

Integrated System Health Management (ISHM) Implementation in Rocket Engine Testing

Fernando Figueroa, NASA Stennis Space Center, MS.

Jon Morris and Mark Turowski, Jacobs Technology, Stennis Space Center, MS.

Richard Franzl, Smith Research Company, Stennis Space Center, MS.

Mark Walker, Ravi Kapadia, and Meera Venkatesh, General Atomics, San Diego, CA.

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ABSTRACT

A pilot operational ISHM capability has been implemented for the E-2 Rocket Engine Test Stand (RETS) and a Chemical Steam Generator (CSG) test article at NASA Stennis Space Center. The implementation currently includes an ISHM computer and a large display in the control room. The paper will address the overall approach, tools, and requirements. It will also address the infrastructure and architecture. Specific anomaly detection algorithms will be discussed regarding leak detection and diagnostics, valve validation, and sensor validation. It will also describe development and use of a Health Assessment Database System (HADS) as a repository for measurements, health, configuration, and knowledge related to a system with ISHM capability. It will conclude with a discussion of user interfaces, and a description of the operation of the ISHM system prior, during, and after testing.