GLAST Large Area Telescope: Face to Face Managers Meeting

I&T
February 16, 2005

Ken Fouts
I&T Engineering Manager
SLAC

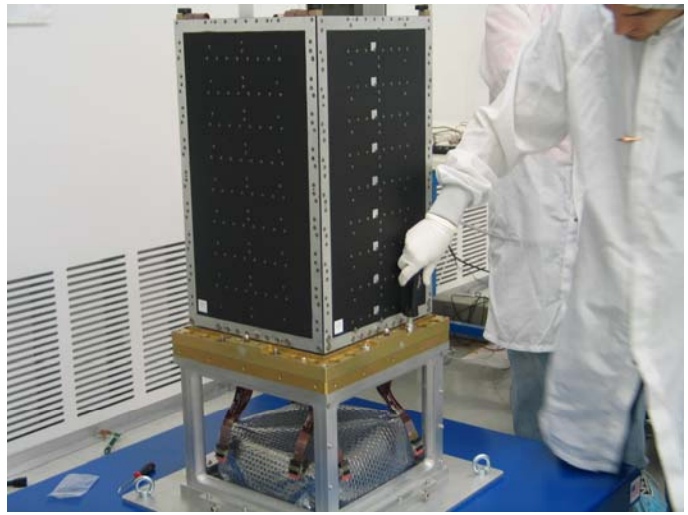
Elliott Bloom
I&T Manager

I&T Status

- Five (5) flight calorimeters and two (2) flight trackers have been received one in the single bay and the second bench tested.
  - Validated the calorimeter and tracker test benches and workstations for subsystem receiving tests.
- Thermal control system (TCS) components integrated into the flight grid.
  - Procedures for Grid handling, heatpipe bonding and installation of thermalcouples and thermistors released and executed.
- Detailed integration procedures have been developed and documented for TKR, CAL and TEM/TPS integration.
  - Integration procedures have been dry run with engineering model hardware to validate safe hardware handling.
- Software suites for CPT and LPT have been coded and validated for tower component testing and data taking.
  - Electrical ground support equipment (EGSE), workstations and test scripts have been validated with subsystem engineering model components.

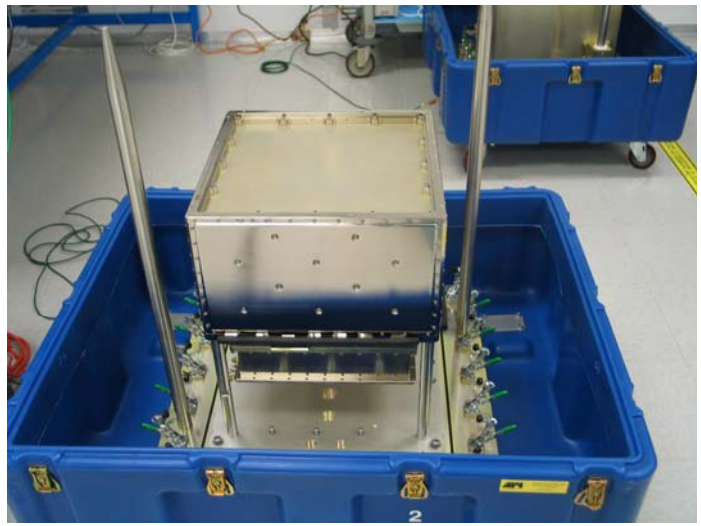
I&T Accomplishments

Preparation of flight grid for TCS integration



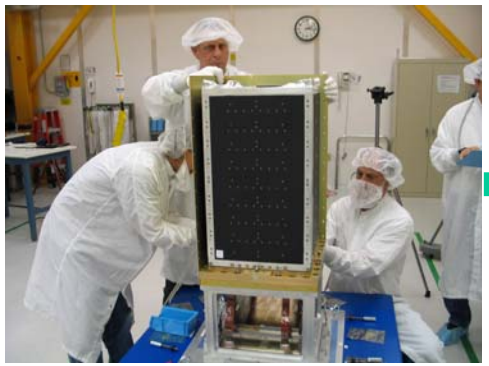
Flight Tracker in the Cleanroom at SLAC

LAT Integration stand with PAP ready for proof test



Flight Calorimeter in the shipping container base

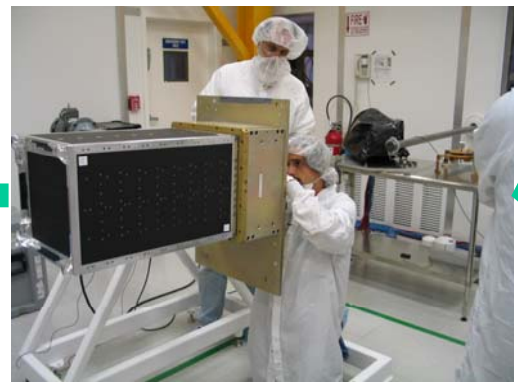
TKR Installation into the Single Bay



TKR Post receiving test configuration

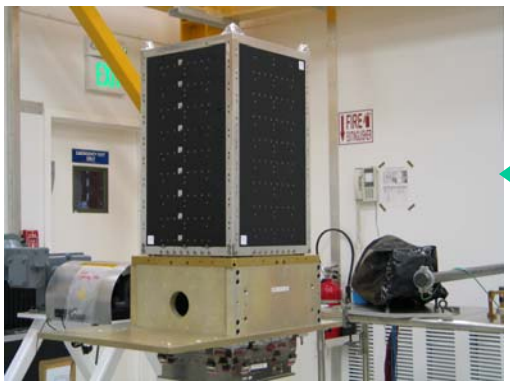
Lifting from the test support stand

Installing into the single bay test stand



Flex cable tie down

More flex cable tie down



TKR configured in the single bay test stand

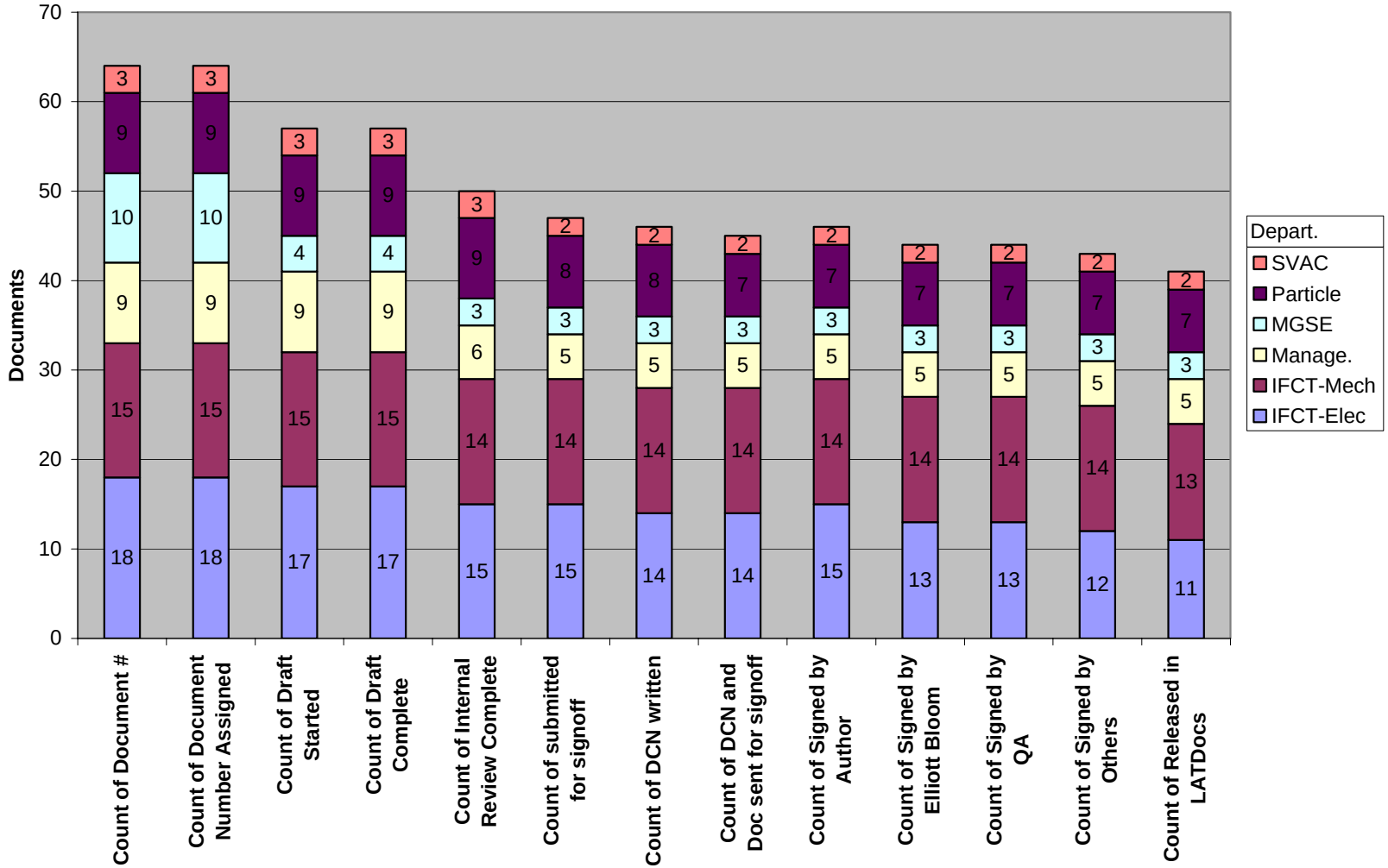
Procedure Status

Current Status

- 64 documents total
- 47 have been submitted for sign-off
- 41 have been released

November Status

- 61 documents total
- 31 have been submitted for sign-off
- 12 have been released



Procedure Status (1 of 6) - Management

Depart.	Document #	Document Title	Author	Document Number Assigned	Draft Started	Draft Complete	Internal Review Complete	Latest Draft in LATDocs	Draft sent to NASA	Submitted to CM (Natalie) for signoff (or expected date)	DCN written	DCN and Doc sent for signoff	Signed by Author	Signed by Elliott Bloom	Signed by QA	Signed by Others	Released in LATDocs	Completion Date (or expected)	Comments
Manage.	LAT-MD-01376-01	LAT Integration & Test Plan	Bloom / Fouts / Grist	✓	✓	✓	✓	✓	✓	03-May-04	✓	✓	✓	✓	✓	✓	✓	05-Aug-04	Version 2 in work
Manage.	LAT-TD-04542-01	ACD Subsystem to LAT I&T Deliverables MOU	Bloom / Bright	✓	✓	✓	✓		N/A	***Past Due***								*24-Feb-05*	
Manage.	LAT-TD-04543-01	CAL Subsystem to LAT I&T Deliverables MOU	Bloom / Bright	✓	✓	✓	✓	✓	N/A	07-Oct-04	✓	✓	✓	✓	✓	✓	✓	17-Nov-04	
Manage.	LAT-TD-04544-01	Mechanical and TCS Subsystem to LAT I&T Deliverables MOU	Bloom / Bright	✓	✓	✓			N/A	***Past Due***								*24-Feb-05*	
Manage.	LAT-TD-04545-01	Science Analysis Software to LAT I&T Deliverables MOU	Bloom / Bright	✓	✓	✓			N/A	***Past Due***								*24-Feb-05*	
Manage.	LAT-TD-04546-01	ELX/T&DF Subsystem to LAT I&T Deliverables MOU	Bloom / Bright	✓	✓	✓	✓	✓	N/A	27-Aug-04	✓	✓	✓	✓	✓	✓	✓	04-Oct-04	
Manage.	LAT-TD-04547-01	TKR Subsystem to LAT I&T Deliverables MOU	Bloom / Bright	✓	✓	✓			N/A	***Past Due***								*24-Feb-05*	Dave Rich reviewing with TKR team
Manage.	LAT-MD-04601-01	LAT I&T E-Logbook Implementation	Kavelaars / Fouts	✓	✓	✓	✓	✓	✓	01-Nov-04	✓	✓	✓	✓	✓	✓	✓	13-Dec-04	
Manage.	LAT-PS-05664-01	LAT I&T E-Logbook Test Proc.	Kavelaars	✓	✓	✓	✓	✓	✓	31-Jan-05	✓	✓	✓	✓	✓	✓	✓	02-Feb-05	

