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Author: Mr. Michael Sarafin
National Aeronautics and Space Administration (NASA), United States

EXPLORATION MISSION FLIGHT TEST OPERATIONS OVERVIEW

Abstract

NASA's deep space exploration system is currently on track to enable human exploration of our solar system including the operations in the vicinity of the Moon, Mars and destinations beyond. The Orion deep spacecraft and Space Launch System (SLS) rocket are currently in the production and test phase. Together they will act as one system and serve as foundational elements for upcoming deep space human exploration by transporting both humans and cargo far from our home planet, on into deep space, sustain our astronauts in that harsh but beautiful void and safely return them back to Earth.

This paper would present an overview of inaugural flight test operations that will introduce NASA's new deep space exploration system during Exploration Mission One (EM-1) and Exploration Mission Two (EM-2). The Exploration Mission flight test operations overview will map out the overall uncrewed EM-1 and crewed EM-2 missions, then break down them down into individual flight phases. The flight phase discussion will cover day of launch operations including terminal countdown, the launch phase through Earth orbit and trans-lunar injection, flight operations including spacecraft separation and lunar transit, cis-lunar operations and deep space systems check-out, trans-Earth return, direct entry, descent, landing ending with flight crew and spacecraft recovery operations.

Throughout this talk a select number of individual people and their teams will be highlighted to represent the thousands of engineers and technicians making progress every day towards deep space human exploration. Through this talk the presenter will bring to life these people by outlining the challenges they expect to face together as we plan daring flight tests into a hostile environment. An open dialogue of questions and answers with the audience would follow.