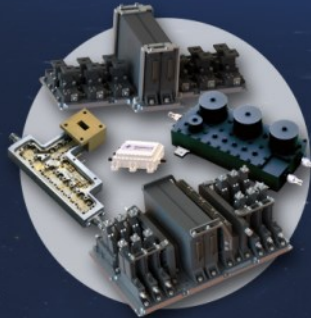


# POWERING the Future of Satellite Communications



Microwave Power Modules (nanoMPM<sup>®</sup>) & Solid State Power Amplifiers (SSPAs)



Active & Passive Components

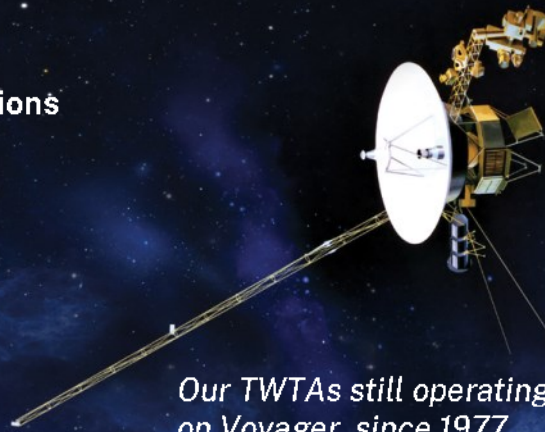


Xenon Ion Propulsion System (XIPS<sup>®</sup>)



Traveling-Wave Tube/Amplifiers (TWTs & TWTAs)

- Satellite Communications
- Electric Propulsion



*Our TWTAs still operating on Voyager, since 1977.*

TWTs in Orbit: > 4700  
Operating Hours: 340 million

TWTAs in Orbit: > 4000  
Operating Hours: 280 million

The ONLY vertically integrated Space Traveling-Wave Tube Amplifier (TWTAs) supplier in the world.

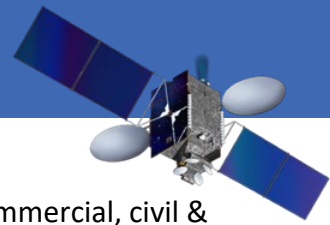
The ONLY manufacturer of Space-qualified Traveling-Wave Tubes (TWTs) in the USA.

MADE IN USA



**Together, We Can Go Farther.**

SPACE



## OVERVIEW

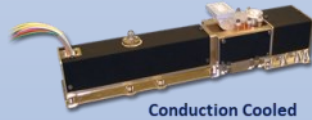
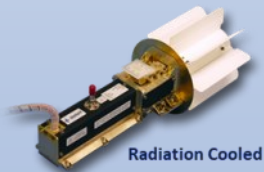
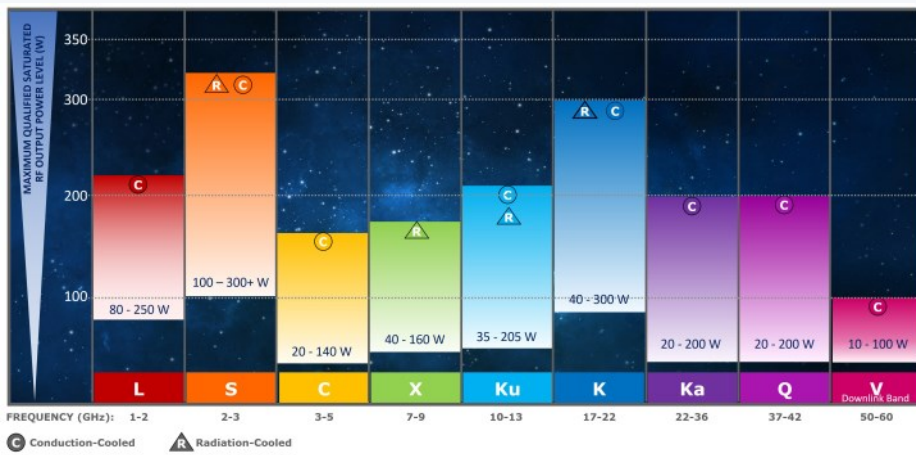
Stellant has provided satellite communication solutions for over 60 years in support of commercial, civil & military satellite and deep space missions. We are uniquely positioned to perform all Traveling-Wave Tube (TWT), Electronic Power Conditioner (EPC) and Traveling-Wave Tube Amplifier (TWTA) design, development, manufacturing, integration and test functions in one fully integrated facility.

### TRAVELING-WAVE TUBES (TWTs)

We have over six decades of experience and the widest bandwidth range of TWTs in the industry. From L- to V-Band with output power up to 330 W.

**In Orbit: > 4700**

**Operating Hours: 340 million | Spot FIT Rate: < 50**



### ELECTRONIC POWER CONDITIONERS (EPCs)

Our EPCs transform regulated/unregulated satellite bus voltage into the high voltages required for specific TWT/ TWTA requirements.

We have designed, manufactured, and delivered models with TWTA output power levels ranging up to 330 W and frequencies from L- to V-band.