Procedure Status (2 of 6) - MGSE

Depart.	Document #	Document Title	Author	Document Number Assigned	Draft Started	Draft Complete	Internal Review Complete	Latest Draft in LATDocs	Draft sent to NASA	Submitted to CM (Natalie) for signoff (or expected date)	DCN written	DCN and Doc sent for signoff	Signed by Author	Signed by Elliott Bloom	Signed by QA	Signed by Others	Released in LATDocs	Completion Date (or expected)	Comments
MGSE	LAT-MD-01462-02	MGSE Development Plan	Gawehn	✓	✓	✓				***Past Due***								*24-Feb-05*	Tom and Ken are reviewing the draft
MGSE	LAT-PS-04226-01	1x1 Lift Fixture Installation and Removal	Gawehn / Borden	✓						***Past Due***								*24-Feb-05*	
MGSE	LAT-PS-04227-01	GPR onto rotation Stand MGSE	Gawehn / Borden	✓						***Past Due***								*24-Feb-05*	
MGSE	LAT-PS-04228-01	4x4 Stand Operations Manual	Gawehn / Borden	✓						***Past Due***								*24-Feb-05*	
MGSE	LAT-PS-04229-01	4x4 Lift Fixture Installation and Removal, +Z axis vertical	Gawehn / Borden	✓						***Past Due***								*24-Feb-05*	
MGSE	LAT-PS-04230-01	4x4 Lift Fixture Installation and Removal, +Z axis horizontal	Gawehn / Borden	✓						***Past Due***								*24-Feb-05*	
MGSE	LAT-PS-04231-01	Grid integration into GPR MGSE	Gawehn / Borden	✓						***Past Due***								*24-Feb-05*	
MGSE	LAT-PS-05137-01	Calorimeter Lift Fixture Proof Tests	Gawehn	✓	✓	✓	✓	✓	✓	09-Dec-04	✓	✓	✓	✓	✓	✓	✓	13-Dec-04	
MGSE	LAT-PS-05236-01	Tracker Lift Fixture Proof Tests	Borden	✓	✓	✓	✓	✓	✓	22-Nov-04	✓	✓	✓	✓	✓	✓	✓	07-Feb-05	
MGSE	LAT-PS-05748-01	GPR, GPR to Grid Bracket, Support Shaft, and Base Struc. Proof Tes - Yaxis	Gawehn	✓	✓	✓	✓	✓	✓	07-Feb-05	✓	✓	✓	✓	✓	✓	✓	08-Feb-05	

Procedure Status (3 of 6) – IFCT Electrical

Depart.	Document #	Document Title	Author	Document Number Assigned	Draft Started	Draft Complete	Internal Review Complete	Latest Draft in LATDocs	Draft sent to NASA	Submitted to CM (Natalie) for signoff (or expected date)	DCN written	DCN and Doc sent for signoff	Signed by Author	Signed by Elliott Bloom	Signed by QA	Signed by Others	Released in LATDocs	Completion Date (or expected)	Comments
IFCT-Elec	LAT-MD-01533-01	EGSE Plan	Horwitz / Wai	✓	✓	✓	✓	✓	✓	17-Nov-04	✓	✓	✓	✓	✓	✓	✓	14-Dec-04	
IFCT-Elec	LAT-PS-03276-01	Two Tower Test Procedure	Horwitz	✓						*07-Mar-05*								*21-Mar-05*	
IFCT-Elec	LAT-PS-03287-04	Cal Module Test Procedure	Horwitz	✓	✓	✓	✓			14-Feb-05			✓					*28-Feb-05*	
IFCT-Elec	LAT-PS-03290-02	Tracker Module Test Procedure	Canfield	✓	✓	✓	✓	✓	✓	31-Jan-05	✓	✓	✓	✓	✓	✓	✓	03-Feb-05	
IFCT-Elec	LAT-TD-03875-02	TEM EICIT Procedure	Horwitz	✓	✓	✓	✓	✓	✓	19-Jul-04	✓	✓	✓	✓	✓	✓	✓	28-Oct-04	Version 3 in work
IFCT-Elec	LAT-TD-04097-02	TEM SVT Procedure	Horwitz	✓	✓	✓	✓	✓	✓	19-Jul-04	✓	✓	✓	✓	✓	✓	✓	29-Oct-04	
IFCT-Elec	LAT-TD-04098-01	TPS SVT Procedure	Horwitz	✓	✓	✓	✓	✓	✓	19-Jul-04	✓	✓	✓	✓	✓	✓	✓	29-Oct-04	
IFCT-Elec	LAT-TD-04099-02	TPS EICIT Procedure	Horwitz	✓	✓	✓	✓	✓	✓	02-Dec-04	✓	✓	✓	✓	✓	✓	✓	17-Dec-04	
IFCT-Elec	LAT-TD-04260-02	GASU EICIT Procedure	Horwitz	✓	✓	✓	✓	✓	✓	14-Dec-04	✓	✓	✓	✓	✓	✓	✓	17-Dec-04	
IFCT-Elec	LAT-TD-04325-01	Acceptance Test Procedure, Break out Boxes and Cables	Horwitz	✓	✓	✓	✓	✓	✓	12-Nov-04	✓	✓	✓	✓	✓	✓	✓	16-Nov-04	
IFCT-Elec	LAT-TD-04332-01	PDU EICIT Procedure	Horwitz	✓	✓	✓	✓	✓	✓	13-Aug-04	✓	✓	✓	✓	✓	✓	✓	28-Oct-04	Version 2 in work
IFCT-Elec	LAT-TD-04382-01	GASU SVT Procedure	Horwitz	✓	✓	✓				***Past Due***								*24-Feb-05*	
IFCT-Elec	LAT-TD-04384-01	PDU SVT Procedure	Horwitz	✓	✓	✓				***Past Due***								*24-Feb-05*	
IFCT-Elec	LAT-PS-04511-01	Data Collection Procedure	Horwitz	✓	✓	✓	✓	✓	✓	08-Feb-05	✓	✓	✓	✓	✓			*21-Feb-05*	Comments from Gary being incorporated
IFCT-Elec	LAT-PS-04512-01	Single Tower Test Procedure	Horwitz	✓	✓	✓	✓	✓	✓	11-Feb-05	✓	✓	✓	✓	✓	✓		11-Feb-05	Document signed off, waiting to be released into LATDocs
IFCT-Elec	LAT-PS-05504-01	Computing Infrastructure	Canfield	✓	✓	✓	✓	✓	✓	28-Jan-05	✓	✓	✓	✓	✓	✓	✓	02-Feb-05	
IFCT-Elec	LAT-PS-05527-03	I&T Test Stand Setup Procedure	Horwitz	✓	✓	✓	✓	✓	✓	11-Feb-05	✓	✓	✓					*27-Feb-05*	
IFCT-Elec	LAT-PS-05736-01	LATTE and Components Installation	Canfield	✓	✓	✓	✓	✓	✓	01-Feb-05	✓	✓	✓	✓	✓	✓	✓	02-Feb-05	

Procedure Status (4 of 6) – IFCT Mechanical

Depart.	Document #	Document Title	Author	Document Number Assigned	Draft Started	Draft Complete	Internal Review Complete	Latest Draft in LATDocs	Draft sent to NASA	Submitted to CM (Natalie) for signoff (or expected date)	DCN written	DCN and Doc sent for signoff	Signed by Author	Signed by Elliott Bloom	Signed by QA	Signed by Others	Released in LATDocs	Completion Date (or expected)	Comments
IFCT-Mech	LAT-MD-01386-02	LAT Facilities Plan	Borden	✓	✓	✓	✓	✓	✓	02-Feb-05	✓	✓	✓	✓	✓	✓	✓	11-Feb-05	
IFCT-Mech	LAT-PS-03027-01	Calorimeter Integration Procedures	Ortiz	✓	✓	✓	✓	✓	✓	06-Aug-04	✓	✓	✓	✓	✓	✓	✓	09-Dec-04	
IFCT-Mech	LAT-PS-03058-01	Tracker Integration Procedures	Borden	✓	✓	✓	✓	✓	✓	24-Jan-05	✓	✓	✓	✓	✓	✓		11-Feb-05	Document signed off, waiting to be released into LATDocs
IFCT-Mech	LAT-PS-03060-01	Room 104, Ingress and Egress of Large Equipment Procedure	Ortiz	✓	✓	✓	✓	✓	✓	27-Jul-04	✓	✓	✓	✓	✓	✓	✓	16-Dec-04	
IFCT-Mech	LAT-PS-03062-01	Tem/TemPS Shimming Procedure	Ortiz	✓	✓	✓	✓	✓	✓	28-Jul-04	✓	✓	✓	✓	✓	✓	✓	05-Jan-05	Version 2 in work
IFCT-Mech	LAT-PS-03259-01	Shear Plate Shim Procedure	Ortiz	✓	✓	✓	✓	✓	✓	02-Sep-04	✓	✓	✓	✓	✓	✓	✓	22-Nov-04	
IFCT-Mech	LAT-PS-03263-01	Fastener Installation and Torquing Procedure	Borden	✓	✓	✓	✓	✓	✓	13-Oct-04	✓	✓	✓	✓	✓	✓	✓	02-Dec-04	
IFCT-Mech	LAT-PS-03281-01	LAT Test Floor Configuration Procedure	Borden	✓	✓	✓	✓	✓	✓	21-Jan-05	✓	✓	✓	✓	✓	✓	✓	24-Jan-05	
IFCT-Mech	LAT-PS-03291-01	Flight Hardware Bag and Purge Procedure	Borden	✓	✓	✓	✓	✓	✓	28-Oct-04	✓	✓	✓	✓	✓	✓	✓	14-Dec-04	
IFCT-Mech	LAT-PS-03481-02	GLAST LAT Integration Facility Emergency Plan	Borden	✓	✓	✓	✓	✓	✓	01-Oct-04	✓	✓	✓	✓	✓	✓	✓	12-Nov-04	
IFCT-Mech	LAT-PS-04244-01	Load Mass simulators into GRID MGSE	Ortiz	✓	✓	✓				*Past Due*								*25-Feb-05*	
IFCT-Mech	LAT-PS-04436-01	AeroGo Air Bearing Reference Guide	Ortiz	✓	✓	✓	✓	✓	✓	02-Sep-04	✓	✓	✓	✓	✓	✓	✓	04-Nov-04	
IFCT-Mech	LAT-PS-04459-01	Connector Mate and Demate	Manger / Horwitz	✓	✓	✓	✓	✓	✓	16-Dec-04	✓	✓	✓	✓	✓	✓	✓	05-Jan-05	
IFCT-Mech	LAT-PS-04727-01	Tie Mount Bonding Procedure	Ortiz	✓	✓	✓	✓	✓	✓	30-Sep-04	✓	✓	✓	✓	✓	✓	✓	17-Nov-04	
IFCT-Mech	LAT-PS-05487-01	Mobile Hydraulic Unit (MHU) Operations Procedure	Manger	✓	✓	✓	✓	✓	✓	17-Dec-04	✓	✓	✓	✓	✓	✓	✓	20-Dec-04	

