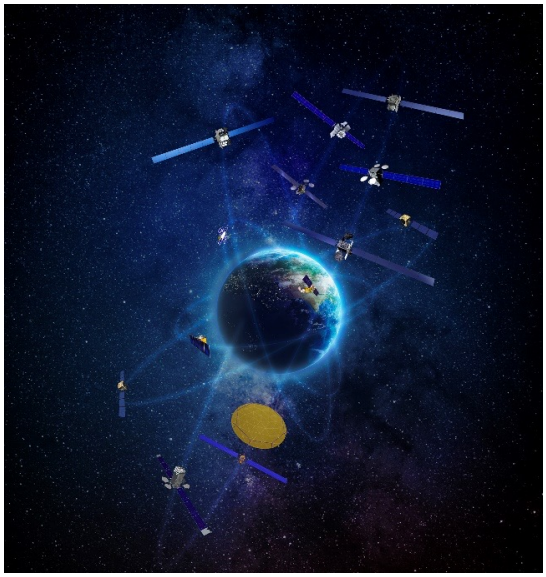
The scalable, flexible 702 product line is an orbit-proven platform that cost-efficiently serves a wide range of commercial and government customers. Boeing introduced the 702 spacecraft family in 1995, and today more than two dozen are on orbit, with almost a dozen more currently in production. The 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.

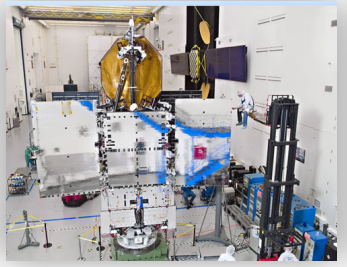


Artist rendering of Boeing satellites operating across all orbits

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!

MILLENNIUM SPACE SYSTEMS
A Boeing Company

SPECTROLAB
A Boeing Company

MORE INFORMATION:
LEARN MORE AT BOEING.COM/BOEING-SATELLITES.
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CONTACT:
COMMUNICATIONS: MEDIA@BOEING.COM
BUSINESS DEVELOPMENT:
BOEINGBD@EXCHANGE.BOEING.COM