

SPACE SYSTEMS SYMPOSIUM (D1)
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USING BPMN TO IMPROVE AIT ELECTRICAL TESTS PROCEDURES AT AMAZONIA
SATELLITE

Abstract

The main idea behind this paper is show how AIT team of INPE is dealing with the elaboration, agreement and conduction of electrical tests procedure of Amazonia Satellite. Generally, electrical tests procedures applied on satellites are elaborated by AIT teams and approved by system engineer, so to facilitate the communication between them, BPMN was chosen as common notation. Another reason to adopt this kind of visual notation is that during electrical test procedure execution, conducted by AIT team and followed by others teams, all of them can visualize at real time the execution of procedure supported by coloring the diagrams according each task result. To make it possible, many software tools were created and a new process work between AIT team and systems engineering team was established. During modeling procedures, manual electrical task like covering/ uncovering start sensors, or connecting cables were transformed as Manual Task BPMN element. However task as sending telecommands or a critical task as turn on/turn off satellite were modeling as Script Task BPMN element with a colored representation of its result execution (pass/fail/precondition or post condition satisfaction). The procedure execution is performed by a special role, defined as test conductor, interacting with the procedure BPMN diagram. This role chooses witch task will be executed, starts it execution and receive a visual feedback about the results. Anyone during the procedure execution can visualize in real time all the executed operation and its results by means of same BPMN diagram. This kind of approach adopted in Amazonia satellite electrical test, modeling procedure as BPMN and using it for agreement teams and conduction a procedure itself, has been improved the communication between satellite test team and satellite system engineering team, the visibility of AIT tests process as a whole and the tests conduction control.

Keywords: BPMN, AIT, test procedure, Amazonia satellite