Level III to Diagram: NA

Req ID	Requirement	Comments	Diagrams		
3.1 LAT ISO	3.1 LAT ISOC Configuration and Architecture Requirements				
GEN0010	The LAT ISOC shall observe the current NASA policy directive, NPD 8010.2C, Use of the Metric System of Measurement in NASA programs.		NA (General)		
GEN0010	The LAT ISOC shall observe the current NASA policy directive, NPD 8010.2C, Use of the Metric System of Measurement in NASA programs.		NA (General)		
GEN0015	The LAT ISOC shall support the observatory for its full operating lifetime, which is a minimum of 5 years with a goal of 10 years.		NA		
GEN0020	The LAT ISOC shall support the LAT during the pre-launch I&T phase.		NA		
GEN0030	The LAT ISOC shall support the LAT launch and early orbit LAT checkout period.		NA		
GEN0035	The LAT ISOC shall execute initial tests and analysis of LAT instrument operation and performance during an on-orbit checkout period of 60 days.		NA		
GEN0040	The LAT ISOC shall support the LAT in the normal mission operations phase.		NA		

Req ID	Requirement	Comments	Diagrams
GEN0050	The LAT ISOC shall support LAT operations 24hours/day, 7 days/week, and 365+ days/year.	Availability shall be supported by autonomous operation or personnel where applicable.	NA
GEN0060	The LAT ISOC shall support a single 8-hour by 5-day shift (M-F) approach and shall operate autonomously whenever not staffed.	Operate here means receive and transmit telemetry and send pages if problems are encountered.	NA
GEN0100	The LAT ISOC shall be able to operate autonomously for at least 96 hours without operator intervention.		NA (General)
GEN0100	The LAT ISOC shall be able to operate autonomously for at least 96 hours without operator intervention.		NA (General)
GEN0110	The LAT ISOC shall provide the tools and interfaces necessary to support sustaining engineering of LAT instrument for the life of the mission.	Including FSW maintenance, loads, special commanding, data analysis and trending	NA (General)
GEN0110	The LAT ISOC shall provide the tools and interfaces necessary to support sustaining engineering of LAT instrument for the life of the mission.	Including FSW maintenance, loads, special commanding, data analysis and trending	NA (General)
3.1.1.1 Genera	al		
INF0010	The LAT ISOC shall be the sole interface to the MOC and GSSC elements for LAT commands and loads.		NA
3.1.1.2 GSSC			

Req ID	Requirement	Comments	Diagrams	
INF0130	The LAT ISOC shall be able to generate requests for the retrieval of archived Level 0 observatory data from the GSSC.	This is for recovery of archival data for reprocessing.	NA (by hand)	
INF0130	The LAT ISOC shall be able to generate requests for the retrieval of archived Level 0 observatory data from the GSSC.	This is for recovery of archival data for reprocessing.	NA (by hand)	
3.1.1.3 MOC				
INF0210	The LAT ISOC shall be able to generate requests for the retransmission of Level 0 observatory data from the MOC within 7 days of receipt of a transmission.		NA (by hand)	
INF0210	The LAT ISOC shall be able to generate requests for the retransmission of Level 0 observatory data from the MOC within 7 days of receipt of a transmission.		NA (by hand)	
3.1.1.5 Spaced	craft Vendor Facility			
INF0300	The LAT ISOC shall interface with the S/C vendor facility for support of pre-launch testing		NA (by hand)	
INF0300	The LAT ISOC shall interface with the S/C vendor facility for support of pre-launch testing		NA (by hand)	
3.1.1.6 Observatory				
INF0400	The LAT ISOC shall exchange telemetry and command data during pre-launch testing as specified in the ISOC Test Plan.	To be used during I&T.	NA (General)	

Req ID	Requirement	Comments	Diagrams
INF0400	The LAT ISOC shall exchange telemetry and command data during pre-launch testing as specified in the ISOC Test Plan.	To be used during I&T.	NA (General)
3.1.2 Facility	Requirements		
FAC0010	The LAT ISOC shall be located at Stanford University/SLAC.		NA
FAC0020	The LAT ISOC facility shall restrict physical access to allow entry to authorized personnel only.		NA
FAC0030	The LAT ISOC facility shall contain within it console, analysis, and meeting space for the ISOC teams for the duration of the mission.		NA
FAC0160	The LAT ISOC facility shall provide UTC clock and countdown clock displays.		NA (SatTrack - TBD)
FAC0160	The LAT ISOC facility shall provide UTC clock and countdown clock displays.		NA (SatTrack - TBD)
FAC0180	The LAT ISOC facility shall provide an uninterruptible power supply (UPS) to all the critical LAT ISOC systems.	This is to provide the opportunity to gracefully shutdown non-critical functions and allow backup power to be supplied.	NA
FAC0200	The LAT ISOC UPS shall provide backup power to critical LAT ISOC systems for at least 30 minutes.		NA
FAC0260	SLAC shall provide the power for all hardware contained within the LAT ISOC.		NA