Procedure Status (5 of 6) - Particle

Depart.	Document #	Document Title	Author	Document Number Assigned	Draft Started	Draft Complete	Internal Review Complete	Latest Draft in LATDocs	Draft sent to NASA	Submitted to CM (Natalie) for signoff (or expected date)	DCN written	DCN and Doc sent for signoff	Signed by Author	Signed by Elliott Bloom	Signed by QA	Signed by Others	Released in LATDocs	Completion Date (or expected)	Comments
Particle	LAT-TD-00440-07	LAT Particle Test Plan	Godfrey	✓	✓	✓	✓			*Past Due*	✓							*24-Feb-05*	
Particle	LAT-TD-01396-01	Calibration of the Van de Graaff Photon Flux	Godfrey	✓	✓	✓	✓	✓	✓	06-Aug-04	✓	✓	✓	✓	✓	✓	✓	17-Nov-04	
Particle	LAT-TD-01805-02	Van de Graaff Accelerator Safety/Operations Handbook	Godfrey	✓	✓	✓	✓	✓	✓	30-Sep-04	✓	✓	✓	✓	✓	✓	✓	14-Oct-04	
Particle	LAT-PS-04133-01	Procedure to Take Simultaneous BGO and LAT Data	Godfrey	✓	✓	✓	✓	✓	✓	06-Aug-04	✓	✓	✓	✓	✓	✓	✓	17-Nov-04	
Particle	LAT-TD-04134-01	Procedure for Setting the LAT Timing Registers	Godfrey	✓	✓	✓	✓	✓	✓	06-Aug-04	✓	✓	✓	✓	✓	✓	✓	18-Nov-04	
Particle	LAT-TD-04135-01	Procedure for Measuring the LAT Trigger Jitter using the Muon Telescope	Godfrey	✓	✓	✓	✓	✓	✓	06-Aug-04	✓	✓	✓	✓	✓	✓	✓	18-Nov-04	
Particle	LAT-TD-04136-01	Van de Graaff and Cosmic Data Runs for LAT Integration	Godfrey	✓	✓	✓	✓	✓	✓	10-Feb-05	✓	✓	✓	✓	✓	✓	✓	11-Feb-05	
Particle	LAT-TD-04419-02	Muon Telescope	Godfrey	✓	✓	✓	✓	✓	✓	04-Nov-04	✓	✓	✓	✓	✓	✓	✓	18-Nov-04	
Particle	LAT-TD-04980-01	Use of an Am241 Source for High Rate Triggering	Godfrey	✓	✓	✓	✓	✓	✓	14-Feb-05								*01-Mar-05*	

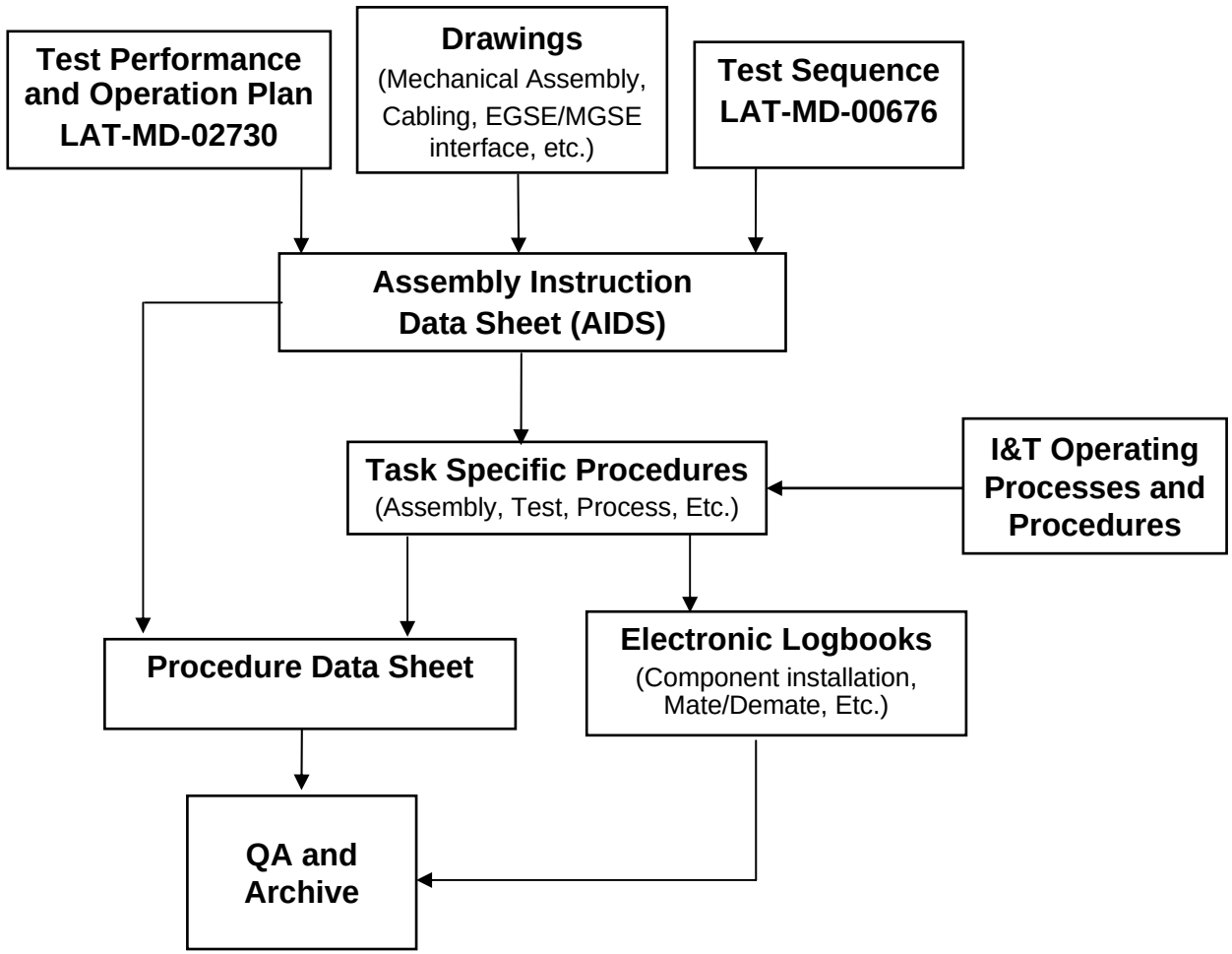
Procedure Status (6 of 6) - SVAC

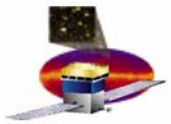
Depart.	Document #	Document Title	Author	Document Number Assigned	Draft Started	Draft Complete	Internal Review Complete	Latest Draft in LATDocs	Draft sent to NASA	Submitted to CM (Natalie) for signoff (or expected date)	DCN written	DCN and Doc sent for signoff	Signed by Author	Signed by Elliott Bloom	Signed by QA	Signed by Others	Released in LATDocs	Completion Date (or expected)	Comments
SVAC	LAT-MD-00446-06	SVAC Plan	do Couto e Silva	✓	✓	✓	✓	✓	✓	24-Aug-04	✓	✓	✓	✓	✓	✓	✓	30-Oct-04	
SVAC	LAT-MD-00575-01	SVAC Plan for LAT Integration at SLAC	do Couto e Silva	✓	✓	✓	✓	✓	✓	04-Nov-04	✓	✓	✓	✓	✓	✓	✓	16-Nov-04	
SVAC	LAT-MD-00613-02	SVAC Contributed Manpower	do Couto e Silva	✓	✓	✓	✓	✓		*04-Mar-05*								*18-Mar-05*	

I&T Procedure Process

- I&T Procedures are developed by the appropriate Electrical or Mechanical Team members.
- Procedures are reviewed internally by I&T and then the draft is put in LAT Docs for external review. Subsystems are notified by e-mail of the document status.
- Whenever possible draft procedures are used to dry run assembly, integration and testing of EM hardware.
- Document signature cycle is determined by Systems Engineering.
- I&T Procedures (including AIDS) are reviewed and signed off (at a minimum) by:
  - The document author
  - Quality Engineer
  - Subsystem Engineer (TKR, CAL, ELX, Mech., I&T)
  - I&T Manager and/or I&T Engineering Manager.
- Daily “huddles” will be used prior to first use of procedures with flight hardware to review the steps and “mistakeproof” the process.
- I&T Procedures will be executed by the appropriate Mechanical or Electrical Technicians and/or Science & Engineering (S&E) Associates.
- Procedures can be redlined on the floor with appropriate signatures (as a minimum the person making the change, Test Director and QA initial and date redline changes).

I&T Documentation Flow





I&T Detail Schedule

I&T work schedule 2/15/05

ID	Task Name	Start	% Complete	Finish
440	TKR A LPT (lights on/off)	2/15/05	0%	2/15/05
441	**FM104 installation into test bay**	**2/16/05**	**0%**	**2/16/05**
442	FM104 crane operation into test bay	2/16/05	0%	2/16/05
443	TKR-A flex cables mate to TEM/TPS A	2/16/05	0%	2/16/05
444	**Tower-A Single Bay Test**	**2/16/05**	**0%**	**3/1/05**
445	Tower-A Aliveness Test	2/16/05	0%	2/16/05
446	Tower-A Tracker CPT/LPT	2/17/05	0%	2/17/05
447	Tower-A CAL CPT/LPT	2/17/05	0%	2/17/05
448	Tower-A test bay Data Collection	2/17/05	0%	2/28/05
449	Tower-A Trigger Tests	2/28/05	0%	3/1/05
450	**Tower-A Grid Bay I&T**	**3/1/05**	**0%**	**3/21/05**
451	**TKR-A installation into grid bay**	**3/1/05**	**0%**	**3/7/05**
452	Move FM104 temporarily to Metrology Bay	3/1/05	0%	3/1/05
453	TKR-A Crane Operation into grid bay 0	3/4/05	0%	3/4/05
454	TKR-A Flexure Fastening	3/4/05	0%	3/4/05
455	TKR-A Optical Survey	3/4/05	0%	3/7/05
456	TKR-A Flex Cable Bending/Bonding	3/7/05	0%	3/7/05
457	**FM104 installation into grid bay**	**3/7/05**	**0%**	**3/8/05**
458	FM104 crane operation into grid bay 0	3/7/05	0%	3/7/05
459	TKR-A Flex Cable Flight Mate to TEM/TPS-A	3/7/05	0%	3/8/05
460	**Tower-A Grid Bay Test**	**3/8/05**	**0%**	**3/21/05**

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I&T work schedule 2/15/05

ID	Task Name	Start	% Complete	Finish
461	Tower-A post-integration Aliveness Test	3/8/05	0%	3/8/05
462	Tower-A post-integration Single Bay CPT	3/8/05	0%	3/8/05
463	Tower-A grid bay Data collection	3/8/05	0%	3/21/05
464	**Tower B**	**1/10/05**	**4%**	**4/1/05**
472	**Tracker B post ship test & receiving test (AIDS 751)**	**2/14/05**	**0%**	**2/23/05**
473	Perform Procedure LAT-PS-05471 Tracker Receiving & Post ship	2/14/05	0%	2/15/05
474	Check Torque of flexure nuts (AID 784)	2/15/05	0%	2/15/05
475	Perform Post-Shipment Electrical Test per LAT-PS-05481-01	2/15/05	0%	2/15/05
476	Perform EMI Acceptance Test per LAT-TD-05462-01	2/15/05	0%	2/16/05
477	Install EMI shield and taping on Tower A	2/16/05	0%	2/17/05
478	Perform Hand-off Electrical Test per LAT-PS-05481-01	2/17/05	0%	2/18/05
479	Tracker Complete I&T handoff presentation	2/20/05	0%	2/21/05
480	Perform I&T handoff Meeting	2/22/05	0%	2/22/05
481	Sell TKR-B to I&T	2/22/05	0%	2/22/05
482	I&T TKR-B Receiving Test (LAT-PS-3290)	2/22/05	0%	2/23/05
483	TEM/TPS B Flight Readiness	2/24/05	0%	2/24/05
484	**TEM/TPS-B I&T**	**2/7/05**	**0%**	**3/3/05**
485	Install FM105 into Metrology Bay	2/7/05	0%	2/7/05
486	Shim TEM/TPS-B onto FM105	2/24/05	0%	2/24/05
487	FM105 flex cable flight mates to TEM/TPS-B	3/3/05	0%	3/3/05
488	FM105 Post-Integration CAL CPT	3/3/05	0%	3/3/05

