

NAVIGATION TECHNOLOGY

SATELLITE – 3 (NTS-3)

Transforming positioning, navigation and timing (PNT) for the 21st century warfighter

Accurate, uninterrupted PNT technology is critical to the safety and mission success of our nation’s warfighters. In fact, combat aircraft, warships, weapon systems and soldiers on the ground all rely on PNT – making it a prime target for adversaries. Our resilient, end-to-end NTS-3 mission solution is designed to defeat the threat that contested, degraded and denied PNT poses to the nation’s security.

ABOUT NTS-3

The NTS-3 Vanguard is the first U.S. integrated satellite PNT experiment in almost 50 years. It will provide an on-orbit demonstration of game-changing PNT technologies and techniques in the space, ground control and user equipment system segments. The planned experimental campaign will explore capabilities and concepts of operations (CONOPS) that enhance U.S. and ally warfighter mission success in contested, degraded and denied environments. NTS-3 will also demonstrate the value of multilayer resiliency and prove critical technologies engineered to protect, defend and modernize PNT in an increasingly contested space domain.

L3HARRIS’ ROLE

L3Harris is the prime contractor of NTS-3 responsible for:

- > The design, development, integration and test of the NTS-3 space vehicle
- > Launch vehicle, ground control and user segment integration support
- > On-orbit operations support

L3Harris will also deliver novel ground mission applications for the cloud-based, Enterprise Ground Services-compatible ground control system. Together with software-defined user equipment developed by the Air Force Research Laboratory, this system demonstrates a resilient, multilayer geosynchronous augmentation to GPS designed to ensure U.S. freedom of operations across domains.



BENEFITS

- > Protects, defends and modernizes the PNT capabilities our nation’s warfighters rely on every day
- > Enhances the mission success of U.S. and allied forces in contested, degraded and denied environments
- > Minimizes the effectiveness and impact of adversary GPS jammers
- > Enables new techniques to combat current and evolving threats to PNT
- > Helps ensure U.S. freedom of operations by demonstrating the value of a robust, resilient, multilayer augmentation to GPS
- > Unlocks advanced CONOPS
- > Uses commercial-off-the-shelf technology and industry standards to accelerate schedule and provide cost savings
- > Effectively supports multiple operations over a wide geographical area by enabling operators to independently plan, configure and control Earth-coverage beams and high-power regional spot beams
- > Uses technology that is reprogrammable and can be hosted on diverse platforms, in varied orbits and with minimal changes

NTS-3: GIVING GPS A LOYAL WINGMAN

NTS-3 will on-orbit test innovative technologies to enhance the stability, availability, integrity and accuracy of military PNT capabilities.

ACTIVE ELECTRONICALLY STEERABLE PHASED ARRAY (AESA)

The NTS-3 AESA provides simultaneous transmission of Earth-coverage beams and independently configurable high-power regional beams. This enables custom responses across diverse areas of operation. The AESA provides warfighters on the ground with spot beams that have significantly more power to minimize the effectiveness of adversary GPS jamming and spoofing.

MODULAR, SCALABLE BUS-AGNOSTIC PAYLOAD

NTS-3 leverages industry standards along with commercial form factors and interfaces to provide a modular, scalable and host-agnostic payload. This size, weight and power (SWaP)-optimized approach provides launch flexibility by supporting both rideshare and multi-space-vehicle launch opportunities.

HOSTED PAYLOAD PROCESSOR (HP2)

The HP2 controls the payload, clocks and Cion and interfaces with the bus to process uploads from the ground. It also provides payload health and status data. The HP2 enables resilient and dependable operation in contested environments by autonomously detecting and correcting clock anomalies and enabling autonomous operation if there are extended periods without ground contact.

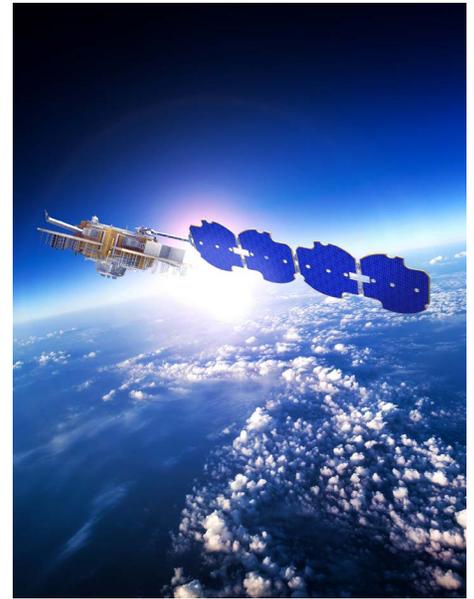
CION ANTENNA/RECEIVER

The Cion receiver enables autonomous navigation by processing Space Service Volume (SSV) data from the medium Earth orbit GPS constellation. This helps coordinate signals with the GPS constellation and allows uninterrupted service during station keeping to improve overall availability. The Cion is fully reprogrammable on orbit and can use SSV signals from multiple global navigation satellite systems.

AGILE WAVEFORM PLATFORM (AWP)

The AWP is composed of enhanced signal processors (ESPs) and ground mission applications (GMA). ESPs support new signal types with unprecedented flexibility to enable advanced CONOPS. This capability ensures our warfighters have the best answer against current dynamic threats. It also future-proofs against next-generation adversary threats. GMA is a suite of cloud-based mission applications. It allows operators to independently plan, configure and control Earth-coverage and regional spot beams and signals to effectively support multiple operations over a wide geographical area.

To learn more visit: L3Harris.com/nts-3



L3Harris is proud to be the prime system integrator for NTS-3 – making PNT technology as resilient, agile and reliable as the warfighters who depend upon it.

Navigation Technology Satellite – 3 (NTS-3)

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Nonexport-Controlled Information

L3Harris Technologies is an agile global aerospace and defense technology innovator, delivering end-to-end solutions that meet customers' mission-critical needs. The company provides advanced defense and commercial technologies across air, land, sea, space and cyber domains.



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