## Level III to Diagram: Mission Planning

Req ID	Requirement	Comments	Diagrams
3.1.1.2 GSSC			
INF0100	The LAT ISOC shall interface with the GSSC for the exchange of mission planning products as specified in the GLAST Operations Data Products ICD.		Mission Planning
INF0120	The LAT ISOC shall use a communications link with the GSSC and the MOC for the communication of mission planning and data products as specified in the GLAST Operations Data Products ICD.		Mission Planning
3.1.1.3 MOC			
INF0220	The LAT ISOC shall interface with the MOC for the exchange of mission planning products as specified in the GLAST Operations Data Products ICD.		Mission Planning
3.2.1 Flight D	ynamics Requirements		
ORB0040	The LAT ISOC shall receive orbit products from the MOC as defined in the Operational Data Products ICD.		Mission Planning
ORB0200	The LAT ISOC shall have the ability to display the Science Activity Timeline and the predicted observatory attitude provided by the MOC.	Attitude dependent scheduling due to the pointing limitations of the Ku-band antenna	Mission Planning

Friday, January 21, 2005

Req ID	Requirement	Comments	Diagrams
ORB0240	The LAT ISOC shall be capable of providing a revised South Atlantic Anomaly (SAA) 12 point polygon, for LAT operations.		Mission Planning
ORB0250	The LAT ISOC shall ensure LAT data taking is not scheduled during an SAA.		Mission Planning
ORB0260	The LAT ISOC shall issue ATS commands to re-establish the LAT operating state/configuration upon SAA exit.		Mission Planning
3.2.2 TDRSS S	Scheduling Requirements		
TSH0010	The LAT ISOC shall obtain the TDRSS Forecast Schedule from the MOC.		Mission Planning
TSH0020	The LAT ISOC shall be able to ingest the schedule for SN/TDRSS contacts with the observatory for command uplink and telemetry downlink from the MOC.		Mission Planning
3.2.4 LAT Mis	ssion Planning		
LGEN0010	The ISOC shall perform mission planning and scheduling functions for the LAT instrument.		Mission Planning
LGEN0020	The ISOC shall provide LAT Timeline files to GSSC.		Mission Planning
LGEN0030	The ISOC shall provide LAT Timeline files to the MOC during the 60-day orbit checkout period and during contingency situations.		Mission Planning
3.2.4.1 LAT Timeline Planning and Generation			

Req ID	Requirement	Comments	Diagrams
LGEN0100	The LAT Timeline shall consist of one ATS Command List, any number of File Upload Requests, and any number of PROC Execution Requests.		Mission Planning
LGEN0110	The LAT Timeline shall cover a period of 7 days.		Mission Planning
LGEN0120	The LAT Timeline Planning shall be capable of managing up to 21 days of timeline planning.		Mission Planning
LGEN0130	The LAT Timeline shall be identified as operational or test.	This uses a keyword in the FITS file.	Mission Planning
LGEN0140	The LAT Timeline shall include optional textual remarks.		Mission Planning
LGEN0150	The LAT Timeline Planning shall incorporate science observations identified in the Preliminary Science Timeline from GSSC.		Mission Planning
LGEN0160	The LAT Timeline Planning shall allow the user to input proposed changes to the LAT configuration and operating mode.		Mission Planning, LAT Configuration
LGEN0170	The LAT Timeline Planning shall utilize the TDRS contact periods scheduled by the MOC.		Mission Planning
LGEN0180	The LAT Timeline Planning shall enable users to view all possible TDRS contacts.		Mission Planning
LGEN0190	The LAT Timeline Planning shall allow the user to identify constraints on LAT operations and scheduling, including identification of SAA periods and target visibility.		Mission Planning

Req ID	Requirement	Comments	Diagrams
LGEN0200	The LAT Timeline Planning shall use UTC time.		Mission Planning
LGEN0220	The LAT Timeline shall be under version control.		Mission Planning
LGEN0230	The LAT Timeline generation tool shall produce a report of the contents of the Timeline.		Mission Planning
LGEN0240	The LAT Timeline generation tool shall provide the capability to save the Timeline report.		Mission Planning
LGEN0250	The LAT Timeline generation tool shall provide the capability to print the Timeline report.		Mission Planning
3.2.4.2 ATS a	nd RTS Command Lists		
LGEN0300	The ISOC shall generate ATS and RTS Command Lists, which consist of time-tagged command mnemonics with associated submnemonics (parameters) in ASCII text.		Mission Planning
LGEN0310	Command Lists shall be identified as ATS or RTS.		Mission Planning
LGEN0320	Command Lists shall include optional textual remarks.		Mission Planning
LGEN0330	Command List time-tags shall be in UTC.		Mission Planning
LGEN0340	Command Lists shall contain no more than 8 commands in any given second.		Mission Planning