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I&T work schedule 2/15/05

ID	Task Name	Start	% Complete	Finish
489	**Tower-B Test Bay I&T**	**2/23/05**	**0%**	**3/10/05**
490	**TKR-B installation into test bay**	**2/23/05**	**0%**	**3/1/05**
491	Receive 2nd Test stand	3/1/05	0%	3/1/05
492	TKR-B crane operation into test bay	2/23/05	0%	2/23/05
493	Install TEM/TPS onto test bay	2/23/05	0%	2/23/05
494	TKR-B flex cables mate to TEM/TPS	2/23/05	0%	2/23/05
495	TKR-B post-installation LPT	2/23/05	0%	2/24/05
496	**FM105 installation into test bay**	**2/24/05**	**0%**	**2/25/05**
497	FM105 crane operation into test bay	2/24/05	0%	2/25/05
498	TKR-B flex cables mate to TEM/TPS-B	2/25/05	0%	2/25/05
499	**Tower-B Single Bay Test**	**3/7/05**	**0%**	**3/10/05**
500	Tower-B Aliveness Test	3/7/05	0%	3/7/05
501	Tower-B Single Bay CPT	3/7/05	0%	3/7/05
502	Tower-B Trigger Tests	3/7/05	0%	3/9/05
503	Tower-B Clock Test	3/9/05	0%	3/9/05
504	Tower-B test bay Data Collection	3/9/05	0%	3/10/05
505	**Tower-B Grid Bay I&T**	**3/1/05**	**0%**	**4/1/05**
506	**TKR-B installation into grid bay**	**3/10/05**	**0%**	**3/17/05**
507	FM105 crane operation into metrology bay	3/10/05	0%	3/11/05
508	TKR-B Crane Operation into grid bay 4	3/11/05	0%	3/11/05
509	TKR-B Flexure Fastening	3/11/05	0%	3/14/05

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I&T work schedule 2/15/05

ID	Task Name	Start	% Complete	Finish
510	TKR-B Optical Survey	3/14/05	0%	3/15/05
511	TKR-B Flex Cable Bending/Bonding	3/16/05	0%	3/17/05
512	**FM102 installation into grid bay**	**3/18/05**	**0%**	**3/21/05**
513	FM105 crane operation into grid bay 4	3/18/05	0%	3/18/05
514	TKR-B Flex Cable Flight Mate to TEM/TPS-B	3/18/05	0%	3/21/05
515	**Tower-B Grid Bay Test**	**3/21/05**	**0%**	**3/21/05**
516	Tower-B post-integration Aliveness Test	3/21/05	0%	3/21/05
517	Tower-B post-integration Single Bay CPT	3/21/05	0%	3/21/05
518	**Two Tower Test**	**3/1/05**	**0%**	**4/1/05**
519	Transport MiniLAT from Testbed to bldg 33	3/22/05	0%	3/22/05
520	Receive flight-like EM TEM/TPS	3/1/05	0%	3/1/05
521	Receive GASU with updated firmware	3/1/05	0%	3/1/05
522	Validate Two Tower Test Procedure	3/22/05	0%	3/23/05
523	Two Tower Test - A & B	3/23/05	0%	4/1/05
524	**Tower 1**	**12/6/04**	**4%**	**5/24/05**
525	**FM101 Post ship test and receiving test**	**12/6/04**	**92%**	**1/14/05**
532	Post test review	1/13/05	0%	1/13/05
533	**Tracker 1 post ship test & receiving test**	**3/8/05**	**0%**	**3/30/05**
534	**TKR-1 Post-Ship Test**	**3/8/05**	**0%**	**3/15/05**
535	Tracker receiving inspection	3/8/05	0%	3/9/05
536	Tracker post-ship test	3/10/05	0%	3/14/05

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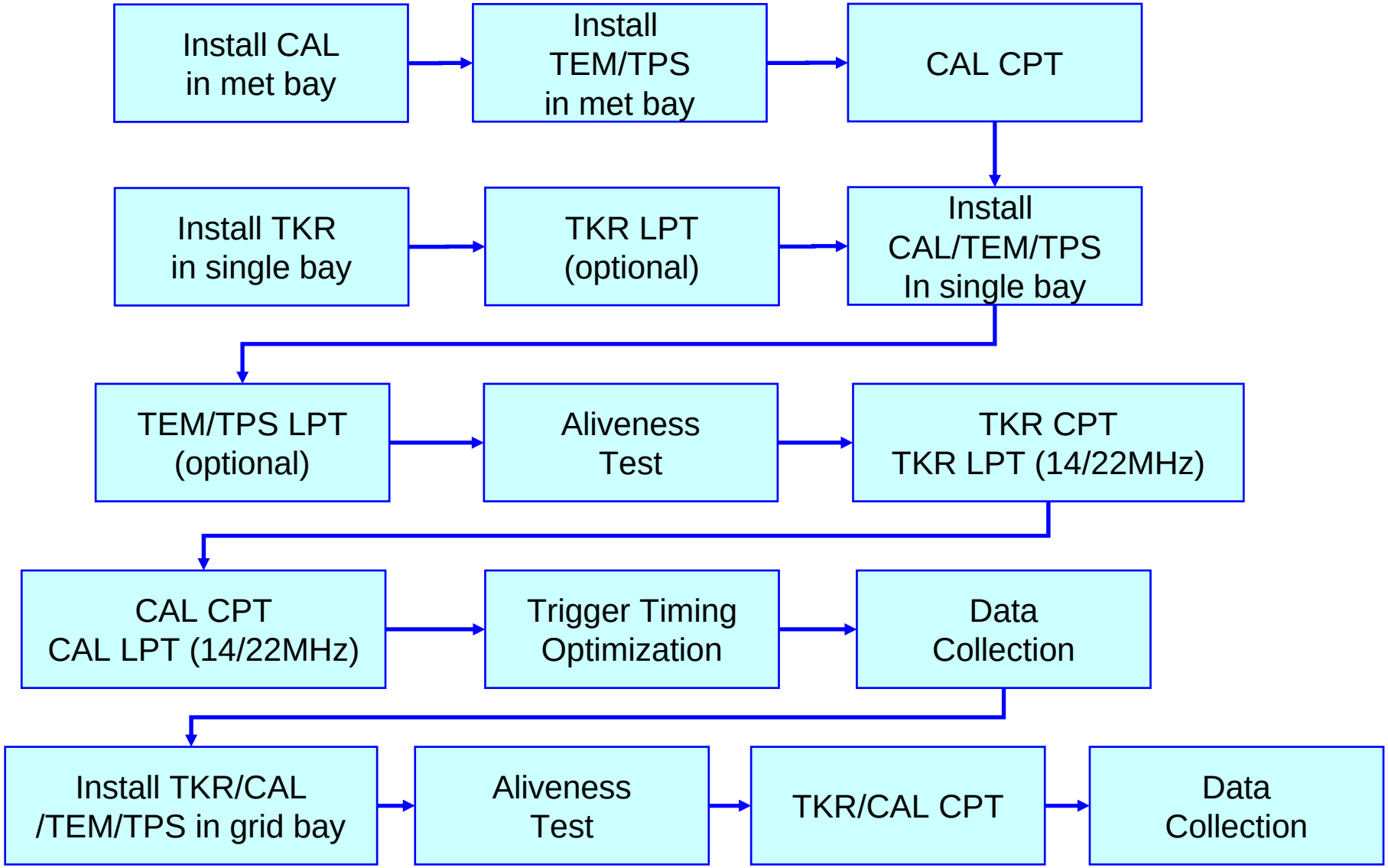
Single Tower I&T Sequence

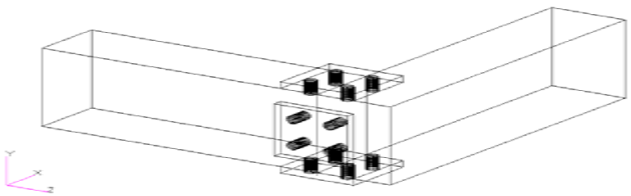


LAT MGSE Activities

- Completed proof test of the 4x4 and Z-axis lift fixtures.
- During proof test of the GPR on the Base Structure Assembly, movement of the GPR corner joints was believed to have been observed after test on Feb. 09.
- The movement of the joint was confirmed on Feb. 10, 2005.
  - The slippage began with creaking noises as the GPR with Proof Test Weight (PTW) was rotated through 360 degrees.
  - This implies the joint is failing and is not of sufficient pedigree to go forward with the tests/integration with the LAT flight grid.
- Root cause of the failure is under investigation.
  - Review stress report from Nov. 2004 indicates GPR joints showed positive margin.
  - It is not clear if all of the load cases were included.
- Meeting convened on Feb. 11 to review preliminary analysis of the joint and determine path forward.
  - 3 design concepts for the GPR corner joint are being analyzed.
  - The grid perimeter ring is being disassembled for inspection
  - Surveying local in-house and outside machining shops for capability.

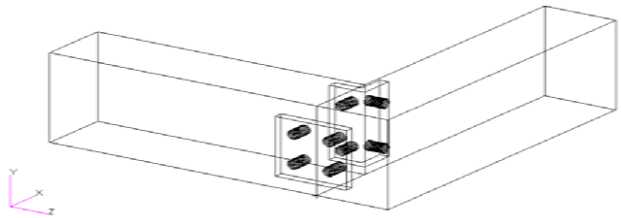
GPR Joint Repair Concepts

Option 1



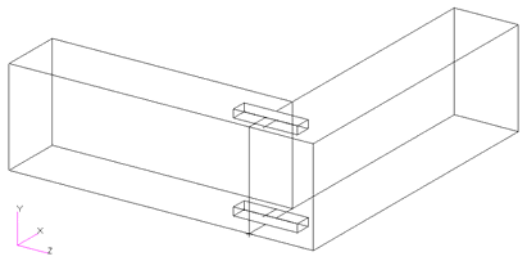
Three shear pinned shear plates

Option 2



Outside shear plate with a corner boss

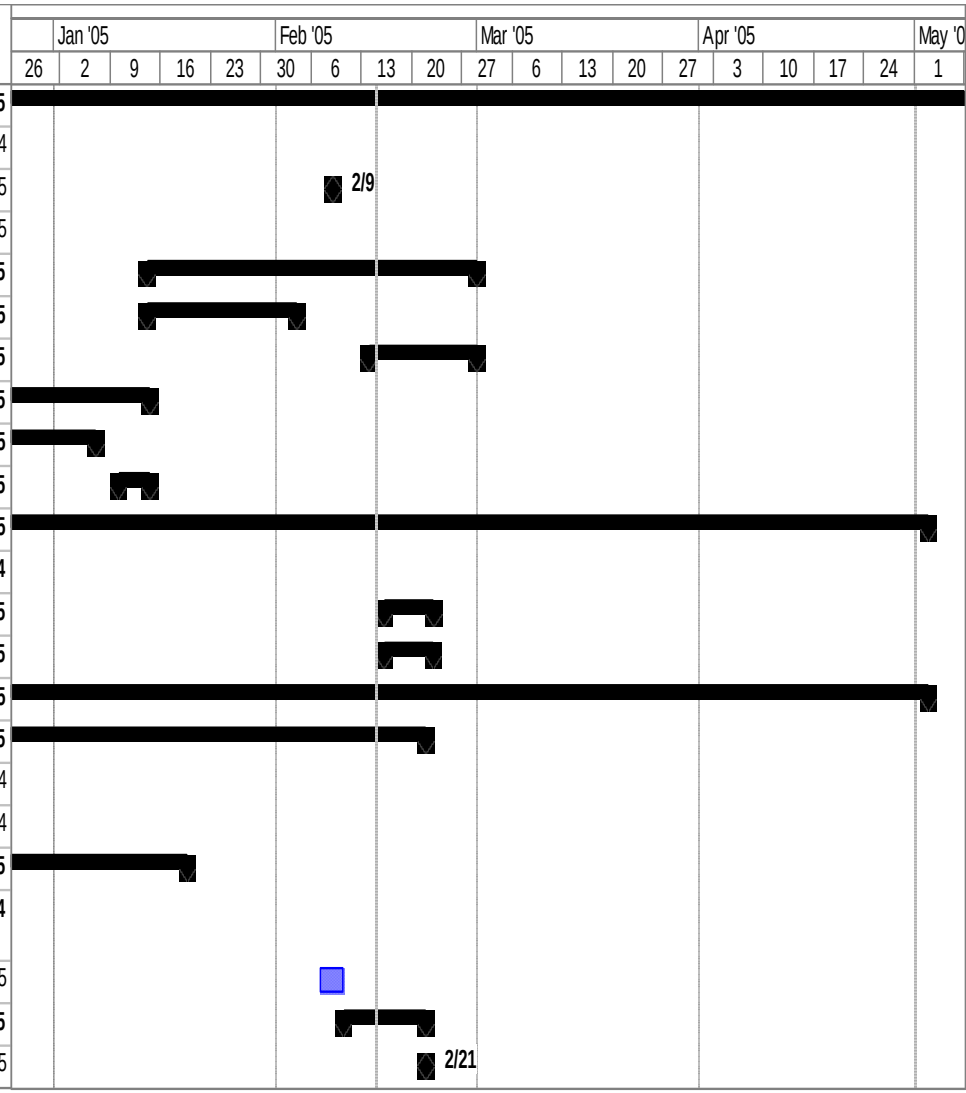
Option 3



2-Steel Shear Keys 1”x 0.5”x 4”

