



COMMERCIAL AND GOVERNMENT SATELLITES WIDEBAND GLOBAL SATCOM



DESCRIPTION & PURPOSE

The mission of the Wideband Global SATCOM (WGS) system is to provide broadband communications connectivity for U.S. and allied warfighters around the world. WGS is the highest-capacity military communications system in the U.S. Department of Defense arsenal, providing a quantum leap in communications capability for the U.S. military.

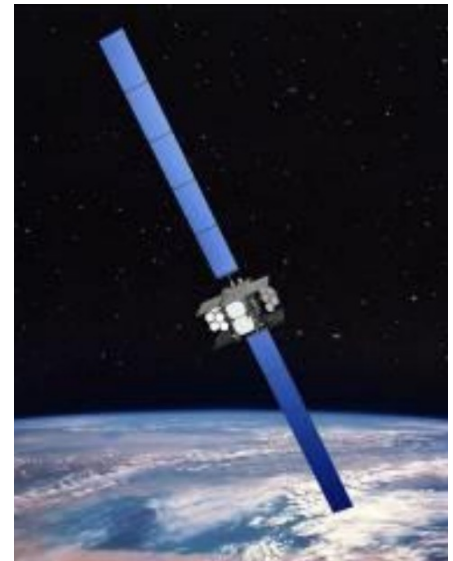
Boeing's investments in phased array antennas and digital signal processing, combined with innovations in the commercial satellite market, have resulted in a flexible WGS system that delivers the capacity, coverage, connectivity and control required by the most demanding operational scenarios.

CUSTOMER

The U.S. Air Force MILSATCOM Systems Directorate at Los Angeles Air Force Base (AFB) is the WGS customer. WGS-1 was originally placed into service over the Pacific Ocean Region in April 2008. WGS-2 was placed into service in August 2009, and WGS-3 went into operations in June 2010. WGS-4, the first in the Block II series, was placed into service over the Indian Ocean Region in August 2012. WGS-5 was placed into service in October 2013, and WGS-6 was placed into service in December 2013.

The Block II satellites include a Radio Frequency Bypass enhancement to allow broadband routing of data to bypass the digital channelizer for additional support to high-data-rate airborne intelligence, surveillance and reconnaissance (AISR) missions. WGS-7, the first of the Block II Follow-On series, was launched in July 2015. WGS-8 was launched in December 2016, and WGS-9 was launched in March 2017. The tenth WGS satellite was launched in March 2019. WGS-8, -9 and -10 feature an upgraded digital channelizer that nearly doubles the available bandwidth of each satellite.

In total, ten WGS satellites are now on orbit and are meeting or exceeding all operational requirements. Since the original contract start in 2001, the U.S. Air Force and Boeing developed and launched ten satellites in 16 years.



GENERAL CHARACTERISTICS

WGS is designed for coverage, capacity and connectivity, with each satellite designed for high-data-rate communications providing full-motion video and sensor data gathered from remote piloted aircraft; video teleconferencing among military leaders around the world; and critical communications for humanitarian efforts and deployed forces. Through frequency reuse and digital channelization, each WGS payload provides bandwidth-efficient communications to respond to evolving mission demands. Operating at both X-band and Ka-band, the system enables networks for tactical Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR). The dual-band system allows tens of thousands of users with military wideband terminals to operate seamlessly, anytime, anywhere. WGS is the backbone of U.S. Department of Defense satellite communications, providing more than 75% of tactical wideband communications.

702 BACKGROUND

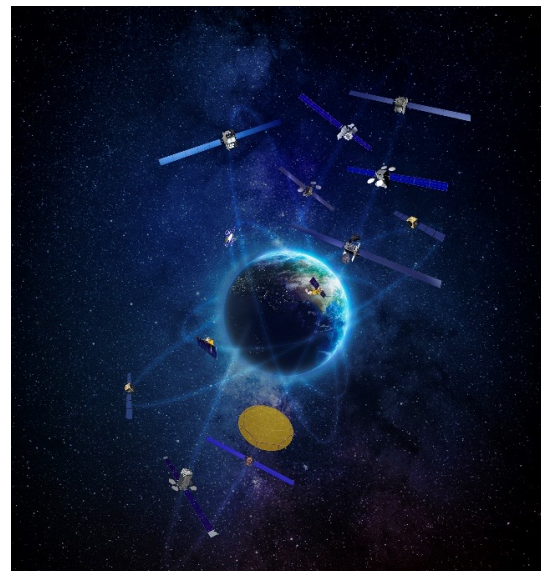
The scalable, flexible 702 product line is an orbit-proven platform that cost-efficiently serves a wide range of commercial and government customers. Boeing introduced the 702 spacecraft family in 1995, and today more than two dozen are on orbit, with almost a dozen more currently in production. The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



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