SPACE SYSTEMS SYMPOSIUM (D1)
System Engineering - Methods, Processes and Tools (2) (6)

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A REAL-TIME LAUNCHING CALIBRATION SYSTEM AND FAILURE ANALYSIS APPROACH FOR THE REAL-TIME MEXICAN SATELLITE SPACE LAUNCH CENTER

Abstract

In this paper, the Real-Time Launching Calibration System for the Real-Time Mexican Satellite Space Launch Center, the Space System Engineering Design and the System's Probabilistic Risk Assessment is presented. Mexico holds the fourth best place in the world for building a Space Port to launch Space Satellites, since its geographic location is optimal for its construction (near the Equator). It is essential to have the Probabilistic Risk Assessment and Failure Analysis in Space Systems Engineering from its design, in order to minimize risks and avoid any possible catastrophe or position rocket failure throughout any wrong orbit. Mexico is planning to construct a Space Port and a Rocket Space Launch Center in the near future in order to be part of the nations with Space Programs. Some methodologies are used for the System Design, Modeling and Engineering (Hardware and Software), such as Structured Analysis for Real Time (SA-RT), LACATRE Real-Time Software Design; the final results were performed with the Failure Analysis through Fault Trees (FTA) by means of a quantitative probabilistic approach and Simulation using Windchill Quality Software. This is the first step to propose and build the first Satellite Launch Platform in Mexico, including the Real-Time Launching Calibration System. Related Work had been published at IJERA Magazine, available on NASA Astrophysics Data System (ADS) Digital Library (Vol 5. Issue 11 2015), at 7th IAASS Conference at Friedrichshafen Germany in October 2014, and during 6th IAASS Conference at Montreal Canada in May 2013.

Keywords – Real-Time Launching Calibration System, Real-Time Sensors, Hardware and Software, Fault Tree Analysis (FTA), Platform to Launch Space Satellites, Space Rockets, External factor, Quantitative data, SA-RT, LACATRE (LA4).