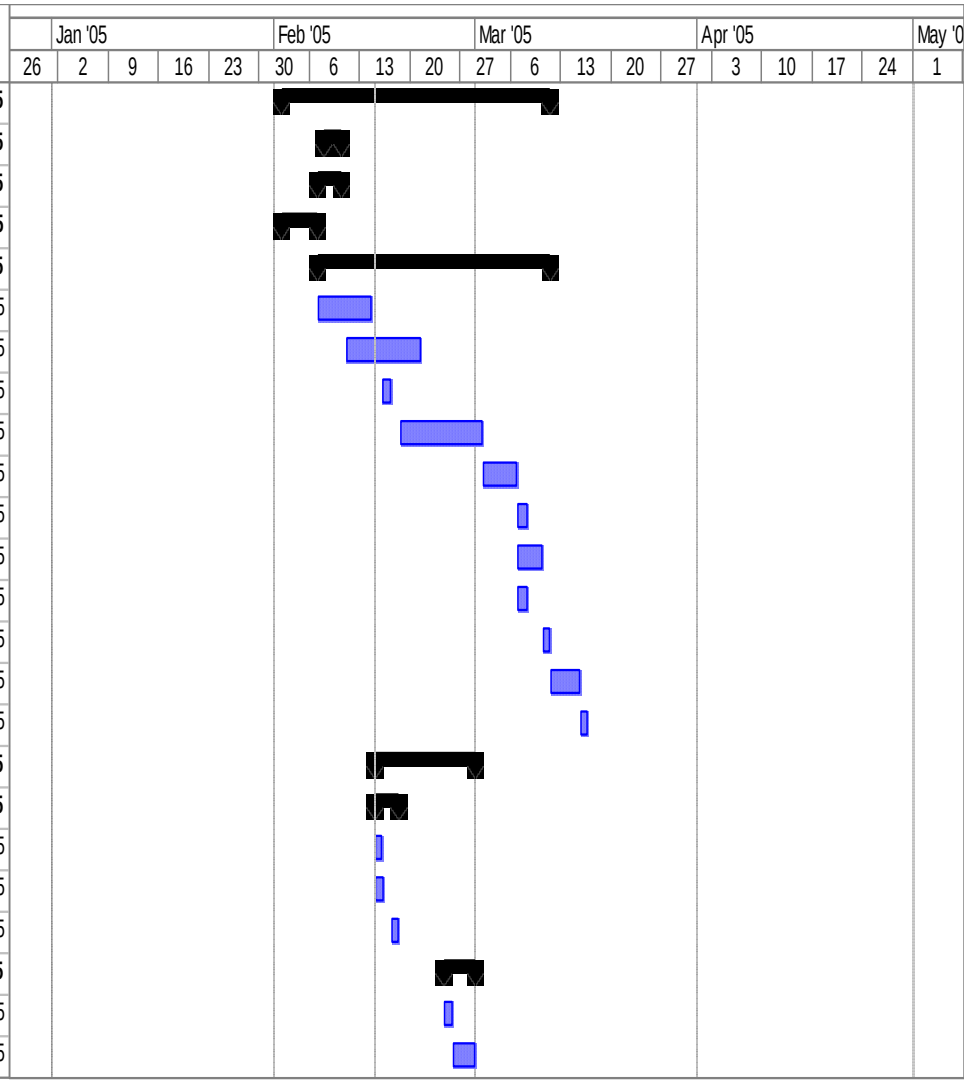
I&T Schedule (1 of 3)

ID	Task Name	Duration	Start	Finish
1	**LAT Integration Plan**	**287.5 days?**	**3/19/04**	**5/31/05**
2	Receive Grid	0 days	11/3/04	11/3/04
3	X-LAT Thermal Plate RFI	0 days	2/9/05	2/9/05
4	Radiators RFI	0 days	5/31/05	5/31/05
5	**Tracker Receiving**	**29.25 days?**	**1/14/05**	**2/28/05**
6	**Tracker A**	**13.63 days?**	**1/14/05**	**2/4/05**
16	**Tracker B**	**10 days**	**2/14/05**	**2/28/05**
25	**Calorimeter Receiving**	**41.56 days?**	**11/10/04**	**1/14/05**
26	**Calorimeter A**	**36.63 days**	**11/10/04**	**1/7/05**
31	**Calorimeter B-FM105**	**4 days?**	**1/10/05**	**1/14/05**
38	**Electronics Receiving**	**269.19 days**	**3/19/04**	**5/3/05**
39	**Cables**	**3.75 days**	**11/15/04**	**11/19/04**
58	**TEM Assemblies**	**4.69 days**	**2/16/05**	**2/23/05**
61	**TEM PS Assemblies**	**4.69 days**	**2/16/05**	**2/23/05**
64	**Electronic Boxes**	**269.19 days**	**3/19/04**	**5/3/05**
72	**Grid Mechanical in I&T**	**103.88 days**	**9/15/04**	**2/21/05**
73	Receive Grid	0 days	11/3/04	11/3/04
74	Receive EMI Skirt Assy	0 days	11/3/04	11/3/04
75	**Grid Box Base Assembly Operations**	**38.75 days**	**11/17/04**	**1/19/05**
82	**Grid Box Base Assembly Thermal Control System Operations**	**6.75 days**	**9/15/04**	**9/24/04**
89	Bakeout Grid	3 days	2/7/05	2/10/05
90	**Grid Box Base Assy**	**7 days**	**2/10/05**	**2/21/05**
99	Grid RFI	0 days	2/21/05	2/21/05



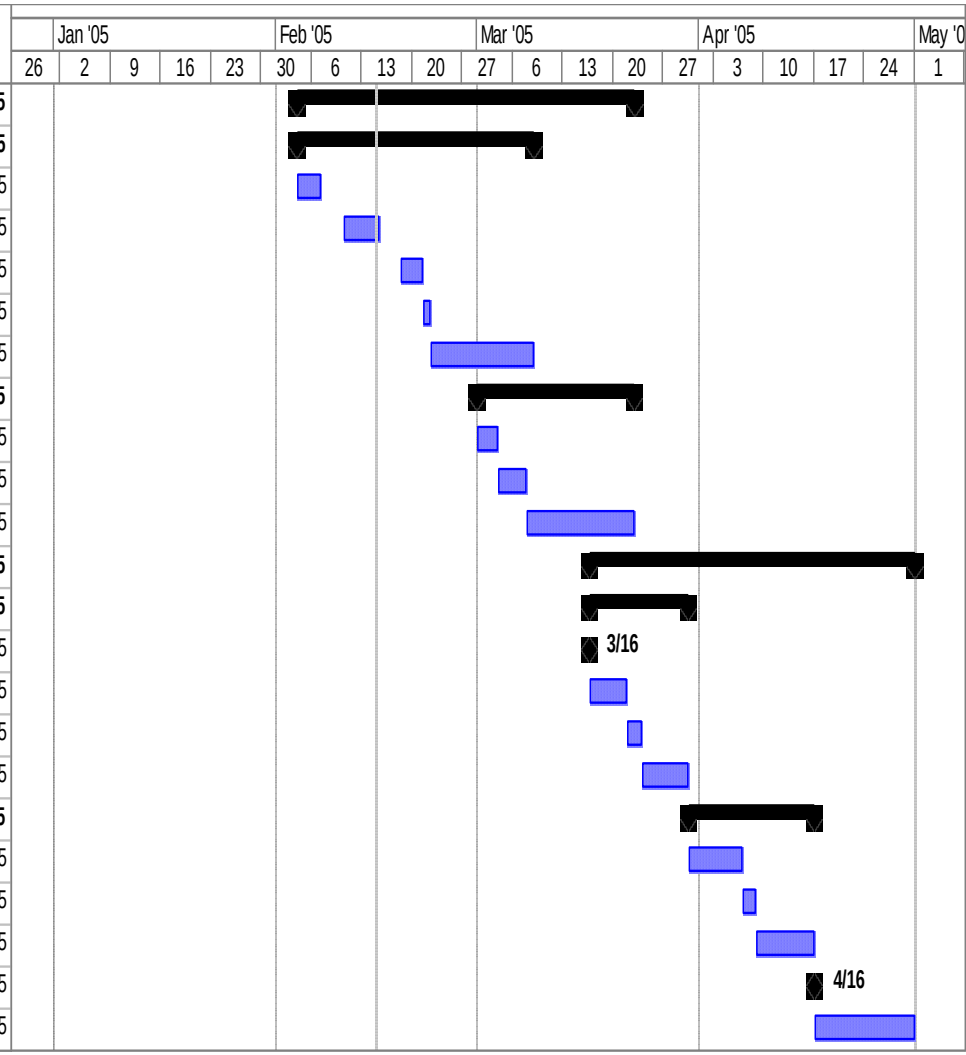
I&T Schedule (2 of 3)

ID	Task Name	Duration	Start	Finish
100	**MGSE**	**25.56 days?**	**2/2/05**	**3/11/05**
101	**Single Bay Proof Test**	**1.94 days?**	**2/8/05**	**2/10/05**
105	**CAL-TEM XY Location Tool**	**3 days?**	**2/7/05**	**2/10/05**
108	**TKR Lift Fixture**	**2.81 days?**	**2/2/05**	**2/7/05**
111	**Integration Stand**	**22.75 days?**	**2/7/05**	**3/11/05**
112	Integration Stand Proof Test	5 days	2/7/05	2/14/05
113	GPR Corner Redesign	6 days	2/11/05	2/21/05
114	GPR disassembly/Inspection in B25	1 day	2/16/05	2/17/05
115	GPR Corner Rework/Remachine	7 days	2/18/05	3/1/05
116	GPR Integration and Proof Test	3 days	3/1/05	3/7/05
117	HEEC, ESC Committee Review	1 day?	3/7/05	3/8/05
118	Grid Perimeter Ring to Grid Fit-up	3 days	3/7/05	3/10/05
119	Integration Stand move to Bldg 33	1 day	3/7/05	3/8/05
120	Integration Stand Training and Checkout	1 day	3/10/05	3/11/05
121	Install Grid in GPR	2 days	3/11/05	3/15/05
122	Grid Survey	1 day	3/15/05	3/16/05
123	**TEM to Calorimeter**	**9.13 days?**	**2/15/05**	**2/28/05**
124	**Calorimeter A**	**3 days?**	**2/15/05**	**2/18/05**
125	Install Calorimeter into Metrology Bay	1 day	2/15/05	2/16/05
126	Flight Shims Available	1 day?	2/15/05	2/16/05
127	Install TEM A and Shim	1 day	2/17/05	2/18/05
128	**Calorimeter B**	**2 days**	**2/24/05**	**2/28/05**
129	Install Calorimeter into Metrology Bay	1 day	2/24/05	2/25/05
130	Install TEM and Shim	1 day	2/25/05	2/28/05



