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Insuring Quality and Safety in a Cost Constrained Environment: Which Trade-Off? (1)

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THE NEW GENERATION TELECOMMUNICATION SATELLITE SIMULATOR: AN ANALYSIS AND
VERIFICATION TOOL OF CAST TELECOMMUNICATION SATELLITE SYSTEM DESIGN AND
VALIDATION INFRASTRUCTURE

Abstract

The telecommunication satellite simulator is a critical tool in spacecraft systems to sustain system design, test, LEOP and training. It plays significant tasks in the telecommunication satellite design analysis and service processes. To upgrade the capability and reliability of the telecommunication satellite simulator, China Academy of Space Technology (CAST) develops the next generation simulator, which focuses on the following subjects, (1) OSGi based system integration verification and application of enhanced DFH-4 platform, (2) emergencies data analysis and system control decision making, (3) resource package in satellite design assistant and simulation sustainment infrastructure. The results show that the next generation simulator meets the requirement of satellite parallel manufacture, batch parallel development and multi-party collaborative design from CAST. Formal verification increases the mathematical methodologies and reliabilities of enhanced DFH-4 platform. The simulator is able to analyze and generate the decision for on-orbit emergencies. Model package leads system engineers to satellite infrastructure level design that features compactness, high efficiency and optimal quality.