

APPENDIX A

CHARGE MEMORANDUM

**National Aeronautics and Space Administration
and
U.S. Department of Energy**

JOINT OVERSIGHT GROUP

TO: Mr. David Betz, NASA/Goddard Space Flight Center; and
Mr. Daniel Lehman, Director, Construction Management Support Division, SC-81

Date: JUN 24 2002

RE: Request to Conduct a "Delta" Preliminary Design and Baseline Review of the Large Area Telescope Project

The Department of Energy (DOE) and the National Aeronautics and Space Administration (NASA) Joint Oversight Group (JOG) for the Large Area Telescope (LAT) project on the Gamma-ray Large Area Space Telescope (GLAST) Mission requests that a follow-on "Delta" Preliminary Design and Baseline Review be conducted on July 30 - August 1, 2002, at the Stanford Linear Accelerator Center (SLAC). The LAT is the principal scientific instrument to be flown on the NASA GLAST mission, scheduled for launch in 2006.

This review follows the joint DOE/NASA Preliminary Design Review (PDR) and Baseline Review of the LAT project at SLAC in January 2002. Four subsystems (Calorimeter, Anti-Coincidence Detector, Mechanical/Thermal, and Integration and Test) were deemed not ready for the DOE baselining status of the technical design, cost, schedule, and management structure in this review. Only one subsystem (Mechanical/Thermal) did not pass for technical issues. All subsystems except Mechanical/Thermal passed the NASA/PDR part of the review, which focuses on the technical design of each subsystem and the integrated instrument in addition to being concerned with its cost, schedule, and management structure.

The purpose of the review is to carry out an integrated examination of each of the four subsystems that did not pass the January review. This should cover cost, schedule and management aspects of these subsystems as well as technical aspects of the Mechanical/Thermal subsystem. There have been changes to the overall project since January and the committee should evaluate the cost, schedule and management of the entire project, keeping in mind the issues highlighted from past reviews.

In performance of a general assessment of progress, current status, and the identification of potential issues, the committee should address the following specific items:

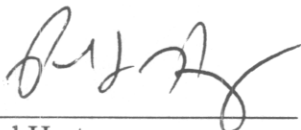
1. Overall Project: Identify any changes made to the project plans (technical, cost, schedule, management) since the January 2002 review and comment on their impact.
2. Technical Progress: Review the technical progress of the subsystems that did not pass the January review, with special concentration on the Mechanical/Thermal subsystem, which still had technical issues at that time. Review the proposed design and associated implementation approach and resources and comment on whether they adequately satisfy the performance requirements.

3. Cost: Is the cost estimate consistent with the plan to deliver the LAT with the stated technical performance?
4. Risk: Assess the project's risk analysis, which should address technical, cost, and schedule risks. How effective is the project's management of these risks? Are the contingency funds and schedule float adequate and being utilized at an appropriate rate?
5. International Contributions: What is the status of the international contributions, and what is the schedule for finalizing these commitments? Are these consistent with the schedule?
6. Schedule: Is the proposed schedule reasonable and appropriate in view of the technical tasks and projected funding profiles? Have the various subsystem schedules been incorporated in a well-understood way, relative to product flow, critical paths, and linkage between various activities?
7. Management: Evaluate the management structure, including the relationships to the GLAST Mission organization and relationships with foreign entities, as to its adequacy to deliver the LAT within specifications, budget, and schedule.

Liz Citrin is the project manager for the GLAST Mission at NASA and will serve as the NASA contact person for the review. Kathleen Turner is the program manager for the LAT project at DOE and will serve as the DOE contact person for the review.

We appreciate your assistance in this matter. As you know, these reviews are an important element of the NASA/DOE joint oversight of the GLAST/LAT Project. They help to ensure that the U.S. astro-particle physics program remains robust and meets its commitments on cost and schedule.

You are asked to submit a formal report by October 1, 2002.