Req ID	Requirement	Comments	Diagrams
LGEN0350	Command List file names shall adhere to the format identified in the Operations Data Product ICD.		Mission Planning
LGEN0360	Command List file format and identification shall comply with the Operations Data Product ICD.		Mission Planning
LGEN0370	Command Lists shall be under version control.		Mission Planning
LGEN0380	The Command List generation tool shall allow the user to create an ATS or RTS Command List.		Mission Planning
LGEN0390	The Command List generation tool shall allow the user to edit an ATS or RTS Command List.		Mission Planning
LGEN0400	The Command List generation tool shall allow the user to save an ATS or RTS Command List.		Mission Planning
LGEN0410	The Command List generation tool shall allow the user to print an ATS or RTS Command List.		Mission Planning
LGEN0420	The Command List generation tool shall ensure that entered commands exist in the command and telemetry definition files.		Mission Planning
LGEN0430	The Command List generation tool shall ensure that each entered command includes all appropriate submnemonic values.		Mission Planning

Req ID	Requirement	Comments	Diagrams
LGEN0440	The Command List generation tool shall prevent the user from entering command submnemonic values that are outside the range defined in the command database.		Mission Planning
LGEN0450	The Command List generation tool shall allow the user to enter command sub-mnemonics in decimal or hexadecimal values and in either EU-converted or raw format.		Mission Planning
LGEN0460	The Command List generation tool shall be capable of including constraints on command timing and sequence.		Mission Planning
LGEN0470	The Command List generation tool shall identify critical commands.		Mission Planning
3.2.4.3 Activit	lies		
LGEN0500	Command Lists shall allow for the use of Activities.	Relative-time-stamped list of commands and/or other activities. An activity enables a sequence of commands to be reused.	Mission Planning
LGEN0510	The Command List generation tool shall provide the capability to create Activities.		Mission Planning
LGEN0520	The Command List generation tool shall provide the capability to enter commands into Activities.		Mission Planning
LGEN0530	The Command List generation tool shall provide the capability to edit Activities.		Mission Planning

Req ID	Requirement	Comments	Diagrams
LGEN0540	The Command List generation tool shall provide the capability to print Activities.		Mission Planning
LGEN0550	Activities shall be under version control.		Mission Planning
LGEN0560	Activities shall have unique file names.		Mission Planning
LGEN0570	Activities shall include 1 to 255 Activities/commands.		Mission Planning
LGEN0580	Activities shall include 0 or more Activity parameters.		Mission Planning
LGEN0590	Activities shall include textual remarks.		Mission Planning
LGEN0600	The ATS Command List generation tool shall allow the user to enter references to other Activities into an Activity.		Mission Planning
3.2.4.5 Comm	and Procedures and PROCs		
LGEN0820	The ISOC shall provide the LAT textual procedures to the MOC.		Mission Planning
LGEN0840	The LAT textual procedures shall be under version control.		Mission Planning
3.3.6.1 Command Verification and Validation			
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

Friday, January 21, 2005

Req ID	Requirement	Comments	Diagrams	
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	
CMD0120	The ISOC shall verify the correct inclusion of the LAT Timeline into the Integrated Observatory Timeline.	The Integrated Observatory Timeline contains the science timeline and all commands to be sent to the observatory.	Mission Planning	
CMD0130	The ISOC shall verify executed commands are consistent with the LAT timeline.	Utilizing housekeeping data, Real-Time command log, and As-Flown Timeline.	Mission Planning	
3.3.6.2 Command History and Records				
CMD0200	The ISOC shall archive all LAT Timelines sent to the GSSC and MOC.		Logging, Mission Planning	
CMD0210	The ISOC shall maintain a history, viewable with a web browser, of all ATS, RTS and real- time commands sent to the LAT.		Mission Planning, Logging	
3.4.10 Timelin	ne Monitoring Requirements			
TMON0010	The LAT ISOC shall receive the Integrated Observatory Timeline (IOT) from the GSSC.		Mission Planning	
TMON0050	The LAT ISOC shall receive the As-Flown Timeline from the MOC.	The As-flown Timeline shall be derived from the observatory housekeeping telemetry.	Mission Planning	
TMON0070	The LAT ISOC shall provide the capability to view LAT timelines with a web browser.		Mission Planning	

Friday, January 21, 2005

Req ID	Requirement	Comments	Diagrams
TMON0085	The LAT ISOC shall generate reports to allow confirmation of command execution to account for any LAT commands that have not executed.	Applies to both stored and real-time command execution.	Mission Planning
3.4.11 Calibra	ation & Performance Requirements		
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
3.4.5 Memory	Mapping & Maintenance Requirements		
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
MMM0090	The LAT ISOC shall provide the capability to store a copy of the SAA boundary definition map.		LAT Configuration, Mission Planning
MMM0100	The LAT ISOC shall provide the capability to view each instance of the SAA boundary definition map.		LAT Configuration, Mission Planning