RFA's for IFCT Integration Readiness Peer Review, June 18th, 2004					
Item #	**Action**	**Reviewer**	**Action for**	**Response**	**Status**
1	EGSE Certification: It does not appear that SLAC is meeting our expectation of EGSE Certification as we presented to them at our face to face last month (see attachment EGSE – GSFC), What they presented (see attachment EGSE – SLAC) and what I heard on the phone did not appear to perform the systematic verification of signals that is needed. Testing as we have described it is needed to verify that the EGSE can do no harm to the flight hardware, and matches the flight interface definition. See References title EGSE-IFCT.ppt EGSE-GSFC.ppt	S. Clough	Elliott Bloom/Larry Wai	Brian Horowitz is writing EGSE acceptance procedures for I&T EGSE; this includes breakout boxes, associated cables, and any other equipment supplied by directly by I&T. Acceptance of other EGSE supplied by ELX is performed per procedures from the ELX group. Validation of EGSE is performed per procedures included in the test at hand; for example, the procedure for validation of EGSE relevant to the CAL module test procedure is found at the beginning of that document. These procedures will ensure that no harm will be done to flight hardware.	Closed
2	Hardware REA Role: The role of the Hardware Responsible engineer is not clearly defined and documented. See reference chart Hardware REE-GSFC.ppt to reference what is GSFC typical policy. The role needs to be defined and documented in the LAT I&T Plan	S. Clough/J. Henegar	Elliott Bloom/Ken Fouts	This will be updated in the I&T plan (by Elliott Bloom and Ken Fouts) (Updated I&T Plan LAT-MD-01376-02 released 5/6/05.)	Closed
3	Redline/Blackline procs: The definitions and processes for redline and blackline of procedures was not clear or not defined. Clearly document the definition and the processes. See Reference chart Redlines – GSFC.ppt for typical GSFC definitions.	S. Clough	Elliott Bloom/Darren Marsh	Process document released	Closed
4	Troubleshooting Doc: As SLAC does not have a troubleshooting document, I would like to refer them to the information we presented in the face to face. See Reference file Troubleshooting – GSFC.ppt	S. Clough/P.Salerno	Elliott Bloom/Darren Marsh	This will be updated in the I&T plan (by Elliott Bloom and Ken Fouts) (Updated I&T Plan LAT-MD-01376-02 released 5/6/05.)	Closed
5	IVT Procedure: It does not appear that SLAC is meeting our expectation of an IVT as we presented to them at our face to face last month (see attachment IVT – GSFC), What they presented (see attachment IVT – SLAC) and what I heard on the phone did not appear to perform the systematic verification of signals that is needed. Testing as we have described it is needed to verify that the actual flight boxes are functioning within specification. Without verification of the flight boxes with the flight harnessing it can be only demonstrated that the two boxes are working correctly, but it does not verify that the boxes are working within specification. Without verification of the signal levels and timing we have no way of knowing if the system will continue to work once on orbit. See Reference charts IVT-GSFC.ppt and IVT – IFCT.ppt	S. Clough/P.Salerno	Elliott Bloom/Pat Hascall	Ken Fouts, Brian Grist plus relevant I&T personnel have been holding weekly document reviews with Joy and colleagues, and they have been making comments and suggestions to each individual document. Gunther Haller is in agreement on the content of these procedures. Margin testing of the DAC is proceeding in the EM testbed. To the extent that similar margin testing would need to be repeated on actual flight boxes, will require a considerable design effort to build the extra EGSE and associated testing procedures; IFCT would require additional direction/resources from I&T management/project management/ systems engineering. These issues are being considered in the weekly test planning meeting chaired by Pat Hascall of System Engineering. LAT-MD-02730, "LAT Performance and Operation Plan", will specify the ground tests that I&T will perform on the LAT.	Closed
6	Clarify AIDS sign off: The process for the AIDS signoff was unclear. Please clarify and document in the I&T plan	J. Henegar	Elliott Bloom	This will be updated in the I&T plan (by Elliott Bloom and Ken Fouts) (Updated I&T Plan LAT-MD-01376-02 released 5/6/05.)	Closed
7	QA Role in I&T: The I&T plan nor the presentation today provided much detail on the role of QA in the I&T process. All aspects of the QA role need to be clearly identified and documented to ensure that the QA positions are staffed to meet the I&T needs	J. Henegar	Darren Marsh/Larry Wai	The QA roles are defined in the I&T procedures; all I&T procedures are reviewed by Doug Bartholemew (QE). QA sign-off checkpoints are defined in the procedure data sheets as well as the top level AIDS. Any additional QA roles need to be defined by LAT QA management (Darren Marsh).	Closed