Paul Hertz
NASA Co-Chair
Office of Space Science
NASA Headquarters
Washington, DC 20546



John R. O'Fallon
DOE Co-Chair
Division of High Energy Physics
U.S. Department of Energy
Germantown, MD 20874

APPENDIX B

REVIEW PARTICIPANTS

**Department of Energy/National Aeronautics and Space Administration Review
of the
GLAST Large Area Telescope (LAT) Project
July 30-August 1, 2002**

Daniel R. Lehman, DOE Co-Chairperson David Betz, NASA Co-Chairperson*

<p>SC1</p> <p>Tracker (WBS 4.1.4)</p> <p>* Helmuth Spieler, LBNL Gary Sneiderman, NASA/GSFC</p>	<p>SC2</p> <p>Calorimeter (WBS 4.1.5)</p> <p>* Ron Ray, Fermilab Mike Crisler, Fermilab</p>	<p>SC3</p> <p>Anti-Coincidence Detector (WBS 4.1.6)</p> <p>* Pawel De Barbaro, Rochester</p>	<p>SC4</p> <p>Electronics, DAQ, Elec. Sys. & Flight S/W (WBS 4.1.7)</p> <p>* Fred Huegel, NASA/GSFC Chris Bebek, LBNL Ron Zellar, NASA/GSFC</p>	<p>SC5</p> <p>Mechanical Systems (WBS 4.1.8)</p> <p>* James Ryan, NASA/GSFC Dick DiGennaro, LBNL Dennis Hewitt, NASA/GSFC Tom McCarthy, NASA/GSFC Russ Wells, LBNL</p>
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<p>SC6</p> <p>Systems Engineering (WBS 4.1.2)</p> <p>* Steve Scott, NASA/GSFC Joe Bolek, NASA/GSFC</p>	<p>SC7</p> <p>Integration and Testing Performance/Safety Assure. (WBS 4.1.9 and WBS 4.1.A)</p> <p>* Bill Craig, LLNL Rich Stanek, Fermilab</p>	<p>SC8</p> <p>Ground Systems/Analysis (WBS 4.1.B and 4.1.D)</p> <p>* Rob Kutschke, Fermilab</p>	<p>SC9</p> <p>Cost, Schedule and Funding (WBS 4.1.1)</p> <p>* Mark Reichanadter, Fermilab Steve Tkaczyk, DOE/SC</p>	<p>SC10</p> <p>Project Management (WBS 4.1.1 and 4.1.C)</p> <p>* Jay Marx, LBNL Pepin Carolan, DOE/Fermilab Marty Davis, NASA/GSFC Mark Goans, NASA/GSFC</p>
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OBSERVERS

A. Byon-Wagner, DOE/SC	L. Fantano, NASA/GSFC
J. O'Fallon, DOE/SC	B. Graf, NASA/GSFC
K. Turner, DOE/SC	N. Rioux, NASA/GSFC
E. Valle, DOE/SLAC	S. Seipel, NASA/GSFC
C. Brown, Jupiter (DOE/EIR)	J. Rose (NASA/EIRT)
S. Dam, Jupiter (DOE/EIR)	J. Trainor (NASA/EIRT)
G. Ousley, Jupiter (DOE/EIR)	
J. Cullen, Jupiter (DOE/EIR)	T. DiVenti, NASA/GSFC

LEGEND

SC Subcommittee

* Chairperson

| | Part-time Subcom. Member

Count: 26 (excluding observers)

APPENDIX C

REVIEW AGENDA

**Department of Energy/National Aeronautics and Space Administration Review
of the
GLAST Large Area Telescope (LAT) Project**

AGENDA

Tuesday, July 30, 2002— Building 48, Redwood Room

8:00 am DOE/NASA Executive Session..... D. Lehman/D. Betz
9:00 am Welcome P.Drell
9:10 am Introduction and Overview P. Michelson
10:00 am *Break*
10:15 am Management, Cost, Schedule..... W. Althouse
11:00 am Technical Status S. Ritz
12:00 pm *Working lunch—Redwood Room*
1:00 pm Breakout Subcommittee Working Sessions
(SC room assignments on following page)
3:00 pm *Break*
3:15 pm Continued Breakout Subcommittee Working Sessions
4:30 pm Subcommittee Executive Sessions
5:00 pm DOE/NASA Executive Session—*Redwood Rooms A & B*
6:30 pm Adjourn

Wednesday, July 31, 2002

8:00 am Continued Breakout Subcommittee Working Sessions
10:00 am *Break*
10:15 am Continued Breakout Subcommittee Working Sessions
12:00 pm *Working lunch—Redwood Rooms A & B*
1:00 pm Subcommittee Executive Sessions
1:30 pm DOE/NASA Executive Session with LAT Management—*Redwood Rooms A & B*
2:00 pm DOE/NASA Executive Session—*Redwood Rooms A & B*

