Common Data Acquisition Systems (DAS) Software Development for Rocket Propulsion Test (RPT) Test Facilities

I. ABSTRACT TITLE
Common Data Acquisition Systems (DAS) Software Development for Rocket Propulsion Test (RPT) Test Facilities

II. ABSTRACT
The advent of the commercial space launch industry and NASA’s more recent resumption of operation of Stennis Space Center’s large test facilities after thirty years of contractor control resulted in a need for a non-proprietary data acquisition systems (DAS) software to support government and commercial testing. The software is designed for modularity and adaptability to minimize the software development effort for current and future data systems. An additional benefit of the software’s architecture is its ability to easily migrate to other testing facilities thus providing future commonality across Stennis. Adapting the software to other Rocket Propulsion Test (RPT) Centers such as MSFC, White Sands, and Plumbrook Station would provide additional commonality and help reduce testing costs for NASA. Ultimately, the software provides the government with unlimited rights and guarantees privacy of data to commercial entities.

The project engaged all RPT Centers and NASA’s Independent Verification & Validation facility to enhance product quality. The design consists of a translation layer which provides the transparency of the software application layers to underlying hardware regardless of test facility location and a flexible and easily accessible database. This presentation addresses system technical design, issues encountered, and the status of Stennis’ development and deployment.

III. SESSION (S) (REFER TO THE “CALL FOR PAPERS” FOR SESSION DESCRIPTIONS & INDICATE THE PRIMARY SESSION THAT MOST IDENTIFIES WITH THE WORK. PRIORITIZE THE SESSIONS, UP TO 3 USING THE FOLLOWING SCALE:

PRIMARY SESSION = 1, SECONDARY SESSION = 2, ALTERNATE SESSION = 3)

☐ Integrated Developmental and Operational Test & Evaluation  ☐ Strategies and Methodologies
☐ Testing Challenges for Space Exploration  2  Innovations in Test Facilities and Equipment
☐ Test and People Management  1  Instrumentation, Data Acquisition, and Evaluation
☐ Test Effectiveness and Standards  3  Modeling, Analysis, and Simulation
☐ Ground Segment Test  ☐ Flight Software System Integration and Test

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Celebrating Four Decades of the Aerospace Testing Seminar

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IV. COMMENTS (PLEASE LIST AN ALTERNATE CONTACT AND ANY ADDITIONAL COMMENTS)
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