8	Staffing Plan/Shift Limitations: It does not appear that the staffing plan for I&T was clearly laid out to allow a smooth flow of I&T and to make efficient use of times. The staffing plan does not appear sufficient to complete the I&T schedule. For instance there does not seem to be enough support of techs on the various shifts to provide efficient troubleshooting. The process outlined was to call someone. Many limitations were mentioned today on the types of work that would take place on each shift as well as limitations on when certain activities could begin (i.e couldn't start a particular test unless it could be finished on that shift). Shift handover plans did not appear to be adequate. There was no one at the end of the late shift to support morning meetings for example. The staffing plan and shift processes and limitations need to be re-evaluated to ensure that the I&T schedule can be met.	J. Henegar	Elliott Bloom/ Ken Fouts	I&T is planning for 2 shifts, 5 days/week, to meet the I&T schedule. Both shifts will be fully staffed and capable to perform any I&T activities. A detailed plan on shift operations is being developed by Ken Fouts. (Updated I&T Plan LAT-MD-01376-02 released 5/6/05.)	Closed
9	Procedure Signoff: The process for procedure signoff should include GPO and H/W Responsible Engineer or vendor supplier signoffs at least at the review level. This is currently not the case	J. Henegar	Elliott Bloom/Dick Horn/Joy Henegar	As noted, current LAT CM does not require GPO sign-off on all procedures. Any modification of LAT CM needs to be clarified by systems engineering (Dick Horn).	Closed
10	Formalized sign off of I&T AIDS, needs to include Design Integration for review/approval of AIDS	Dick Horn	Larry Wai / Doug Bartholemew	I&T Engineer to write the 2-tower I&T AIDS and submit to I&T management (Ken Fouts, Elliott Bloom) for sign-off. After review by I&T the AIDs will proceed to signoff with QA, Manufacturing, and design integration. The AIDS document will be released four weeks before use. A meeting will be called by I&T management three weeks before use for all the interested parties to achieve signoff.	Closed
11	Instrument Project Office through I&T Management roles/responsibilities and QA needs to be reviewed. Hold a management Peer Review to ensure IPO/I&T management plan is complete. Include configuration management of procedures and database scripts, etc.	Dick Horn	Elliott Bloom	This will be addressed by Elliott Bloom / Ken Fouts previous to the IRR.	Closed
12	Release of the Redline/Blackline procedure is needed before IRR.	Brian Grist	Doug Bartholemew / QA	same as item 3 above.	Closed

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13	Define gates during Integration flow that require project review and approval before moving forward. Coordinate approval with Instrument Manager and Systems Engineering.	Dick Horn	Elliott Bloom/Ken Fouts	Two tower IRR is gate one. Gate two will be 3-16 tower integration IRR. Gate three will be DAC installation and test and ACD integration and test IRR. Gate four will be a LAT pre test review. Before delivery to NRL for environmental testing there will be a PSR. In addition, as part of the PSR we will have an environmental testing IRR, and a series of pre test reviews before each major environmental test at NRL. There will be a PSR before leaving NRL for spectrum astro.	Closed
14	Provide continuity from End of Swing Shift to start of Day Shift. Recommend test director to participate at beginning and end of both shifts.	Bill Althouse	Elliott Bloom/ Larry Wai	A detailed plan on shift operations will be developed by Ken Fouts. This will be covered along with item 8 above. This plan will adress the the continuity issues.	Closed
15	Hold a review of the two tower AIDS and documentation before the IRR.	Dick Horn	Elliott Bloom/Ken Fouts	This will be scheduled as part of the formal sign-off. See item 10 above.	Closed
16	Test flow chart (slide 12). How is EGSE validated? Is there a procedure? QA needs to review. Is there a procedure for validating/fitchecking MGSE? QA needs to review.	Joe Cullinan	Larry Wai / Eliazar Ortiz / Brian Horwitz / Doug Bartholemew	QA review of EGSE/MGSE validation is accomplished through QA review of all I&T procedures, which contain all EGSE/MGSE validation procedures. This will be accomplished along with item 7 above.	Closed
17	Need to document allowable troubleshooting before an NCR is opened.	Dick Horn	Elliott Bloom /Ken Fouts / QA	This will be updated in the I&T plan (by Elliott Bloom and Ken Fouts) (Updated I&T Plan LAT-MD-01376-02 released 5/6/05.)	Closed