Thursday, August 1, 2002

8:00 am DOE/NASA Executive Session/Writing/Closeout Dry Run
11:00 am Closeout with DOE/NASA and GLAST/LAT Team
12:00 pm Adjourn

APPENDIX D

COST TABLES and SCHEDULE CHARTS

Activity Description	Target Finish Date	Variance	Finish Date	Fiscal Year						
				FY01	FY02	FY03	FY04	FY05	FY06	
DOE Headquarters (Level 1)										
CD-0 Approval	06/25/01A	0	06/25/01A	▼						
CD-1 Approval	07/01/02*	0	07/01/02*		▼					
CD-2 Approval	12/13/02*	0	12/13/02*			▼				
CD-3 Approval	07/15/03*	0	07/15/03*				▼			
TEM Power Supply Eng. Model 2 Complete	03/15/04*	0	03/15/04*				▼			
Flight GRID Complete	09/15/04*	0	09/15/04*					▼		
LAT Integrated on Thermal-Vacuum Mount	07/15/05*	0	07/15/05*						▼	
LAT Shipment for Observatory Integration	10/17/05*	0	10/17/05*							▼
CD-4 Approval	12/15/05*	0	12/15/05*							▼
DOE/NASA Project Managers (Level 2)										
Launch Balloon Flight	08/01/01A	0	08/01/01A	▼						
Instrument Preliminary Design Review	01/08/02A	0	01/08/02A		▼					
I-CDR (Critical Design Review)	04/30/03*	0	04/30/03*			▼				
TKR, CAL FM A, B Available for Calibration Unit	02/17/04*	0	02/17/04*				▼			
Start LAT Integration	06/15/04*	0	06/15/04*					▼		
Pre Environmental Testing Review	02/15/05*	0	02/15/05*						▼	
PSR-(Instrument Pre-Ship Review)	07/07/05*	0	07/07/05*							▼
LAT Ready for Integration (RFI) to Spacecraft	09/22/05*	0	09/22/05*							▼

GLAST LAT PROJECT

Cost Estimate by Fiscal Year

Escalated \$K

	FY00	FY01	FY02	FY03	FY04	FY05	Cumulative
4.1.1 INSTRUMENT MANAGEMENT	389	2,043	2,763	2,316	2,189	1,903	11,602
4.1.2 SYSTEM ENGINEERING	26	833	1,332	984	778	693	4,647
4.1.4 TRACKER	316	2,878	2,160	2,761	1,381	381	9,877
4.1.5 CALORIMETER	698	1,643	3,867	4,606	4,959	1,574	17,348
4.1.6 ANTICOINCIDENCE DETECTOR	441	880	3,217	3,091	2,005	645	10,280
4.1.7 ELECTRONICS	692	930	1,727	5,427	5,938	1,025	15,738
4.1.8 MECHANICAL SYSTEMS	0	451	2,720	3,904	3,662	1,112	11,850
4.1.9 INTEGRATION & TEST	0	2	970	1,934	2,164	1,583	6,654
4.1.A PERFORMANCE AND SAFETY ASSURANCE	44	198	658	645	394	241	2,180
4.1.B LAT INSTRUMENT OPERATIONS CENTER	28	102	239	362	1,028	793	2,552
4.1.C EDUCATION AND PUBLIC OUTREACH	36	217	375	445	850	675	2,598
4.1.D SCIENCE ANALYSIS SOFTWARE	85	215	494	789	862	883	3,328
4.1.E SUBORBITAL FLIGHT TEST	49	1,272	0	0	0	0	1,321
Grand Totals:	2,804	11,664	20,522	27,266	26,209	11,509	99,973

GLAST LAT PROJECT

Cost Estimate by Fiscal Year

Escalated \$K

OBS	FY00	FY01	FY02	FY03	FY04	FY05	Cumulative
DG *** GSFC	512	1,714	3,617	3,628	2,559	1,213	13,242
DH *** HEPL	793	1,027	1,123	1,201	1,946	1,505	7,593
DL *** SLAC	354	5,857	9,904	15,182	13,849	5,084	50,229
DN *** NRL	832	2,332	4,890	6,279	6,628	2,668	23,629
DS *** SSU	36	217	375	445	800	675	2,548
DT *** Texas A&M	0	16	0	0	0	0	16
DU *** UCSC	278	502	613	531	428	365	2,716
Grand Totals:	2,804	11,664	20,522	27,266	26,209	11,509	99,973