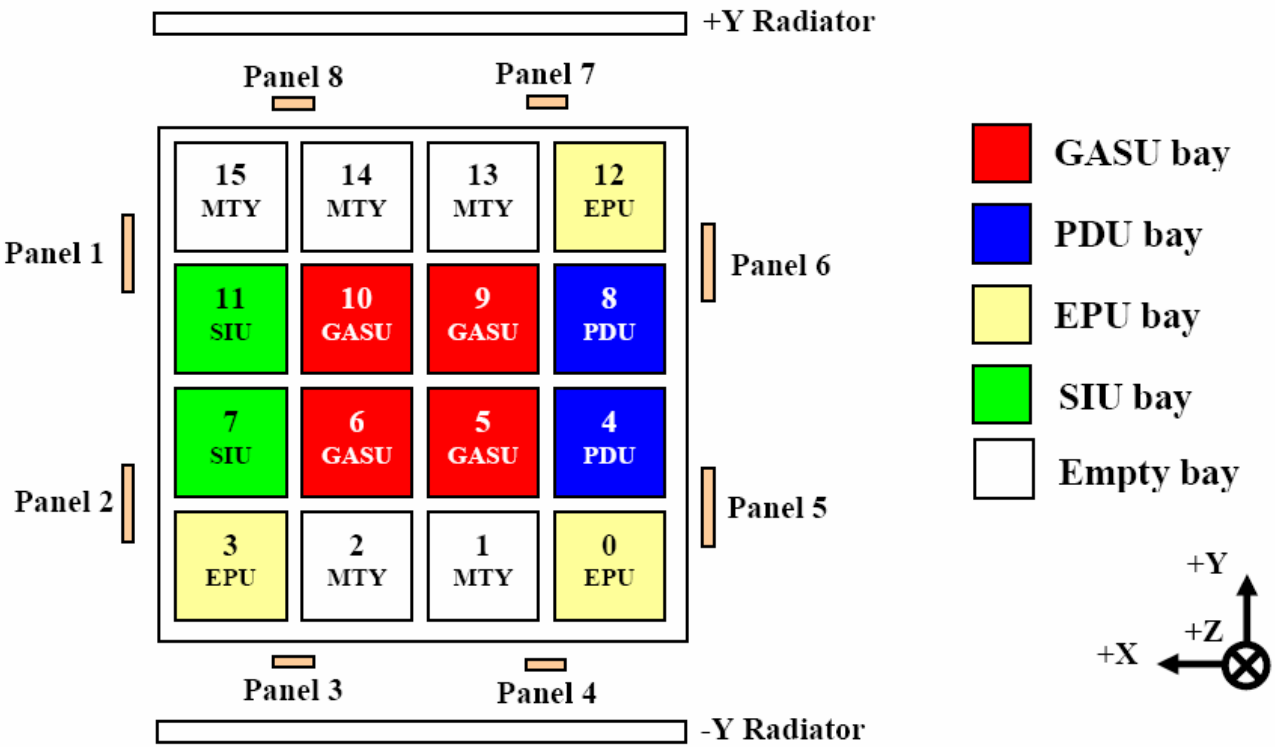
I&T Schedule (3 of 3)

ID	Task Name	Duration	Start	Finish
131	**Calorimeter/Tracker/TEM/TEM-PS Test**	**30.63 days?**	**2/4/05**	**3/22/05**
132	**Tower A**	**21.5 days?**	**2/4/05**	**3/8/05**
133	TKR I&T Receiving Test	1 day?	2/4/05	2/7/05
134	Install Tracker into Single Bay	3 days	2/10/05	2/15/05
135	Install Cal/TEM/TEM-PS Into Single Bay	1 day?	2/18/05	2/21/05
136	Single Tower CPT TRR	1 day	2/21/05	2/22/05
137	Test TKR/CAL/TEM/TEM-PS	10 days	2/22/05	3/8/05
138	**Tower B**	**15 days**	**2/28/05**	**3/22/05**
139	Install Tracker & Cal/TEM/TEM-PS into Single Bay	3 days	2/28/05	3/3/05
140	Single Tower CPT TRR	2 days	3/3/05	3/8/05
141	Test TKR/CAL/TEM/TEM-PS	10 days	3/8/05	3/22/05
142	**Tower Installation**	**30.44 days**	**3/16/05**	**4/30/05**
143	**Install Tower A**	**9.22 days**	**3/16/05**	**3/30/05**
144	Grid/Integration Stand Need Date	0 days	3/16/05	3/16/05
145	Instal Tracker into Grid	3 days	3/16/05	3/21/05
146	Install Calorimeter	2 days	3/21/05	3/23/05
147	Electrical Test	10 days	3/23/05	3/30/05
148	**Install Tower B**	**11.84 days**	**3/30/05**	**4/16/05**
149	Instal Tracker into Grid	5 days	3/30/05	4/6/05
150	Install Calorimeter	2 days	4/6/05	4/8/05
151	Electrical Test	12 days	4/8/05	4/16/05
152	Two Tower CPT TRR	0 days	4/16/05	4/16/05
153	2 Tower Tests	21 days	4/16/05	4/30/05



Integration Sequence

- **Integration Sequence is defined in LAT-MD-00676-03 LAT Assembly Sequence**
- **Two tower starts with the integration of Bay 0 and then Bay 4**
- **Optical surveys will be completed after each installation to determine installation accuracy**

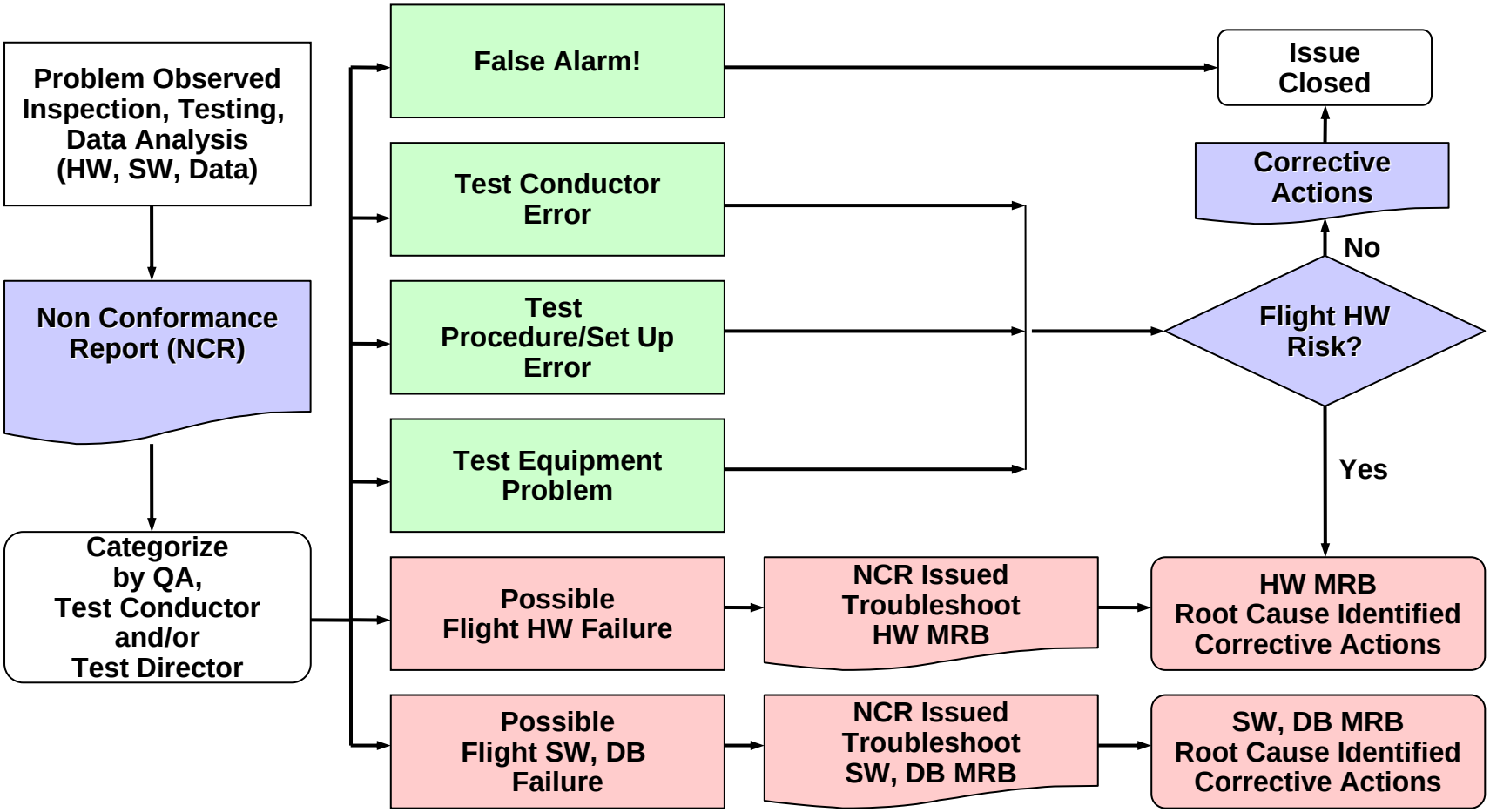


I&T Operating Plan

- The detailed LAT I&T schedule is maintained in MS Project by the I&T Scheduler.
  - Schedules will be updated daily via the afternoon meeting with progress from current day.
- 2 Week I&T/Subsystem Look Ahead meeting every Friday 2:00pm
  - Identify subsystem resources required for I&T operations.
  - Resolve part shortage issues.
- 2-8hr shift operation
  - Minimum staff will be 1 S&E Associate, 2 Technicians and a Test Conductor or Test Director on shift (4 people per shift).
- Shifts are 7:00am-3:30pm and 3:00pm-11:30pm
  - Daily morning meeting at 7:00am
  - Half hour overlap will facilitate a daily “hand-off” meeting at 3:00pm.
  - Swing shift Test Conductor will hold an informal meeting at the end of the shift and complete the Shift Log.
  - Shift hand-off between 2nd shift and the following day will be accomplished via shift log.
- Baseline plan is 2-8hr shifts/5 days a week.
  - Extended shifts and/or Saturdays will be used to maintain schedule as required.

