Emtech Space

# In-Orbit Demonstration & Validation Mission Support

## Proposal & Funding

Securing the necessary capital, stakeholder alignment, and initial regulatory strategies required to greenlight the mission.

## Mission Conceptualization

Defining the core objectives, payload requirements, orbit class, and fundamental system constraints of the spacecraft.

## Mission Analysis & Design

Engineering the technical blueprints, including orbital mechanics, power/link budgets, coverage analysis, and launch windows.

## ITU Licensing & Regulatory

Managing frequency coordination, spectrum filings, and national authorizations to ensure legal and interference-free communications.

## Development & AIT

Building the hardware and software, integrating subsystems, and conducting rigorous environmental and functional testing.

## Ground Segment & Operations

Setting up ground stations, configuring mission control and TT&C systems, and training the operations team.

## Launch Campaign

Finalizing launch contracts, managing interface controls, preparing the launch site, and completing the readiness review.

## LEOP & Commissioning

Executing early orbit operations, stabilizing the platform, activating payloads, and establishing a performance baseline.

## IOD/IOV Campaign

Validating the technology in real space conditions to advance its Technology Readiness Level (TRL) and disseminate data.

## End-of-Life & Disposal

Safely decommissioning the spacecraft through passivation, deorbit maneuvers, and closing out regulatory filings.

# Specifications*

Covering the entire mission lifecycle from conceptualization, feasibility analysis, and design to development, environmental testing, and operations.

### Conceptualization

This phase establishes the foundation for all subsequent design, development, and operational decisions.

- Mission rationale
- Stakeholder alignment
- Funding acquisition
- Regulatory strategy

- Objectives definition
- Payload selection
- Orbit class selection
- System constraints

### Mission Analysis

Mission analysis ensures alignment between mission objectives and achievable performance within the operational and regulatory environment.

- Orbital parameters
- Ground contact opportunities
- Coverage requirements
- Launch feasibility
- Link & power budgets
- Coverage analysis
- Launch window

### Development

**Engineering and integration:**

- Hardware assembly
- Subsystem configuration
- Software implementation.

### Validation

**Assembly, Integration, Testing**

- Functional verification
- Interface validation
- Environmental qualification (vibration, thermal vacuum)
- Deployment testing

### Operations

**In-orbit operations:**

- Launch and Early Orbit Phase
- Commissioning
- Nominal operations
- Anomaly resolution
- Payload tasking
- End-of-life deorbit
- Passivation procedures

### ITU Licensing

**Preparation and management** of regulatory filings for frequency allocation and spectrum coordination in accordance with ITU and national regulations.

- Technical Documentation
- Spectrum filing & frequency coordination
- Interference analysis
- Coordination with other spectrum users
- National authorizations
- Support throughout the licensing and registration process to ensure legal and interference-free satellite operations.

### IOV/IOD Prime Contractor

We serve as a prime contractor or technology validation partner, providing

- In-orbit validation & technology demonstration
- Simulation tools & Mission design
- Operational support to accelerate TRL advancement

**Incorporating**

- Subsystem interactions
- Power budgets
- Attitude dynamics
- Communication links
- Environmental conditions.

### Launch

**Launch services:**

- Manifest / launch booking & contract setup
- Launcher interface control
- Mechanical, electrical, & launch site prep & integration
- Launch readiness review
- Deployment procedures.

*Contents are subject to change without prior notice.

## Contact us

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