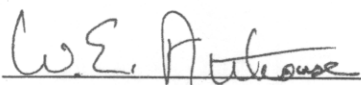
APPENDIX E

ACTION ITEMS

ACTION ITEMS

Resulting from the July 30 – Aug. 1, 2002
 Department of Energy (DOE) and National Aeronautics and Space Administration (NASA)
 Review of the Large Area Telescope (LAT) Project

<u>Action</u>	<u>Responsibility</u>	<u>Due Date</u>
1. Approve Critical Decision 2	DOE	November 2002
2. Conduct a Mini-Review	DOE & LAT	January 2003
3. Conduct a NASA Critical Design Review (CDR) and DOE CD-3 Review	DOE, NASA, LAT	May 2003



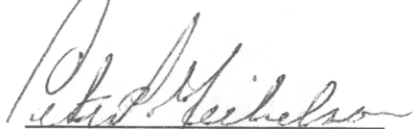
W. Althouse
 LAT Project Manager
 SLAC



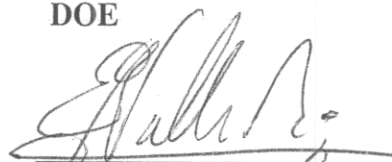
D. Lehman
 Review Co-Chair
 DOE



D. Betz
 Review Co-Chair
 NASA/GSFC



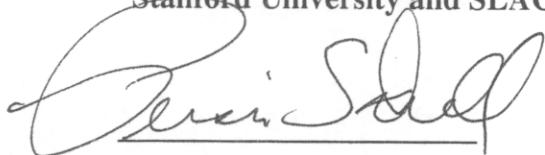
P. Michelson
 LAT Principal Investigator
 Stanford University and SLAC



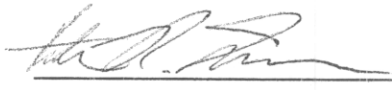
E. Valle
 Federal Project Manager
 DOE/SLAC Site Office



E. Citrin
 GLAST Project Manager
 NASA/GSFC



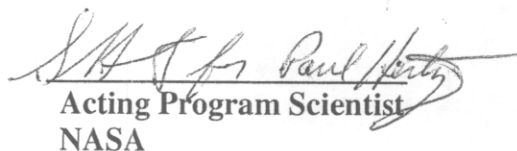
P. Drell
 Associate Director for Research
 SLAC



K. Turner
 Program Manager
 DOE



S. Horowitz
 Program Executive
 NASA



Acting Program Scientist
 NASA

APPENDIX F

NASA REQUESTS FOR ACTION

Request For Action**Number: 1**

Project	GLAST - GAMMA-RAY LARGE AREA SPACE TELESCOPE
Spacecraft (SC/GS/LV):	
System/Instrument:	LAT - LARGE AREA TELESCOPE
Review:	PDR2 - PRELIMINARY DESIGN REVIEW
Date:	

Originator: Tom McCarthy**Phone:** 6-4710**Organization:** CODE 545**Category:** TESTING

Action Requested: 1. Check energy balance of key arithmetic nodes used in tracker TMM, especially in areas that are used to identify tracker hot spots.

2. Check other key areas to ensure local areas are predicting temperatures that are adequately converged.

Supporting Rationale: Arithmetic nodes in SINDA (at times) have difficulty reaching convergence criteria depending upon solution routine selected.

Request For Action**Number: 2**

Project	GLAST - GAMMA-RAY LARGE AREA SPACE TELESCOPE
Spacecraft (SC/GS/LV):	
System/Instrument:	LAT - LARGE AREA TELESCOPE
Review:	PDR2 - PRELIMINARY DESIGN REVIEW
Date:	

Originator: Tom McCarthy**Phone:** 301-286-4710**Organization:** 545**Category:** THERMAL

Action Requested: Verification chart reporting Qual levels (required) should be based on Acceptance levels (planned) plus or minus 5 degrees C.
(See chart 3.1-33)

Supporting Rationale: Plus or minus 5 margin is required between acceptance and qual level.