Req ID	Requirement	Comments	Diagrams
FAC0270	SLAC shall provide the cooling for all hardware contained within the LAT ISOC.		NA
FAC0280	SLAC shall provide the necessary network access to all LAT ISOC hardware.		NA
FAC0290	LAT ISOC shall provide a master time signal for all hardware contained within the LAT ISOC.		NA (NTP)
FAC0290	LAT ISOC shall provide a master time signal for all hardware contained within the LAT ISOC.		NA (NTP)
FAC0300	The LAT ISOC facility master time shall be in UTC.		NA (NTP)
FAC0300	The LAT ISOC facility master time shall be in UTC.		NA (NTP)
3.1.3 Redunda	ancy Requirements		
RED0010	The LAT ISOC shall provide backup capabilities for all LAT ISOC components.	Excluding the FSW testbed	NA
RED0020	The LAT ISOC shall be able to switch to a backup, real-time system within 12 hours of a failure of any real-time system.	This includes the system that receives L0 files from the MOC and the system that receives RT HK and alert telemetry.	NA
RED0030	The LAT ISOC shall perform a manual fail- over to a backup, non-real-time system within 30 minutes of initiation of the manual failover.	This applies to staffed, non-automated operations only.	NA

Req ID	Requirement	Comments	Diagrams
RED0040	The LAT ISOC shall restore backup computing capabilities within 72 hours after a LAT ISOC system failure.		NA
RED0050	The LAT ISOC shall provide the capability to routinely backup system operational files.		NA (SCS)
RED0050	The LAT ISOC shall provide the capability to routinely backup system operational files.		NA (SCS)
RED0060	The LAT ISOC shall provide the capability to restore operational files from the backup files within 60 minutes.		NA (SCS)
RED0060	The LAT ISOC shall provide the capability to restore operational files from the backup files within 60 minutes.		NA (SCS)
3.1.4 Security	Requirements		
SEC0010	The LAT ISOC shall comply with Information Technology (IT) security requirements specified in SLAC Computing Services (SCS) policies.		NA (SCS)
SEC0010	The LAT ISOC shall comply with Information Technology (IT) security requirements specified in SLAC Computing Services (SCS) policies.		NA (SCS)
SEC0020	The LAT ISOC shall restrict computer access to authorized personnel.		NA

Req ID	Requirement	Comments	Diagrams	
SEC0040	SCS shall monitor for LAT ISOC network security violations.		NA (SCS)	
SEC0040	SCS shall monitor for LAT ISOC network security violations.		NA (SCS)	
SEC0050	SCS shall log all network security violations that are detected.		NA (SCS)	
SEC0050	SCS shall log all network security violations that are detected.		NA (SCS)	
SEC0060	SCS shall maintain current security patches for all commercial vendor software.		NA (SCS)	
SEC0060	SCS shall maintain current security patches for all commercial vendor software.		NA (SCS)	
3.1.6 Web Pag	ge Requirements			
WEB0020	The LAT ISOC shall post the LAT Operations Plan on the LAT ISOC website.		NA (Procedural)	
WEB0020	The LAT ISOC shall post the LAT Operations Plan on the LAT ISOC website.		NA (Procedural)	
3.1.7 Documentation Requirements				
DOC0010	The LAT ISOC shall store and display electronic documentation of operating procedures to specify the tasks to be performed for routine activities.		NA (LATDocs)	