Subsystems participation in the day-to-day I&T operation is encouraged

Problem Resolution in I&T

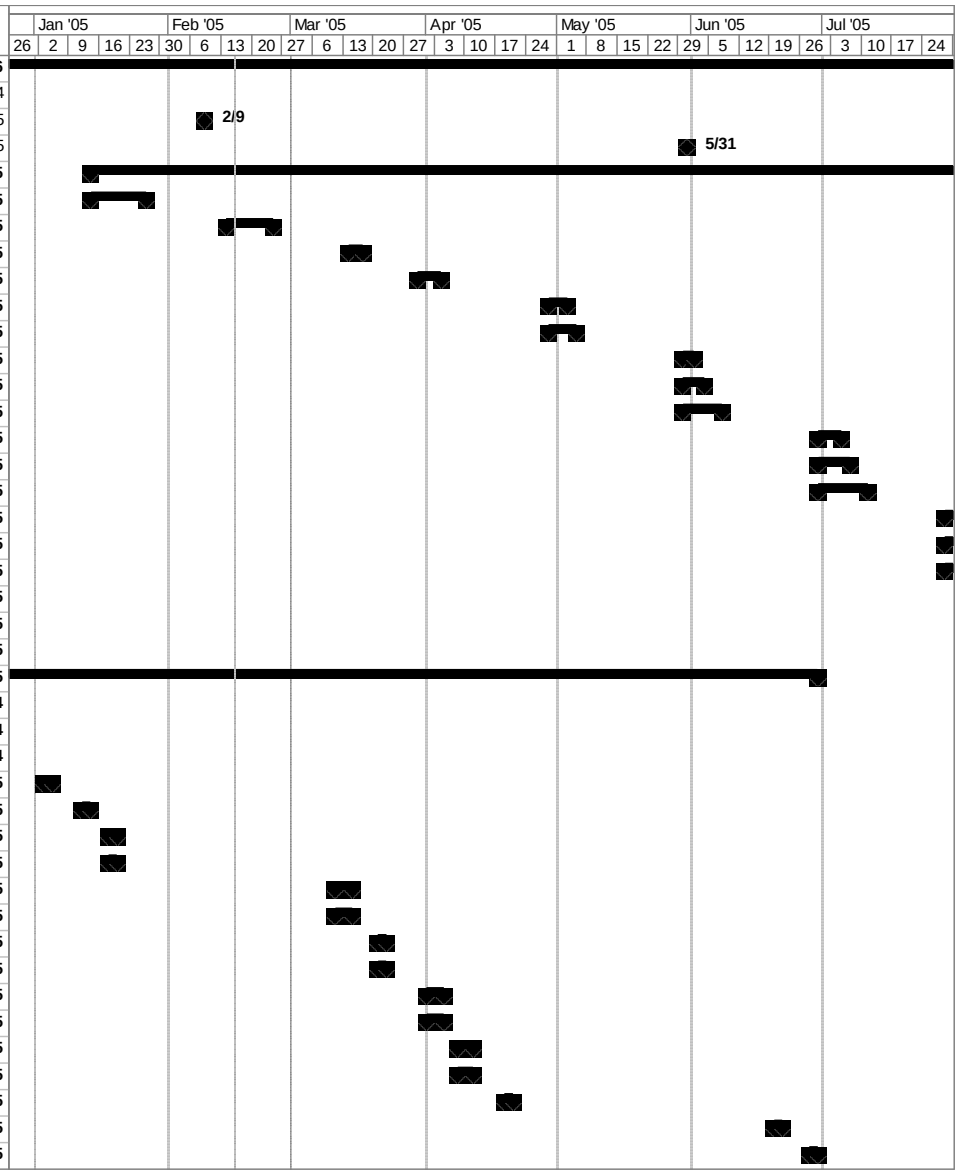


Troubleshooting in I&T

- No troubleshooting will be done without appropriate disposition on an NCR.
- When an anomaly occurs:
  - The test set-up is frozen
  - The instrument and test equipment is safed.
  - The test set-up and instrument configuration is reviewed and documented by the Test Conductor.
  - Test conductor notifies the TD, Subsystem Engineer and QA.
- QA initiates an NCR with information from TC and convenes MRB.
  - At a minimum, MRB consists of the Test Director, Test Conductor, Subsystem Engineer and QA.
- MRB will provide detailed disposition for troubleshooting.
- The test procedure will be redlined or a separate procedure will be written (as defined by MRB) to document the troubleshooting activity defined in the disposition.

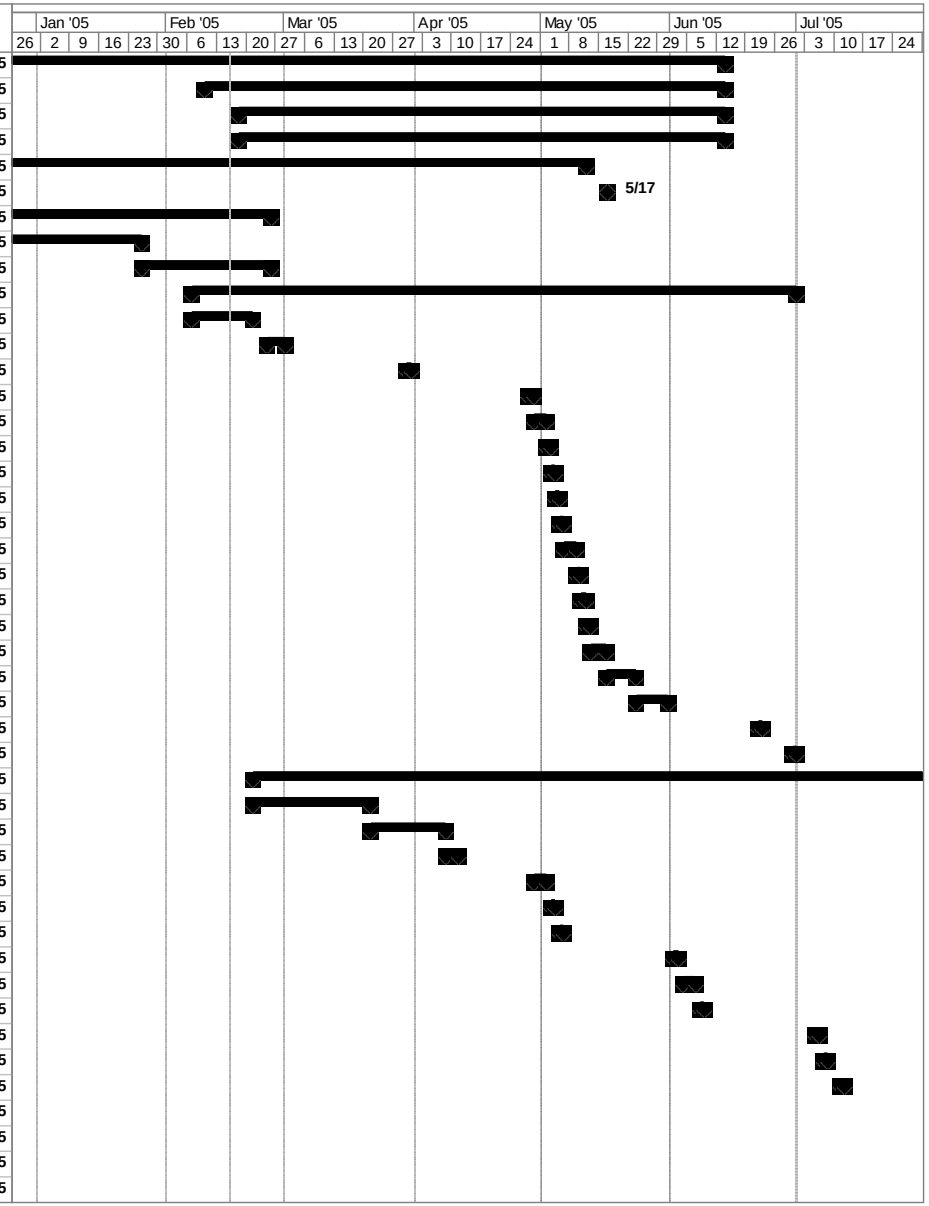
I&T 6 Month Look Ahead (1 of 3)

ID	Task Name	Duration	Start	Finish
1	**LAT Accelerated Integration Plan**	**425.5 days**	**3/19/04**	**1/5/06**
2	Grid RFI	0 days	10/22/04	10/22/04
3	X-LAT Thermal Plate RFI	0 days	2/9/05	2/9/05
4	Radiators RFI	0 days	5/31/05	5/31/05
5	**Tracker Receiving**	**152.13 days**	**1/14/05**	**9/2/05**
6	**Tower A**	**7 days**	**1/14/05**	**1/26/05**
11	**Tower B**	**8 days**	**2/14/05**	**2/24/05**
17	**Tower 1**	**3 days**	**3/14/05**	**3/17/05**
21	**Tower 2**	**3 days**	**3/30/05**	**4/4/05**
25	**Tower 3**	**2 days**	**4/29/05**	**5/3/05**
29	**Tower 4**	**4 days**	**4/29/05**	**5/5/05**
33	**Tower 5**	**2 days**	**5/30/05**	**6/1/05**
37	**Tower 6**	**4 days**	**5/30/05**	**6/3/05**
41	**Tower 7**	**6 days**	**5/30/05**	**6/7/05**
45	**Tower 8**	**2 days**	**6/30/05**	**7/5/05**
49	**Tower 9**	**4 days**	**6/30/05**	**7/7/05**
53	**Tower 10**	**6 days**	**6/30/05**	**7/11/05**
57	**Tower 11**	**2 days**	**7/29/05**	**8/2/05**
61	**Tower 12**	**4 days**	**7/29/05**	**8/4/05**
65	**Tower 13**	**6 days**	**7/29/05**	**8/8/05**
69	**Tower 14**	**2 days**	**8/30/05**	**9/1/05**
73	**Tower 15**	**3 days**	**8/30/05**	**9/2/05**
79	**Tower 16**	**1.5 days**	**8/30/05**	**8/31/05**
85	**Calorimeter Receiving**	**138 days**	**12/1/04**	**6/29/05**
86	**Calorimeter A**	**3 days**	**12/1/04**	**12/6/04**
91	**Calorimeter B**	**4 days**	**12/1/04**	**12/7/04**
96	**Calorimeter 1**	**1.5 days**	**12/6/04**	**12/7/04**
101	**Calorimeter 2**	**1.5 days**	**1/3/05**	**1/4/05**
106	**Calorimeter 3**	**1.5 days**	**1/12/05**	**1/13/05**
111	**Calorimeter 4**	**1.5 days**	**1/18/05**	**1/19/05**
116	**Calorimeter 5**	**1.5 days**	**1/18/05**	**1/19/05**
121	**Calorimeter 6**	**1.5 days**	**3/11/05**	**3/14/05**
126	**Calorimeter 7**	**1.5 days**	**3/11/05**	**3/14/05**
131	**Calorimeter 8**	**1.5 days**	**3/21/05**	**3/22/05**
136	**Calorimeter 9**	**1.5 days**	**3/21/05**	**3/22/05**
141	**Calorimeter 10**	**1.5 days**	**4/1/05**	**4/4/05**
146	**Calorimeter 11**	**1.5 days**	**4/1/05**	**4/4/05**
151	**Calorimeter 12**	**1.5 days**	**4/8/05**	**4/11/05**
156	**Calorimeter 13**	**1.5 days**	**4/8/05**	**4/11/05**
161	**Calorimeter 14**	**1.5 days**	**4/19/05**	**4/20/05**
166	**Calorimeter 15**	**1.5 days**	**6/20/05**	**6/21/05**
171	**Calorimeter 16**	**1.5 days**	**6/28/05**	**6/29/05**



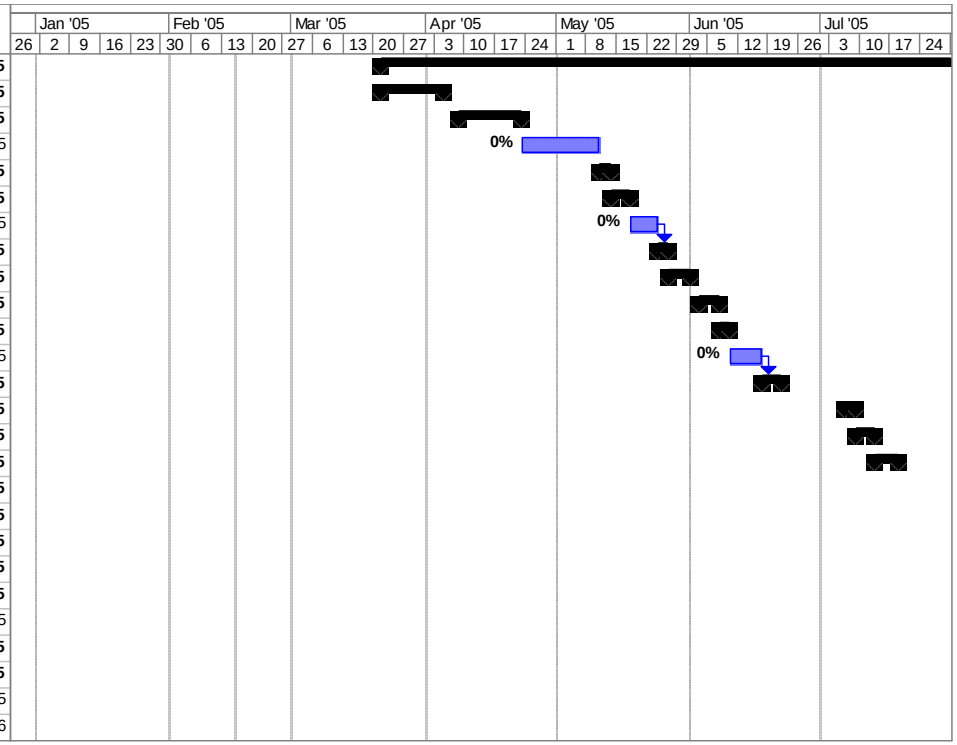
I&T 6 Month Look Ahead (2 of 3)