Request For Action**Number: 3**

Project	GLAST - GAMMA-RAY LARGE AREA SPACE TELESCOPE
Spacecraft (SC/GS/LV):	
System/Instrument:	LAT - LARGE AREA TELESCOPE
Review:	PDR2 - PRELIMINARY DESIGN REVIEW
Date:	

Originator: Tom McCarthy**Phone:** 301-286-4810**Organization:** CODE 545**Category:** THERMAL

Action Requested: Flight analysis needs to be performed to assess heat pipe failure impact on TCS (as well as other elements of TCS i.e., heater, T/S).

* Complete by CDR

Supporting Rationale: TCS needs to withstand a single point failure. This should be an explicit system requirement.

Request For Action**Number: 4**

Project	GLAST - GAMMA-RAY LARGE AREA SPACE TELESCOPE
Spacecraft (SC/GS/LV):	
System/Instrument:	LAT - LARGE AREA TELESCOPE
Review:	PDR2 - PRELIMINARY DESIGN REVIEW
Date:	

Originator: Tom McCarthy**Phone:** 301-286-4710**Organization:** CODE 545**Category:** THERMAL

Action Requested: Consider the use of TOTS for transfer orbit to reduce need for heater power.

*Complete by CDR

Supporting Rationale: TOTS transfer orbit thermal ????? this method has been used on comsats to reduce the need for heater power during transfer orbit.

Request For Action**Number: 5**

Project	GLAST - GAMMA-RAY LARGE AREA SPACE TELESCOPE
Spacecraft (SC/GS/LV):	
System/Instrument:	LAT - LARGE AREA TELESCOPE
Review:	PDR2 - PRELIMINARY DESIGN REVIEW
Date:	

Originator: Tom McCarthy**Phone:** 301-286-4710**Organization:** Code 545**Category:** THERMAL**Action Requested:** Ensure electronics box worst case thermal analysis is done using Qual level (+60 degrees C) as the box boundary condition.

*Complete by CDR

Supporting Rationale:**Request For Action****Number: 6**

Project	GLAST - GAMMA-RAY LARGE AREA SPACE TELESCOPE
Spacecraft (SC/GS/LV):	
System/Instrument:	LAT - LARGE AREA TELESCOPE
Review:	PDR2 - PRELIMINARY DESIGN REVIEW
Date:	

Originator: Tom McCarthy**Phone:** 301-286-4710**Organization:** CODE 545**Category:** TESTING**Action Requested:** Include an IR camera test as part of the NDT methods used on radiator panel to assess panel workmanship.**Supporting Rationale:** IR camera testing at panel level to assess heat pipe/panel face sheet bonding as well as heat pipe operation has proven to be a good check on this system.

Request For Action**Number: 7**

Project	GLAST - GAMMA-RAY LARGE AREA SPACE TELESCOPE
Spacecraft (SC/GS/LV):	
System/Instrument:	LAT - LARGE AREA TELESCOPE
Review:	PDR2 - PRELIMINARY DESIGN REVIEW
Date:	

Originator: Tom McCarthy**Phone:** 301-286-4710**Organization:** CODE 545**Category:** TESTING

Action Requested: Add thermal engineer (1 head) coverage for each TV/TB test shift for both LAT instrument tests as well as S/C level testing.

Supporting Rationale: This coverage has not been costed as part of thermal budget and is not in I&T budget.

Request For Action**Number: 8**

Project	GLAST - GAMMA-RAY LARGE AREA SPACE TELESCOPE
Spacecraft (SC/GS/LV):	
System/Instrument:	LAT - LARGE AREA TELESCOPE
Review:	PDR2 - PRELIMINARY DESIGN REVIEW
Date:	

Originator: Tom McCarthy**Phone:** 301-286-4710**Organization:** CODE 545**Category:** THERMAL

Action Requested: 1. Ensure that HP stress analysis accounts for mechanical loading due to both external as well as internal forces.

2. Ensure that HP stress concentrations due to extrusion machining @ transition areas is addressed in stress analysis. Watch for wall thinning in bend areas due to tolerances of extrusion ID/OD.

Supporting Rationale: HP stress analysis shown at panel level w/o consideration of internal pressures.