Requirement	Comments	Diagrams
The LAT ISOC shall store and display electronic documentation of operating procedures to specify the tasks to be performed for routine activities.		NA (LATDocs)
The LAT ISOC shall provide the capability to create, edit and delete operating procedures.		NA (by hand)
The LAT ISOC shall provide the capability to create, edit and delete operating procedures.		NA (by hand)
The LAT ISOC shall maintain configuration control of the electronic documentation.		NA (by hand)
The LAT ISOC shall maintain configuration control of the electronic documentation.		NA (by hand)
The LAT ISOC shall restrict access to the electronic documentation to authorized operations personnel.	Implied by L2-4.10	NA (LATDocs)
The LAT ISOC shall restrict access to the electronic documentation to authorized operations personnel.	Implied by L2-4.10	NA (LATDocs)
imeline Planning and Generation		
The ISOC shall interface with GSSC, GBM and MOC to resolve conflicts during the creation of the LAT Timeline.		NA (General)
The ISOC shall interface with GSSC, GBM and MOC to resolve conflicts during the creation of the LAT Timeline.		NA (General)
	Requirement The LAT ISOC shall store and display electronic documentation of operating procedures to specify the tasks to be performed for routine activities. The LAT ISOC shall provide the capability to create, edit and delete operating procedures. The LAT ISOC shall provide the capability to create, edit and delete operating procedures. The LAT ISOC shall maintain configuration control of the electronic documentation. The LAT ISOC shall maintain configuration control of the electronic documentation. The LAT ISOC shall restrict access to the electronic documentation to authorized operations personnel. The LAT ISOC shall restrict access to the electronic documentation to authorized operations personnel. The ISOC shall interface with GSSC, GBM and MOC to resolve conflicts during the creation of the LAT Timeline. The ISOC shall interface with GSSC, GBM and MOC to resolve conflicts during the creation of the LAT Timeline.	RequirementCommentsThe LAT ISOC shall store and display electronic documentation of operating procedures to specify the tasks to be performed for routine activities.Feeduation of the tasks to be performed for routine activities.The LAT ISOC shall provide the capability to create, edit and delete operating procedures.Feeduation of the capability to create, edit and delete operating procedures.The LAT ISOC shall provide the capability to create, edit and delete operating procedures.Feeduation of the capability to create, edit and delete operating procedures.The LAT ISOC shall maintain configuration control of the electronic documentation.Implied by L2-4.10The LAT ISOC shall restrict access to the electronic documentation to authorized operations personnel.Implied by L2-4.10The LAT ISOC shall restrict access to the electronic documentation to authorized operations personnel.Implied by L2-4.10The ISOC shall interface with GSSC, GBM and MOC to resolve conflicts during the creation of the LAT Timeline.Implied by L2-4.10

Req ID	Requirement	Comments	Diagrams
3.2.4.5 Comm	and Procedures and PROCs		
LGEN0800	The ISOC shall generate textual procedures for LAT commands that are to be sent by the MOC in real-time.		NA (by hand)
LGEN0800	The ISOC shall generate textual procedures for LAT commands that are to be sent by the MOC in real-time.		NA (by hand)
LGEN0810	The textual procedures shall follow the format defined in the GLAST Procedure/PROC Style Guide (492-MOC-004).		NA (by hand)
LGEN0810	The textual procedures shall follow the format defined in the GLAST Procedure/PROC Style Guide (492-MOC-004).		NA (by hand)
LGEN0830	The LAT textual procedures shall have unique file names.		NA (by hand)
LGEN0830	The LAT textual procedures shall have unique file names.		NA (by hand)
3.3.1.2 House	keeping Data Processing		
TLM0280	The LAT ISOC shall be able to process up to 14 Gbytes (113 Gbits) of recorded science and recorded housekeeping data per day.		NA (General)
TLM0280	The LAT ISOC shall be able to process up to 14 Gbytes (113 Gbits) of recorded science and recorded housekeeping data per day.		NA (General)

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Req ID	Requirement	Comments	Diagrams
3.3.1.4 House	keeping Data Quality & Stats		
TLM0480	The LAT ISOC shall monitor telemetry data from the LAT.		NA (General)
TLM0480	The LAT ISOC shall monitor telemetry data from the LAT.		NA (General)
3.3.2.1 Science	e Data Processing		
DCP0020	The LAT ISOC shall adhere to standards that ensure software portability, independence of vendor and compatibility with existing multi- mission high energy astrophysics tools.		NA (General)
DCP0020	The LAT ISOC shall adhere to standards that ensure software portability, independence of vendor and compatibility with existing multi- mission high energy astrophysics tools.		NA (General)
DCP0030	The LAT ISOC shall use the J2000 inertial coordinate system as the basis for identifying and reporting celestial objects and for communicating pointing directions.		NA (General)
DCP0030	The LAT ISOC shall use the J2000 inertial coordinate system as the basis for identifying and reporting celestial objects and for communicating pointing directions.		NA (General)
3.3.2.2 Science	e Data Transmission		

