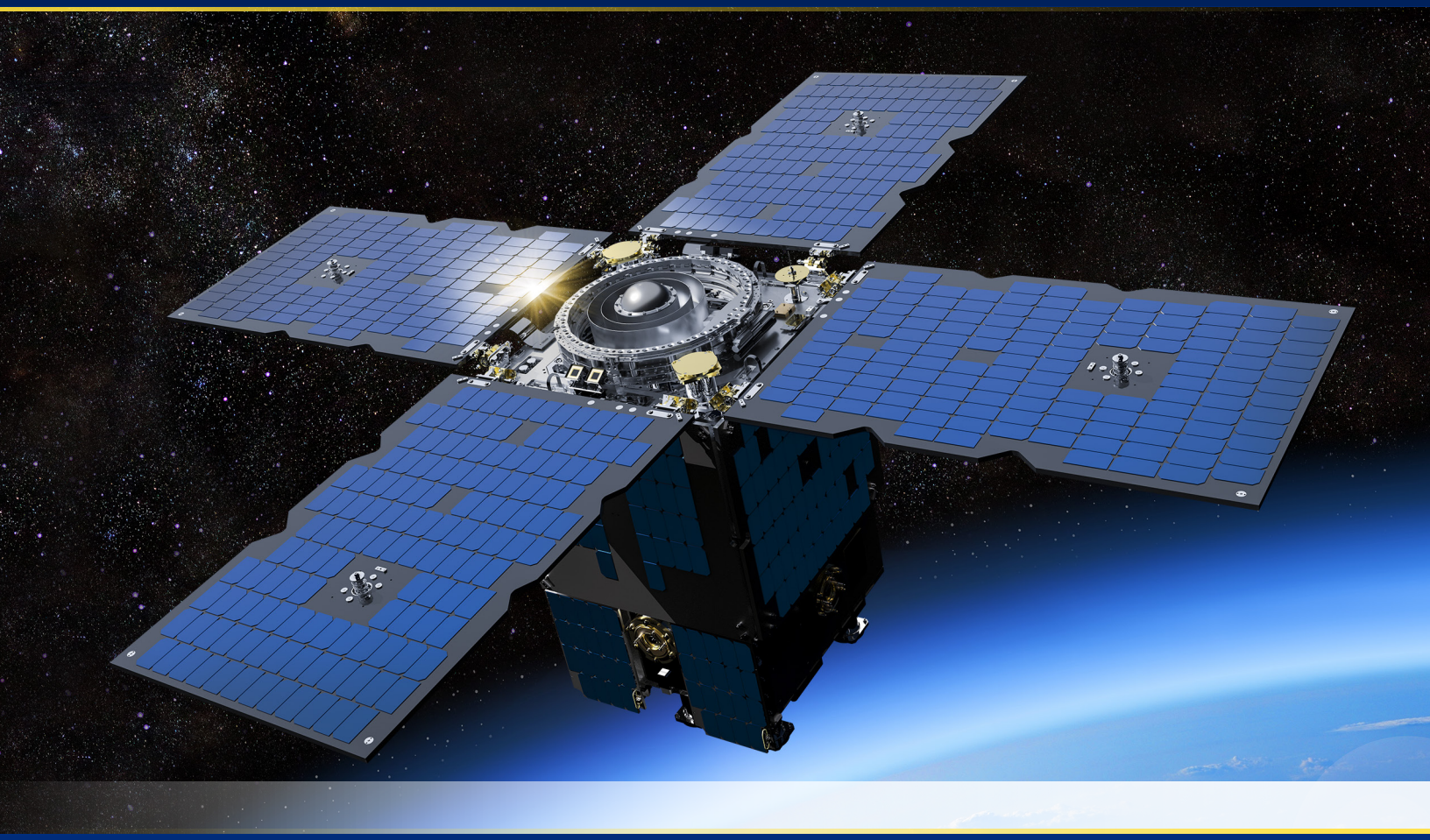
OTB

ORBITAL TEST BED SATELLITE



General Atomics Electromagnetic Systems (GA-EMS) Orbital Test Bed (OTB) satellite represents a new paradigm for hosted payload platforms. OTB provides an innovative, cost-efficient design for the simultaneous launch of multiple demonstration payloads validating new space technologies on-orbit.

GENERAL ATOMICS
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OTB PLATFORM OVERVIEW

The flexible, modular, and scalable architecture of the OTB platform is designed to be optimized for high performance missions in Low Earth Orbit (LEO) and a broad range of payloads. OTB's versatility enables the simultaneous launch of multiple payloads on a single platform, offering a more cost-effective solution to meet a wide variety of government, commercial, and academic technology demonstration requirements.

SATELLITE DATA

Mission:	Hosted payload, technology demonstration
Mass:	139 kg
Dimensions:	Solar Panels Stowed: 609 mm x 629 mm x 980 mm Solar Panels Deployed: 1442 mm x 2462 mm x 975 mm
Orbit Average Power:	150W
Orbit:	720 km circular altitude, 24° inclination

LAUNCH DATA

Launch Date:	2019
Launch Vehicle:	U.S. Air Force Space Technology Program (STP 2), SpaceX Falcon Heavy
Launch Vehicle Payload Adapter:	ESPA ring
Launch Site:	Kennedy Space Center, Florida

OTB PAYLOAD DATA

Deep Space Atomic Clock (DSAC)

DSAC is a miniaturized, ultra-precise mercury-ion atomic clock that, while hosted on OTB, will launch to Earth orbit to demonstrate its functionality and utility for one-way-based navigation. DSAC will perform a year-long demonstration to provide the time and frequency stability needed for the next generation of deep space navigation and radio science missions, and potentially for future global positioning systems. DSAC was developed by the California Institute of Technology's Jet Propulsion Laboratory (JPL) for NASA's Space Technology Mission Directorate's Technology Demonstration Missions Program.

Modular Solar Array (MSA)

MSA demonstrates flight readiness of a standardized modular approach to solar panels, with the ability for modules to be quickly replaced during final satellite testing prior to launch. MSA was developed by Alliance Spacesystems for the U.S. Air Force Research Laboratory (AFRL) in Albuquerque, NM.

Integrated Miniaturized Electrostatic Analyzer (iMESA-R)

iMESA-R is a sensor that samples the space environment to find plasma irregularities that may forecast outages in space weather models. This payload was developed by cadets at the U.S. Air Force Academy in Colorado Springs, CO.

RadMon

RadMon is a next-generation radiation effects monitor that collects data on the space radiation environment for correlation with other sensors and future mission applications.

FlexRX

FlexRX is a next-generation programmable satellite receiver, an enhanced version of a legacy device flown on numerous earlier missions. It will undergo on-orbit test, demonstration and qualification to enable use on future missions.

Celestis

The Celestis payloads carry cremated remains into orbit where they will remain until harmlessly vaporizing when the spacecraft re-enters the atmosphere.

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