Request For Action**Number: 9**

Project	GLAST - GAMMA-RAY LARGE AREA SPACE TELESCOPE
Spacecraft (SC/GS/LV):	
System/Instrument:	LAT - LARGE AREA TELESCOPE
Review:	PDR2 - PRELIMINARY DESIGN REVIEW
Date:	

Originator: Tom McCarthy**Phone:** 301-286-4710**Organization:** CODE 545**Category:** THERMAL

Action Requested: Assess ground cooling requirement associated with each phase of LAT I&T though Launch site.

*Complete by CDR

Supporting Rationale: These requirements can be significant and complicate I&T flows. If design allowances/accommodations can be made, it will lessen the impact at this phase.

Request For Action**Number: 10**

Project	GLAST - GAMMA-RAY LARGE AREA SPACE TELESCOPE
Spacecraft (SC/GS/LV):	
System/Instrument:	LAT - LARGE AREA TELESCOPE
Review:	PDR2 - PRELIMINARY DESIGN REVIEW
Date:	

Originator: Tom McCarthy**Phone:** 301-286-4710**Organization:** CODE 545**Category:** THERMAL

Action Requested: Account for interface delta Ts associated with shimmed locations @ grid/X plate

*Updated for CDR

Supporting Rationale: Shim delta Ts have not been assessed

Request For Action**Number: 11**

System/Instrument:	LAT - LARGE AREA TELESCOPE
Review:	PDR2 - PRELIMINARY DESIGN REVIEW
Date:	

Originator: Tom McCarthy **Phone:** 301-286-4710 **Organization:** CODE 545

Project	GLAST - GAMMA-RAY LARGE AREA SPACE TELESCOPE
Spacecraft (SC/GS/LV):	

Category: THERMAL**Action Requested:** Recommend cycling (8 times) the radiator VCHP/grid joint during TB test.

Supporting Rationale: Radiator panels may not be part of TV test. This is a critical thermal joint that needs to be fully assessed.**Request For Action****Number: 12**

Project	GLAST - GAMMA-RAY LARGE AREA SPACE TELESCOPE
Spacecraft (SC/GS/LV):	
System/Instrument:	LAT - LARGE AREA TELESCOPE
Review:	PDR2 - PRELIMINARY DESIGN REVIEW
Date:	

Originator: Tom McCarthy **Phone:** 301-286-4710 **Organization:** CODE 545**Category:** MECHANICAL**Action Requested:** Perform a panel venting analysis. Ensure adequate venting such that panel mechanical configuration will not be compromised.

*complete for CDR

Supporting Rationale: Venting panel need to be assessed from both mechanical as well as contamination aspects.

Request For Action**Number: 13**

Project	GLAST - GAMMA-RAY LARGE AREA SPACE TELESCOPE
Spacecraft (SC/GS/LV):	
System/Instrument:	LAT - LARGE AREA TELESCOPE
Review:	PDR2 - PRELIMINARY DESIGN REVIEW
Date:	

Originator: Tom McCarthy**Phone:** 301-286-4710**Organization:** CODE 545**Category:** THERMAL**Action Requested:** 1. Evaluate alternate heat transfer paths between Tracker Grid in lieu of complete dependance on the gasket at the interface.

2. Consider use of heat straps @ flex mount location to provide a path in lieu of gasket.

Supporting Rationale: 1. Gasket material selection for this flex interface has shown to be difficult given the mechanical attachment requirements.**Request For Action****Number: 14**

Project	GLAST - GAMMA-RAY LARGE AREA SPACE TELESCOPE
Spacecraft (SC/GS/LV):	
System/Instrument:	LAT - LARGE AREA TELESCOPE
Review:	PDR2 - PRELIMINARY DESIGN REVIEW
Date:	

Originator: D. Hewitt**Phone:** 301-286-5115**Organization:** CODE 545**Category:** THERMAL**Action Requested:** Include an i.r. scan of the front side of the radiators with a heat load on each evaporator prior to and after mechanical and thermal cycling tests at Lockheed/Martin.

Supporting Rationale: This will show the bond integrity of the heat pipes to the panel.