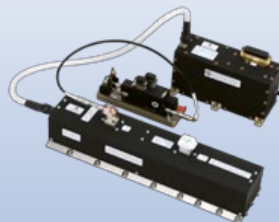
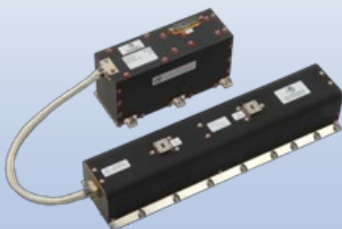
**From L- to V-Band and output power up to 330 W**

### TRAVELING-WAVE TUBE AMPLIFIERS (TWTAs)

Originally developed to meet the transmission needs of space missions, Stellant's traveling-wave tube amplifiers (TWTAs) are small-size, low-mass, high-frequency, high-reliability amplifiers with unprecedented output power, bandwidth, and efficiency. The key to a higher throughput satellite for operators is a high-power, wideband downlink signal.

**In Orbit: > 4000**

**Operating Hours: 280 million | Spot FIT Rate: < 100**



## SPACE QUAD NANOMPM® (MICROWAVE POWER MODULE)

Our K-/ Ku-Band Space Quad nanoMPM® is a state-of-the-art RF power amplifier for use in satellite downlink applications. This product delivers the ultimate performance by leveraging the best of solid-state and TWT vacuum technology. It is specifically designed to enable the next generation of software-defined satellites utilizing phased-array antennas for increased flexibility while on-orbit.

This amplifier utilizes a high-gain pre-distortion solid-state linearizer, four wideband high-power mini-TWTs, and a proprietary compact nanoMPM® EPC.

### Performance Specifications

- \* Frequency: 17.3 to 21.2 GHz or 10.7 to 12.75 GHz
- \* Output Power: 60 Watts
- \* Linear Output Power: 30 Watts
- \* Nominal Input Power for Linear Operation: -24 dBm
- \* Efficiency @ 15 dB NPR: 35%
- \* DC Voltage: 100 VDC



## ELECTRIC PROPULSION

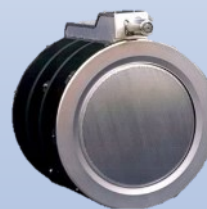
### XENON ION PROPULSION SYSTEMS (XIPS®)

Stellant has been a world leader in the development and production of Xenon Ion Propulsion Systems (XIPS®) for more than 60 years.

Stellant currently has more than 150 25-cm ion thrusters in orbit.

### Key Features

- \* Space qualified, high-reliability
- \* Produces thrust 10X more efficiently than conventional chemical combustion
- \* Reduces spacecraft onboard propellant requirement by 90%



25 cm  
XIPS® Thruster



25 cm  
XIPS® Power Processing Unit

## ACTIVE & PASSIVE RF COMPONENTS

We are a trusted partner for RF, microwave and millimeter-wave components and subsystems, serving global connectivity and security challenges. With decades of space heritage expertise, advanced design and manufacturing capabilities, Stellant Systems is poised to support market needs and critical application of our customers.

### UHF to V-Band

#### Space-Qualified Products & Services

##### \* Active Components

- Solid State Power Amplifiers (SSPAs), including GaAs/ GaN technology-based
- LCAMPs – Linearized Channel Amplifiers
- LNAs – Low Noise Amplifiers
- Converters - Stand-alone up and downconverters

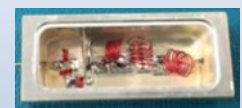
##### \* Passive Components

- Filters, Couplers, Multiplexers, Equalizers
- Power Dividers & Combiners
- Beam Forming Networks

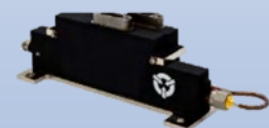
- \* IMAs & MFAs – Integrated Microwave and Multi-Function Assemblies
- \* Build-to-Print chip-and-wire hybrid assemblies
- \* Environmental up-screening of products to space/ MIL-STD requirements



Ku-Band SSPA

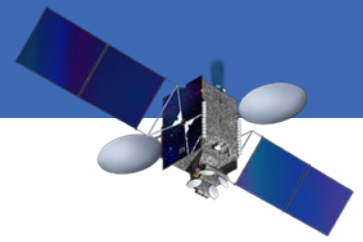


Lumped Element Filter



LCAMP

# Together, We Can Go Farther!



Stellant Systems is a partner for civil, military, and commercial organizations whose missions seek to ensure a safe, aware, and connected world.

We are a premier manufacturer of critical spectrum and power amplification systems for defense, space, medical/scientific and industrial customers worldwide.

## History of Innovation

Our business started as Charles Litton's Engineering Laboratories in 1932 (Redwood City, CA) and Howard Hughes Microwave Tube division in 1959 (Culver City, CA).

Along the way, there have been multiple acquisitions and consolidation of divisions that operated under larger organizations such as Sylvania, Loral, GM Hughes, Sperry, GE, RCA, Raytheon & L3Harris—to name a few.

This heritage is preserved and continues today as Stellant Systems.

## Our Business

- \* Approximately 800 employees
- \* 3 manufacturing facilities — all ISO 9001:2015, AS9100:2016, DCMA certified
- \* ONLY Vertically Integrated Space TWTA supplier in the world
- \* ONLY manufacturer of space-qualified TWTs in the USA



[StellantSystems.com](http://StellantSystems.com)



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