ID	Task Name	Duration	Start	Finish
176	Electronics Receiving	296.38 days	3/19/04	6/14/05
177	Cables	81.63 days	2/10/05	6/14/05
196	TEM Assemblies	76.44 days	2/18/05	6/14/05
215	TEM PS Assemblies	76.44 days	2/18/05	6/14/05
234	Electronic Boxes	275.25 days	3/19/04	5/12/05
242	ACD Receiving	0 days	5/17/05	5/17/05
244	Grid Assemby in I&T	76.19 days	11/1/04	2/25/05
245	Grid Assembly	55.19 days	11/1/04	1/25/05
265	Grid Box Base Assy Inspection and Fitcheck	21 days	1/25/05	2/25/05
275	TEM to Calorimeter	96.31 days	2/7/05	6/30/05
276	Calorimeter A	9 days	2/7/05	2/21/05
279	Calorimeter B	2 days	2/25/05	3/1/05
282	Calorimeter 1	1 day	3/30/05	3/31/05
285	Calorimeter 2	1 day	4/28/05	4/29/05
288	Calorimeter 3	1 day	4/29/05	5/2/05
291	Calorimeter 4	1 day	5/2/05	5/3/05
294	Calorimeter 5	1 day	5/3/05	5/4/05
297	Calorimeter 6	1 day	5/4/05	5/5/05
300	Calorimeter 7	1 day	5/5/05	5/6/05
303	Calorimeter 8	1 day	5/6/05	5/9/05
306	Calorimeter 9	1 day	5/9/05	5/10/05
309	Calorimeter 10	1 day	5/10/05	5/11/05
312	Calorimeter 11	1 day	5/11/05	5/12/05
315	Calorimeter 12	1.75 days	5/12/05	5/16/05
318	Calorimeter 13	4.69 days	5/16/05	5/23/05
321	Calorimeter 14	5.19 days	5/23/05	5/31/05
324	Calorimeter 15	1 day	6/21/05	6/22/05
327	Calorimeter 16	1 day	6/29/05	6/30/05
330	Calorimeter/Tracker/TEM/TEM-PS Test	129.06 days	2/21/05	9/2/05
331	Tower A	19 days	2/21/05	3/21/05
334	Tower B	13 days	3/21/05	4/8/05
337	Tower 1	1 day	4/8/05	4/11/05
340	Tower 2	1 day	4/29/05	5/2/05
343	Tower 3	1 day	5/3/05	5/4/05
346	Tower 4	1 day	5/5/05	5/6/05
349	Tower 5	1 day	6/1/05	6/2/05
352	Tower 6	1 day	6/3/05	6/6/05
355	Tower 7	1 day	6/7/05	6/8/05
358	Tower 8	1 day	7/5/05	7/6/05
361	Tower 9	1 day	7/7/05	7/8/05
364	Tower 10	1 day	7/11/05	7/12/05
367	Tower 11	1 day	8/2/05	8/3/05
370	Tower 12	1 day	8/4/05	8/5/05
373	Tower 13	1 day	8/8/05	8/9/05
376	Tower 14	1 day	9/1/05	9/2/05

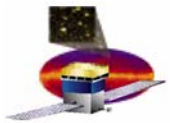


I&T 6 Month Look Ahead (3 of 3)

ID	Task Name	Duration	Start	Finish
379	**Tower Installation**	**113.56 days**	**3/21/05**	**9/8/05**
380	**Install Tower A**	**10 days**	**3/21/05**	**4/5/05**
388	**Install Tower B**	**10 days**	**4/8/05**	**4/22/05**
396	2 Tower CPT	11 days	4/22/05	5/10/05
397	**Install Tower 1**	**2.5 days**	**5/10/05**	**5/13/05**
404	**Install Tower 2**	**2.5 days**	**5/13/05**	**5/17/05**
411	4 Tower CPT	4 days	5/18/05	5/24/05
412	**Install Tower 3**	**2.5 days**	**5/24/05**	**5/26/05**
419	**Install Tower 4**	**2.5 days**	**5/26/05**	**6/1/05**
426	**Install Tower 5**	**2.5 days**	**6/2/05**	**6/7/05**
433	**Install Tower 6**	**2.5 days**	**6/7/05**	**6/9/05**
440	8 Tower CPT	5 days	6/10/05	6/17/05
441	**Install Tower 7**	**2.5 days**	**6/17/05**	**6/21/05**
448	**Install Tower 8**	**2.5 days**	**7/6/05**	**7/8/05**
455	**Install Tower 9**	**2.5 days**	**7/8/05**	**7/13/05**
462	**Install Tower 10**	**3 days**	**7/13/05**	**7/18/05**
469	**Install Tower 11**	**3 days**	**8/3/05**	**8/8/05**
476	**Install Tower 12**	**2.5 days**	**8/8/05**	**8/11/05**
483	**Install Tower 13**	**2.5 days**	**8/11/05**	**8/15/05**
490	**Install Tower 14**	**3.5 days**	**9/2/05**	**9/8/05**
498	**Install Electronics and Cables**	**6 days**	**9/9/05**	**9/19/05**
503	16 Tower CPT	5 days	9/19/05	9/26/05
504	**ACD**	**8 days**	**9/26/05**	**10/7/05**
508	**LAT Level System Test**	**45 days**	**10/7/05**	**12/16/05**
514	Pack & Ship	3 days	12/16/05	12/21/05
515	Deliver to NRL	5 days	12/21/05	1/5/06



SVAC



SVAC activities – next 6 months

- **We consider 5 important phases according to hardware delivery**
  - **Tower A tests inside flight grid**
  - **Two-tower tests inside flight grid**
  - **Multiple tower tests with FSW**
  - **ACD tests at SLAC**
  - **LAT tests at SLAC and NRL**
- **There is a continuous process of engaging the LAT Collaboration to support offline data analysis through the Instrument Analysis Workshops**
  - **Workshop 3 - March 10, 2005 with single tower data**
  - **Workshop 4 – Summer 2005(TBR) – data from 8 (TBR) towers**
  - **Workshop 5 – TBD – LAT data analysis and MC validation**

Tower A tests inside flight grid (Feb 05)

- In a nutshell
  - We are good to go. System is in place. Tests outside flight grid will be used to clear up details
- Goals
  - SAS code release with new TKR recon
    - More powerful tool with simpler numbering scheme
  - SAS code release with new CAL recon
    - Allows charge injection calibration using SAS software
  - Pipeline infrastructure
    - Better dependency management for code updates
    - No issues foreseen for reprocessing of data
  - Calibrations
    - Populate SAS/DB with calibration constants and retrieve them from DB including validation of algorithms
  - Trending
    - Correlate Housekeeping data with science data
  - MC generation
    - Generate MC data sets for 1 tower
  - Data Analysis
    - Validate conversion from ELX to physical space
    - Develop analysis using TEM Diagnostics (focus is more on trigger)
    - Study effects from software “knobs” on data analysis
- Concerns
  - Spending too much time in infrastructure development and testing, need to move on into data analysis to drive the effort

Two Tower tests inside flight grid (Mar 05)

- In a nutshell
  - We have a plan to get there. We foresee no show stoppers.
- Goals
  - Data Quality reports and configuration reports
    - Update for LAT tests based on feedback from users
  - Pipeline infrastructure
    - Minimize time spent on maintenance
    - Hopefully have a code review of SVAC scripts with SAS/ISOC
  - Calibrations
    - Validate SAS code for multiple tower calibrations.
  - Trending
    - Update web based trending database (SVAC) and focus on development of queries applicable for operations (with ISOC)
    - Trend calibrations
  - MC generation
    - Generate MC data sets for 2 towers
    - Start MC/Data comparison aiming at LAT tests
  - Data Analysis
    - Improve tools for data analysis based on feedback from users
    - Develop and test algorithms for E2E tests aiming at updating them for LAT tests
    - Data analysis for multiple towers
- Concerns
  - May need more time/people for data analysis
    - Hopefully next IA workshop on March 10 will drive more people in the effort since we will have real data from single tower
  - Have had no time yet to evaluate code modifications that may be required for VDG and Am241 tests

Multiple tower tests with FSW (Jun 05)

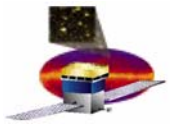
- In a nutshell
  - We need more information (now) to plan accordingly.
- Goals
  - Data Quality reports and configuration reports
    - Update of infrastructure depends on how we will access the register configuration (snapshots) from the telemetry stream
      - » Affects pipeline
  - Calibrations
    - Update of infrastructure depends on how we will encode the register configurations in the offline data files
      - » Affects pipeline
  - MC generation
    - Generate MC data sets for LAT
      - » If schedule allows generate 8 tower configuration
  - Data Analysis
    - Improve tools for data analysis based on feedback from users
    - Automate E2E data analysis infrastructure for LAT tests
- Concerns
  - No experience with FSW environment
    - Although we expect to be shielded from that by I&T/Online, I just believe when I see it…
  - We do not have a clear picture of how online/offline responsibilities for data analysis shared by many groups affect SVAC
  - Need to revisit data analysis plan
    - Too many configurations for data analysis
    - No experience redundancy tests (e.g. GASU sides)

ACD tests at SLAC (Jun 05)

- In a nutshell
  - We have already initiated discussions with ACD and need at least a month of solid development to ensure tests will be smooth.
- Goals
  - Planning
    - ACD SAS software still being worked out
    - Need a discussion involving ACD/SAS/I&T to work out details of code and assignment of responsibilities
      - » 1 month for planning (April or earlier)
      - » 1 month for implementation (May or earlier)
  - Data Quality reports and configuration reports
    - Update of infrastructure to add ACD tests
      - » Affects pipeline
  - Calibrations
    - Update of infrastructure to generate calibrations
      - » Affects pipeline
  - Data Analysis
    - Develop algorithms with SAS/ACD for data analysis
- Concerns
  - Little experience with ACD tests
    - Risk of delays
  - Have not yet evaluated the impact on manpower since we will be heavily involved in multiple tower tests

LAT tests (Jul 05 - Nov05)

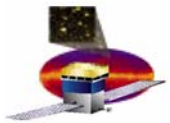
- In a nutshell
  - Partially populate LAT tests will provide
    - the reality check we need
    - Necessary input to update planning provided we meet goals from previous slides
- LAT tests @ SLAC
  - Planning
    - We have already done careful planning for LAT tests at SLAC (LAT-TD-00575)
    - We are in the process of reducing data taking time to meet schedule pressures
- LAT tests @ NRL
  - Planning
    - We have not participated in any meeting concerning environmental tests
    - At the moment we have no insights on data analysis needs and tests to be performed
- Concerns
  - Our main concern is that we do not have a concern other than…
    - …the obvious, the current schedule is too aggressive



Issues & concerns

ISSUES

- **Hardware delivery dates.**
  - **TKR**
  - **Flight Cables**
  - **Flight Attachment Hardware**
  - **ELX**
- **MGSE Delivery Schedule**
  - **Schedule impact of the GPR rework**



Summary and Conclusion

- We are ready to integrate and test the first tower in the single bay.
- The resources are in place.
- Documentation and Planning have improved.
- Training on EM hardware is complete.
- MGSE is pacing integration in the grid.
- Successful integration phase will depend on close coordination with subsystems for anomaly resolution.