18	Need additional review of first time flight hardware operations, particularly: quantitative verification of elect. Margins (current procedures seem to assume that if flight hardware items are tested against external items, EGSE, EM units, etc. then when they are connected together they have adequate margins. Dangerous assumption.) first time use of all procedures (same concern: shaking procedure done with EMs is good, but doesn't guarantee that first time use with FH items is risk free)	Bill Althouse	Elliott Bloom	Ken Fouts, Brian Grist plus relevant I&T personnel have been holding weekly document reviews with Joy and colleagues, and they have been making comments and suggestions to each individual document. Gunther Haller is in agreement on the content of these procedures. Margin testing of the DAC is proceeding in the EM testbed. To the extent that similar margin testing would need to be repeated on actual flight boxes, will require a considerable design effort to build the extra EGSE and associated testing procedures; IFCT would require additional direction/resources from I&T management/project management/ systems engineering. These issues are being considered in the weekly test planning meeting chaired by Pat Hascall of System Engineering. LAT-MD-02730, "LAT Performance and Operation Plan", will specify the ground tests that I&T will perform on the LAT. Also, plan to have a subsystems representative and QA present during first time operations (Updated I&T Plan LAT-MD-01376-02 released 5/6/05.)	Closed
19	What is the process for anomaly resolution? A) What assumptions are made about flight H/W & Test equipment? I.e.. Is flight unit assumed to be cause of fault until it is proven not to be? B) what documentation is generated to track anomaly and resolution? for flight unit? for test equipment? C) for troubleshooting that involves flight unit(s), who reviews and signs off troubleshooting plan?	Rick Bright	Elliott Bloom/Ken Fouts/QA	In the updated I&T plan (by Elliott Bloom and Ken Fouts) - I&T Plan LAT-MD-01376-02 released 5/6/05.	Closed
20	Consider implementing a method to track and control test equipment configuration. Example given was for mate/demate log of test equipment and cables. This can reduce loss of schedule and risk to flight H/W.	Rick Bright	Elliott Bloom/Ken Fouts	In the updated I&T plan (by Elliott Bloom and Ken Fouts). I&T will implement a separate EGSE tracking log. I&T Plan LAT-MD-01376-02 released 5/6/05.	Closed
21	Procedures need to be prioritized, a due date needs to be assigned for each, weekly review of signoff status, need to push documents through signoff.	Dick Horn	Ken Fouts/Brian Grist	Ken Fouts, Brian Grist plus relevant I&T personnel have been holding weekly document reviews with Joy and colleagues, and they have been making comments and suggestions to each individual document. Gunther Haller is in agreement on the content of these procedures.	Closed
22	Consider a way to instrument the internal bay installation mockup to verify procedures. Accelerometers on the mockup or tower is one potential method	Bill Craig	Ken FoutsTom Borden	Tom Borden is in charge of desiging and implementing tracker EM integration tests for I&T and will investigate all aspects of tooling including instrumentation.	Closed
23	Statement was made that procedures supplied by subsystems were not compatible with collecting info needed for trending. Define how these scripts/procedures are modified or accepted by I&T to ensure compliance with trending needs.	Bill Craig	Larry Wai/ Ric Claus	Trending requests have been sent from TKR and CAL to Larry Wai; he will evaluate adequacy of existing software for trending needs and work with Ric Clause for changes if needed. Procedures for implementation of trending data collection/review will be included in the I&T test procedures.	Closed
24	Define procedure to handover CPT between shifts. Rationale: CPT's are long enough that the stated requirement for these within one shift will drive the schedule and leave the next shift one hold.	Bill Craig	Ken Fouts	A detailed plan on shift operations will be developed by Ken Fouts. This will be covered along with item 8 above.	Closed
25	Convey procedure release plan and scheduled dates to subsystem folks.	Bill Althouse	Ken Fouts/Brian Grist	Current daily update of document status made by Brian Grist and put on the I&T Website also document information is shared in the weekly report.	Closed
26	QA needs to signoff on training plan. Need to get QA to officially agree to the completeness of training plan and to the method of officially recording the training completion.	Brian Grist	Larry Wai/ QA	Doug Bartholemew (QE) has agreed to a plan with Larry Wai; formal sign-off of training line items is in process.	Closed