



## SATELLITE COMMUNICATIONS

From the ground to space and everywhere in between, Northrop Grumman is a leader in satellite communications. Our technology is connecting our world and keeping it safe. Northrop Grumman is leveraging decades of mission experience on orbit to tackle a wide range of emerging threats. Our space capabilities form the eyes, ears and nervous system of the connected battlespace, securely delivering the right information to the right place, at the right time.

### COMMERCIAL COMMUNICATIONS

Global, regional and national satellite communications service providers rely on our affordable, flight-proven satellites for

their broadband, television broadcasting, mobile communications, business data networks and other telecommunications missions.

### GEOSTAR™ PLATFORM

- Among the industry's best small- and medium-class communications satellites for 2-8 kW missions
- Able to launch in a stacked configuration with multiple launch providers
- Economical choice for the small to medium market
- Demonstrated benefits for Broadcast Satellite Services (BSS), Fixed Satellite Services (FSS), High-throughput satellite (HTS), and other mission capabilities
- 47 satellites delivered to date

### ESPASTAR™ PLATFORM

- Provides a modular, cost-effective and highly capable infrastructure for hosting technology development and operational payloads
- Provides users with rapid access to space by allowing payload integration at the launch site. The standard payload interface allows for payload interchangeability, late payload integration and manifest changes
- Six payload ports capable of accommodating any combination of up to six hosted and 12 separable payloads
- Suitable for GEO, LEO and MEO missions. Capable of deploying payloads to precise orbital locations



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## LEADERS IN MILITARY SATCOM

The 21st century battlefield demands the kind of global connectivity that only military satellite communications can provide. Thousands of nodes must be networked and share assured, time-critical information through the full spectrum of operations from peacetime to crisis to conflict.

With more than 40 years of on-orbit experience, we have the mission-informed modeling, simulation, and technology to meet, analyze, and overcome emerging threats in space.

## WE ARE THE LEADERS IN:

Protected, low probability of intercept and detection, anti-jam satellite communications.

- Proliferated architectures
- End-to-end systems engineering
- Ground systems
- Bus and payload design, production, and integration
- Architecture design

## HERE IS HOW NORTHROP GRUMMAN IS DEFINING POSSIBLE IN MILSATCOM:

### PROTECTED TACTICAL SATCOM (PTS)

Northrop Grumman's Protected Tactical SATCOM rapid prototype will give users seamless, near real-time connectivity even in the face of the world's most sophisticated jamming threats.

For those on the front lines of America's interests, protected communication with PTS is simple. Even in extremely close proximity to a jamming source, Northrop Grumman's system and on-board processor create unique communications pathways to overcome jamming without giving away the user's position.

For the forward-deployed operator, it's that straightforward: It just works.

### EVOLVED STRATEGIC SATCOM (ESS)

Assured strategic satellite communications—a no-fail mission that requires a no-fail capability—are part of the foundation of our nation's nuclear deterrence. No company can claim greater mission expertise in this area than Northrop Grumman, and we know what it takes to deliver.

Building off our heritage as the mission payload provider for Advanced Extremely High Frequency System, Northrop Grumman is executing a Rapid Prototype contract to develop and build a modernized EHF Extended Data Rate payload. With DoD, we are defining a resilient architecture to confront emerging peer adversary threats.

### ARCTIC SATELLITE BROADBAND MISSION (ASBM)

ASBM is a groundbreaking partnership between Northrop Grumman, Space Norway and Space Systems Command that is extending the constellation that aims to deliver broadband communications to the Northern polar region.

Northrop Grumman is leveraging nearly every part of our Space enterprise to bring this mission to fruition, providing the bus (GEOStar), the ground system (Enhanced Polar System Control and Planning Segment) and a critical payload that features the first use of a strategic communications capability on a commercial bus (EPS Recapitalization).

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