IAF SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Future Space Transportation Systems Verification and In-Flight Experimentation (6)

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THE EXPLORATION COMPANY'S MISSION POSSIBLE FLIGHT

Abstract

Mission Possible, launching as a rideshare payload in summer 2025, is The Exploration Company's (TEC) second mission focused on demonstrating recoverable spacecraft capsule technologies. This mission serves as a pathfinder for Nyx Earth, a reusable capsule designed for servicing the International Space Station (ISS) and future Commercial Low Earth Orbit Destinations (CLDs).

Beyond its demonstration objectives, Mission Possible will carry a diverse range of payloads, including both passive and powered experiments. The mission also aims to validate hypersonic entry models and thermal protection materials, contributing to advancements in atmospheric re-entry technology. With a payload capacity of up to 300 kg, Mission Possible introduces a new class of recoverable orbital test platforms, supporting technology maturation through flight demonstration and experiment recovery. The platform offers both pressurized and unpressurized payload accommodations, enabling small spacecraft developers to test and refine their systems in an operational space environment.

This presentation will provide an overview of the Mission Possible flight objectives, mission architecture, and operational considerations. Additionally, it will highlight how payloads onboard the mission are contributing to scientific advancements and technology readiness, further solidifying the role of recoverable spaceflight in future commercial and research applications.