Request For Action**Number: 15**

Project	GLAST - GAMMA-RAY LARGE AREA SPACE TELESCOPE
Spacecraft (SC/GS/LV):	
System/Instrument:	LAT - LARGE AREA TELESCOPE
Review:	PDR2 - PRELIMINARY DESIGN REVIEW
Date:	

Originator: D. Hewitt**Phone:** 301-286-5155**Organization:** CODE 545**Category:** THERMAL**Action Requested:** Perform a venting analysis of the thermal radiators.**Supporting Rationale:** Adequate vent holes must be provided for the ascent depressurization profile.**Request For Action****Number: 16**

Project	GLAST - GAMMA-RAY LARGE AREA SPACE TELESCOPE
Spacecraft (SC/GS/LV):	
System/Instrument:	LAT - LARGE AREA TELESCOPE
Review:	PDR2 - PRELIMINARY DESIGN REVIEW
Date:	

Originator: D. Hewitt**Phone:** 301-286-5115**Organization:** CODE 545**Category:** THERMAL**Action Requested:** Be certain that a shimming at interfaces is included in thermal model. It does not appear that the X-LAT heat pipes shims have been included.**Supporting Rationale:** Need to consider shimming for accurate of prediction of gradients across these interface.

Request For Action**Number: 17**

Project	GLAST - GAMMA-RAY LARGE AREA SPACE TELESCOPE
Spacecraft (SC/GS/LV):	
System/Instrument:	LAT - LARGE AREA TELESCOPE
Review:	PDR2 - PRELIMINARY DESIGN REVIEW
Date:	

Originator: D. Hewitt**Phone:** 301-286-5115**Organization:** CODE 545**Category:** CONTAMINATION

Action Requested: Work contamination issues with the LAT project. Many cleaning steps were identified in the mechanical flow. How 'clean' must the structure and subsystems be? Define level of clearing required and if any bake outs are required.

Supporting Rationale: Contamination control plan must be flowed down to hardware.

Request For Action**Number: 18**

Project	GLAST - GAMMA-RAY LARGE AREA SPACE TELESCOPE
Spacecraft (SC/GS/LV):	
System/Instrument:	LAT - LARGE AREA TELESCOPE
Review:	PDR2 - PRELIMINARY DESIGN REVIEW
Date:	

Originator: D. Hewitt**Phone:** 301-286-5115**Organization:** CODE 545**Category:** TESTING

Action Requested: Do not install the X-LAT plate at SLAC until after thermal cycling test of LAT (prior to mass properties and before shipment to NRL).

Supporting Rationale: This will allow access to electronics boxes if required after LAT thermal cycling.

Request For Action**Number: 19**

Project	GLAST - GAMMA-RAY LARGE AREA SPACE TELESCOPE
Spacecraft (SC/GS/LV):	
System/Instrument:	LAT - LARGE AREA TELESCOPE
Review:	PDR2 - PRELIMINARY DESIGN REVIEW
Date:	

Originator: Mark Goans**Phone:** 301-286-9763**Organization:** CODE 301**Category:** SYSTEMS ENG.

Action Implement a continuous risk management approach for use throughout the life of the project.
Requested: Consider providing guidance and training to the subsystem managers to gain their support to promote a higher level of ownership for the system.

Supporting Rationale: This project is especially complex in terms of the range of contributors and the cooperative working arrangement with NASA and DOE. Risks may be higher than with typical missions making a formal risk management approach of greater value. Even though the project has written a risk management plan, it has not implemented a formal risk management system and has not defined when it will be implemented.

Request For Action**Number: 20**

Project	GLAST - GAMMA-RAY LARGE AREA SPACE TELESCOPE
Spacecraft (SC/GS/LV):	
System/Instrument:	LAT - LARGE AREA TELESCOPE
Review:	PDR2 - PRELIMINARY DESIGN REVIEW
Date:	

Originator: Steve Scott
Dennis Hewitt**Phone:** 301-286-2529
301-286-5115**Organization:** CODE 500
CODE 545**Category:** TESTING

Action Provide an integrated list and schedule of all simulators, emulators, engineering models, who will need them, the specific need dates, any conflicts in needs and need dates and how they will be worked around (de-conflicted).
Requested:

Supporting Rationale: There are a lot of engineering models, breadboards, simulators, emulators. etc., and groups that need them. The overlaps and conflicts in need dates and needing groups needs to be closely examined.