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SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Heavy lift launchers capabilities and new missions (8)

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LARGE SCALE TESTING FOR THE SPACE LAUNCH SYSTEM

Abstract

With the retirement of NASA's Space Shuttle, NASA is moving the United States is moving toward developing a heavy lift capability to support deep space exploration. This capability is called the Space Launch System (SLS). The SLS will be developed over the next 5-7 years. During the development affordability is a key figure of merit (FOM) that will be used to manage the cost of the SLS. NASA will have to look their own processes and at the way it works with industry to revise them in a way that the development and operations costs are minimized. As any new vehicle is developed many major tests are required to certify the vehicle is ready for operations. Traditionally these include large scale integrated tests such as a Main Propulsion Test Article (MPTA) test, Integrated Vehicle Ground Vibration Tests (IVGVT) and various engine and structural tests and even possible flight tests.

NASA will be taking a hard look at the need for many of the integrated tests currently required for its programs and making cost/benefit trades on specific tests. This will require that NASA accept marginal risks in certain areas while hopefully reducing costs substantially.

This paper will examine the plans NASA has for large scale testing of an integrated system. It will discuss the planned tests and why each are considered necessary by the typical NASA development process. Then it will describe the decision making path to determine what tests remain in the program and what tests are not required. Rationale will be provided for those removed from the plan and a description of the process required to obtain the customer's acceptance of the additional risk. For those tests remaining a discussion of why these tests are considered critical will be provided. Additionally the goals and objectives of any flight tests identified as necessary will also discussed.