Level III to Diagram: LAT Configuration

Req ID	Requirement	Comments	Diagrams

3.1 LAT ISOC Configuration and Architecture Requirements

Req ID	Requirement	Comments	Diagrams
GEN0085	The LAT ISOC shall format software uploads in blocks as specified in the Operations Data Products ICD.		LAT Configuration

3.1.5 Database Requirements

Req ID	Requirement	Comments	Diagrams
DTB0010	The LAT ISOC shall ingest the Project Database (PDB) provided by the MOC.		LAT Configuration
DTB0020	The LAT ISOC shall provide a LAT T&C database to the MOC in the GLAST DFCD format.		LAT Configuration
DTB0075	The LAT ISOC shall verify the LAT T&C databases.	Verification includes syntax level checking of database, Ex. Command mnemonic created expected bit sequence	LAT Configuration
DTB0110	The LAT ISOC shall provide configuration control of the LAT T&C database.		LAT Configuration
DTB0120	The LAT ISOC shall install its operational database from the selected configuration-controlled T&C database.		LAT Configuration

3.2.4.1 LAT Timeline Planning and Generation

Req ID	Requirement	Comments	Diagrams
LGEN0160	The LAT Timeline Planning shall allow the user to input proposed changes to the LAT configuration and operating mode.		Mission Planning, LAT Configuration

3.2.4.4 File Uploads

Req ID	Requirement	Comments	Diagrams
LGEN0700	The ISOC shall generate File Uploads, which provide information to the LAT flight software.		LAT Configuration
LGEN0710	The file name associated with LAT File Uploads shall adhere to the format identified in the Operations Data Product ICD.		LAT Configuration
LGEN0720	File Upload format and identification shall comply with the Operations Data Product ICD	The format can be created using the make_load_file program supplied by the MOC	LAT Configuration
LGEN0730	File Upload files shall be under version control.		LAT Configuration

3.3.1.4 Housekeeping Data Quality & Stats

Req ID	Requirement	Comments	Diagrams
TLM0520	The LAT ISOC shall record the quality and completeness of the telemetry received.		L0 File Ingest, Telemetry Monitoring, LAT Configuration
TLM0610	The LAT ISOC shall record data quality problems requiring operator intervention.		L0 File Ingest, Telemetry Monitoring, LAT Configuration

3.3.5 User Interface Language Requirements

Req ID	Requirement	Comments	Diagrams
UIL0010	The LAT ISOC shall provide a user interface language.		LAT Configuration

Req ID	Requirement	Comments	Diagrams
UIL0020	The LAT ISOC user interface language shall be capable of providing system configuration control.		LAT Configuration
UIL0030	The LAT ISOC user interface language shall be capable of providing telemetry monitoring.		LAT Configuration, Telemetry Monitoring, L0 Data Processing
UIL0040	The LAT ISOC user interface language shall be capable of providing system control.		LAT Configuration
UIL0050	The LAT ISOC user interface language shall allow procedure parameter passing.		LAT Configuration, Telemetry Monitoring, L0 Data Processing
UIL0060	The LAT ISOC user interface language shall provide local and global variables.		LAT Configuration, Telemetry Monitoring, L0 Data Processing
UIL0070	The LAT ISOC user interface language shall provide arithmetic capabilities using local and global variables, telemetry values, system variables, and constants.		LAT Configuration, Telemetry Monitoring, L0 Data Processing
UIL0090	The LAT ISOC user interface language shall provide comment capability.		LAT Configuration, Telemetry Monitoring, L0 Data Processing
UIL0100	The LAT ISOC user interface language shall provide access to current telemetry and system values, allowing observations of values in raw or converted form.		LAT Configuration, Telemetry Monitoring, L0 Data Processing

