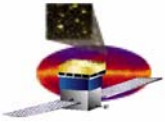


GLAST LAT System Engineering

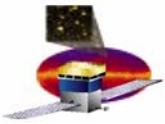
LAT Test Planning Meeting

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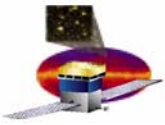
Agenda

- ❑ Purpose
 - Present the contents of a typical Performance & Ops Test Plan test case
- ❑ Test Case Contents Overview
- ❑ Test Case Example



P&OTP - Typical Test Case

- LAT Level Typical Test Case Contents
 - Each test case will define what needs to be tested
 - Requirements that are sold by the case will be identified
 - Functions that are to be validated will be identified
 - Pass/fail criteria will be provided for requirement verification and function validation
 - Acceptance criteria will be provided for -00787 requirement sell-off
 - Only relevant in a few test cases (such as TCS during TV)
 - Required resources, requirements sold, and test prerequisites will be specified
 - If there is a similarity to an existing Subsystem test case or cases, those cases will be noted
 - Implementation will not be specified, unless expressly required to sell a requirement
 - An outline may be provided if appropriate



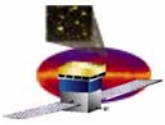
LAT Level Test Contents - Example (1/4)

□ LAT001 - LAT Configuration 1 Initialization

- Example test case description:

The LAT Config 1 Init test case takes a powered off LAT and places the instrument in a fully operational state functioning on all primary units, (i.e. SIU-P, EPU-0, EPU-1, PDU-P, etc.). The LAT power on sequence will be conducted as specified by the document "LAT Instrument Startup", LAT-TD-02620-02. Following power on, the FSW Configuration File utility will be used to set the detector and GASU registers to operational values (including timing and thresholds) and to verify the content of those registers. Command execution and configuration file application will be verified via telemetry. At the completion of this test case several LAT functions will have been verified:

- **LAT command and control functions including:**
 - SC command of the LAT
 - FSW command verification features
 - FSW initialization of the SIU, EPU, and the rest of the LAT
 - FSW configuration of the ACD, CAL, T&DF, and TKR
 - FSW Configuration File utility
 - Basic FSW file management functions
 - Successful execution of numerous individual commands
- **Basic LAT telemetry processing functions including:**
 - FSW supplied Housekeeping Tlm via the 1553 and tlm collect directly by the SC
 - Successful collection and transmission of numerous individual telemetry points



LAT Level Test Contents - Example (2/4)

□ LAT001 - LAT Config 1 Initialization (Continued)

- Requirements/Functions Verified

- 0010 paragraph numbers, short titles, and verification methods are provided

- LAT001 example:

- | | | |
|---------------|-----------------------------|----------------|
| 1) 5.4.9.1 | CCSDS Telecommand Standards | Demo |
| 2) 5.4.10.2 | Software Uploads | Test (Partial) |
| 3) 5.4.10.2.1 | LAT Telemetry | Test (Partial) |

- Pass/Fail Criteria:

- Specifies what is required to sell-off requirements and/or to validate functions

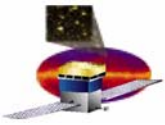
- Can include requirements for collection of data needed for off-line analysis

- LAT001 example:

- 1) 5.4.9.1 CCSDS Telecommand Standards

- 1) All CCSDS commands packets were successfully received, processed, and executed by the LAT

- 2) All CCSDS telemetry packets sent by the LAT were in the CCSDS format and sequence



LAT Level Test Contents - Example (3/4)

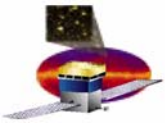
□ LAT001- LAT Config 1 Initialization (Continued)

- Acceptance Criteria:

- Criteria that must be met to verify the LAT thru the environments specified in the -00778
- LAT001 example:
 - Baseline CPT: None
 - Post Ship CPT: None
 - Post Dynamics: All Pass/Fail criteria are met
 - TV Cold: All Pass/Fail criteria are met
 - TV Hot: All Pass/Fail criteria are met

- Required Resources

- Includes list of EGSE, MGSE, personnel, facilities, databases, etc. needed to successfully complete the test
 - Standard test configuration will be provided in the plan
 - Only deviations from the standard configuration are noted
- LAT001 example:
 - Standard test configuration



LAT Level Test Contents - Example (4/4)

□ LAT001 - LAT Config 1 Initialization (Continued)

- Constraints/Test Prerequisites

- Provides list of any safety issues, constraints, and prerequisites for execution of the test
- LAT001 example:
 - Power shall be applied to the LAT at the current ramp rate specified by LAT/SC ICD paragraph 6.3.3.4

- Related Subsystem Test cases

- Lists related Subsystem test cases if applicable
- LAT001 example:
 - FSW009a FSW and LAT Initialization