Req ID	Requirement	Comments	Diagrams
DCP0200	The LAT ISOC shall accommodate requests from the GSSC to re-send Level 1 or Level 2 data.		NA (by hand)
DCP0200	The LAT ISOC shall accommodate requests from the GSSC to re-send Level 1 or Level 2 data.		NA (by hand)
3.3.3 Data Ar	chiving Requirements		
ARCH0040	The LAT ISOC shall provide telemetry data archiving capability that will allow the user to archive selected data to specified files.		NA (by hand)
ARCH0040	The LAT ISOC shall provide telemetry data archiving capability that will allow the user to archive selected data to specified files.		NA (by hand)
ARCH0060	The LAT ISOC shall be capable of storing 500 Gbytes per day.	Maximum LAT, and observatory data rates * 15% CCDS overhead, plus processed data.	NA (SCS)
ARCH0060	The LAT ISOC shall be capable of storing 500 Gbytes per day.	Maximum LAT, and observatory data rates * 15% CCDS overhead, plus processed data.	NA (SCS)
ARCH0090	The LAT ISOC shall provide the capability to create an archive file.		NA (SCS)
ARCH0090	The LAT ISOC shall provide the capability to create an archive file.		NA (SCS)
ARCH0100	The LAT ISOC shall provide the capability to display an archive file.		NA (SCS)
ARCH0100	The LAT ISOC shall provide the capability to display an archive file.		NA (SCS)
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Req ID	Requirement	Comments	Diagrams
ARCH0110	The LAT ISOC shall provide the capability to delete an archive file.		NA (SCS)
ARCH0110	The LAT ISOC shall provide the capability to delete an archive file.		NA (SCS)
ARCH0200	The LAT ISOC shall archive for the life of the mission LAT test and calibration data obtained during pre-launch testing.		NA (General)
ARCH0200	The LAT ISOC shall archive for the life of the mission LAT test and calibration data obtained during pre-launch testing.		NA (General)
3.3.5 User Int	erface Language Requirements		
UIL0150	The LAT ISOC shall provide the capability to display procedures.		NA (standard OS toolset)
UIL0150	The LAT ISOC shall provide the capability to display procedures.		NA (standard OS toolset)
UIL0160	The LAT ISOC shall provide the capability to edit procedures.		NA (standard OS toolset)
UIL0160	The LAT ISOC shall provide the capability to edit procedures.		NA (standard OS toolset)
UIL0170	The LAT ISOC shall provide the capability to delete procedures.		NA (standard OS toolset)
UIL0170	The LAT ISOC shall provide the capability to delete procedures.		NA (standard OS toolset)

Req ID	Requirement	Comments	Diagrams	
UIL0180	The LAT ISOC shall provide the capability to print procedures.		NA (standard OS toolset)	
UIL0180	The LAT ISOC shall provide the capability to print procedures.		NA (standard OS toolset)	
UIL0190	The LAT ISOC shall provide the capability to save procedures.		NA (standard OS toolset)	
UIL0190	The LAT ISOC shall provide the capability to save procedures.		NA (standard OS toolset)	
UIL0240	The LAT ISOC shall provide configuration control of procedures.		NA (standard OS toolset - CVS)	
UIL0240	The LAT ISOC shall provide configuration control of procedures.		NA (standard OS toolset - CVS)	
3.4.2 Display Pages Requirements				
PAG0430	The LAT ISOC shall provide configuration control of display page definitions.		NA (standard OS toolset)	
PAG0430	The LAT ISOC shall provide configuration control of display page definitions.		NA (standard OS toolset)	
3.4.7 Configuration Monitoring Requirements				
CFG0010	The LAT ISOC shall document and implement a configuration management system for LAT ground software and databases.		NA (CM system)	
CFG0010	The LAT ISOC shall document and implement a configuration management system for LAT ground software and databases.		NA (CM system)	

Req ID	Requirement	Comments	Diagrams
CFG0150	The LAT ISOC shall enforce configuration control of configuration monitor sets.		NA (by hand)
CFG0150	The LAT ISOC shall enforce configuration control of configuration monitor sets.		NA (by hand)