Req ID	Requirement	Comments	Diagrams
UIL0120	The LAT ISOC shall provide the capability to process user interface language directives standalone.		LAT Configuration, Telemetry Monitoring
UIL0130	The LAT ISOC shall provide the capability to process user interface language directives as part of a procedure.		LAT Configuration, Telemetry Monitoring, L0 Data Processing
UIL0140	The LAT ISOC shall provide the capability to create procedures.		LAT Configuration, Telemetry Monitoring, L0 Data Processing
UIL0200	The LAT ISOC shall provide the capability to execute procedures.	For use during pre-launch test and for validation of procedures on the testbed	LAT Configuration, Telemetry Monitoring, L0 Data Processing
UIL0210	The LAT ISOC procedure execution capability shall provide procedure control directives to allow starting, stopping, pausing, and resuming options.	For use during pre-launch test and for validation of procedures on the testbed	LAT Configuration, Telemetry Monitoring
UIL0220	The LAT ISOC shall provide the capability to adjust the execution speed of procedures.	For use during pre-launch test and for validation of procedures on the testbed	LAT Configuration, Telemetry Monitoring
UIL0230	The LAT ISOC shall report both the acceptance and completion of the procedures to the user.	For use during pre-launch test and for validation of procedures on the testbed	LAT Configuration, Telemetry Monitoring, L0 Data Processing

3.3.6.1 Command Verification and Validation

Req ID	Requirement	Comments	Diagrams
CMD0100	The ISOC shall verify all commands in the LAT Timeline, including any ATS or RTS Command Lists, file uploads, real-time procedures and PROCs against the LAT command and telemetry database definitions.		Mission Planning, LAT Configuration
CMD0110	The ISOC shall validate all commands in the LAT Timeline, including any ATS or RTS Command Lists, file uploads, and real-time procedures using the LAT testbed or suitable simulation.		Mission Planning, LAT Configuration

3.4.11 Calibration & Performance Requirements

Req ID	Requirement	Comments	Diagrams
C&P0010	The LAT ISOC shall maintain a database of all LAT ground calibration data throughout the mission.	This includes beam tests, muon and van de Graff runs and any other data generated during I&T that may be needed during on-orbit operations.	LAT Configuration
C&P0020	The LAT ISOC shall maintain a database of all LAT flight calibration data.		LAT Configuration
C&P0040	The LAT ISOC shall determine the frequency and types of calibrations and coordinate the scheduling of these calibrations with the GSSC.	The types and frequencies of calibrations are described in LAT-TBD.	LAT Configuration
C&P0050	The LAT ISOC shall generate and update the instrument response functions (IRFs) for the LAT.		LAT Configuration
C&P0060	The LAT ISOC shall create and distribute the IRFs in CALDB format.		LAT Configuration

Req ID	Requirement	Comments	Diagrams
C&P0070	The LAT ISOC shall provide the capability to retrieve performance and calibration data in a timely way, that is, in a maximum of 60 minutes to retrieve 1 GB of such data.		LAT Configuration
C&P0080	The LAT ISOC shall process unfiltered data generated by the instrument hardware trigger.		L0 Data Processing, LAT Configuration

3.4.5 Memory Mapping & Maintenance Requirements

Req ID	Requirement	Comments	Diagrams
MMM0010	The LAT ISOC shall store copies of the downlinked LAT memory dumps.		LAT Configuration
MMM0020	The LAT ISOC shall provide the capability to view the LAT memory images stored at the LAT ISOC.		LAT Configuration
MMM0030	The LAT ISOC shall provide the capability to compare dumped memory images downlinked from the observatory with the associated load images stored at the LAT ISOC.		LAT Configuration
MMM0070	The LAT ISOC shall provide the capability to add, delete or replace each component of the LAT FSW stored on the observatory.		LAT Configuration, Mission Planning
MMM0080	The LAT ISOC shall provide the capability of storing, viewing, and editing the LAT FSW files.		LAT Configuration

3.4.6 Limit Monitoring Requirements

Req ID	Requirement	Comments	Diagrams
LMIT0160	The LAT ISOC shall support up to two limit sets for each parameter.		Telemetry Monitoring, L0 Data Processing

3.4.9 Anomaly Tracking and Notification Requirements

Req ID	Requirement	Comments	Diagrams
ATNS0400	The LAT ISOC shall develop the capability to optimize the LAT instrument in response to in-flight changes in hardware, as described in the ISOC Operations Plan, LAT-SS-01378.		LAT Configuration
ATNS0450	The LAT ISOC shall maintain an instrument simulator for validating and verifying changes to flight software and command procedures, and also for use in anomaly resolution.		LAT Configuration