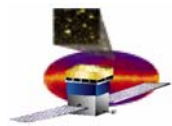


GLAST Large Area Telescope:

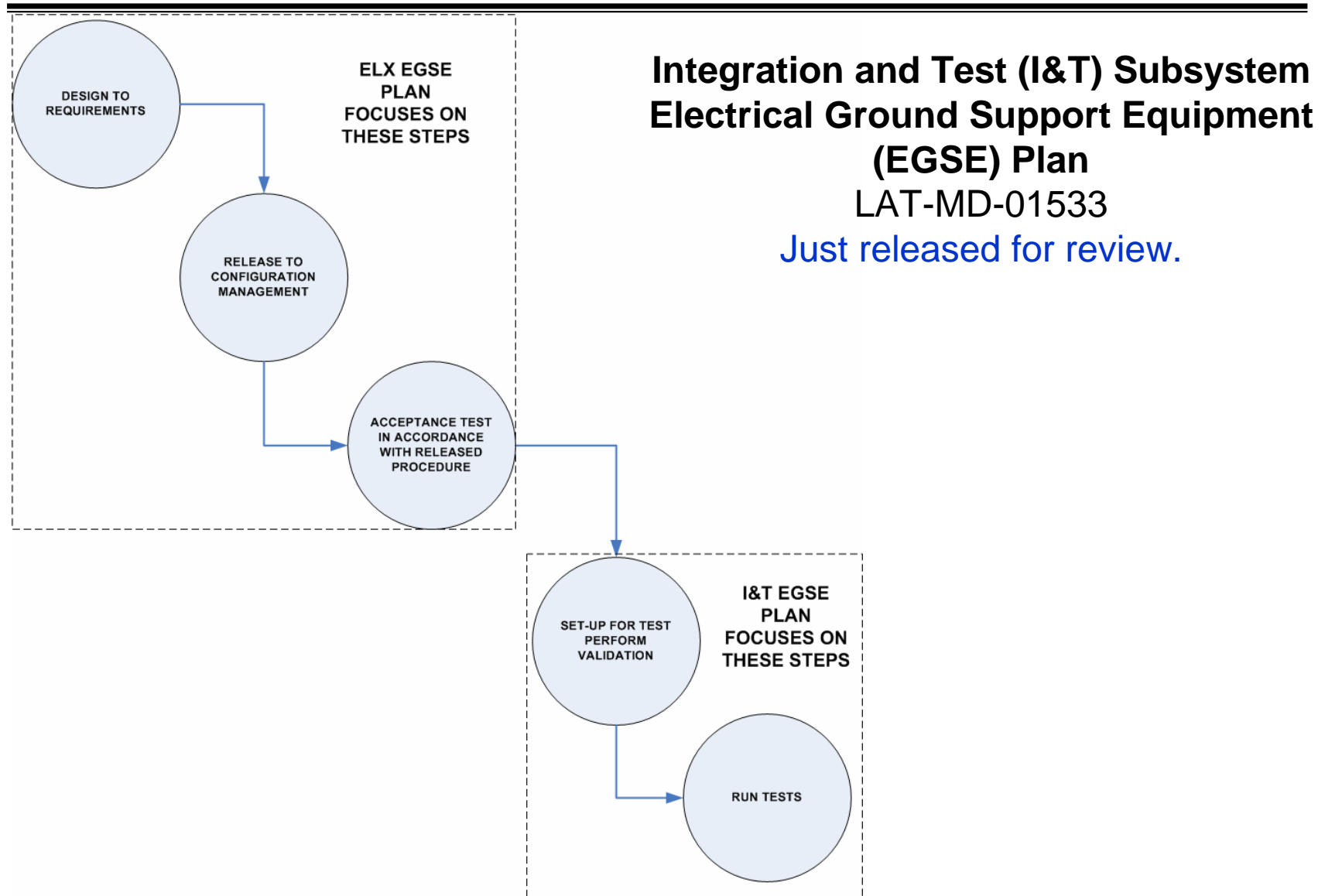
Integration and Test One and Two Tower Integration Readiness Review

EGSE/Online

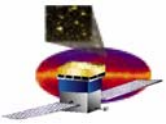
Elliott Bloom
I&T Manager



EGSE Process; Design to Use



**Integration and Test (I&T) Subsystem
Electrical Ground Support Equipment
(EGSE) Plan
LAT-MD-01533
Just released for review.**

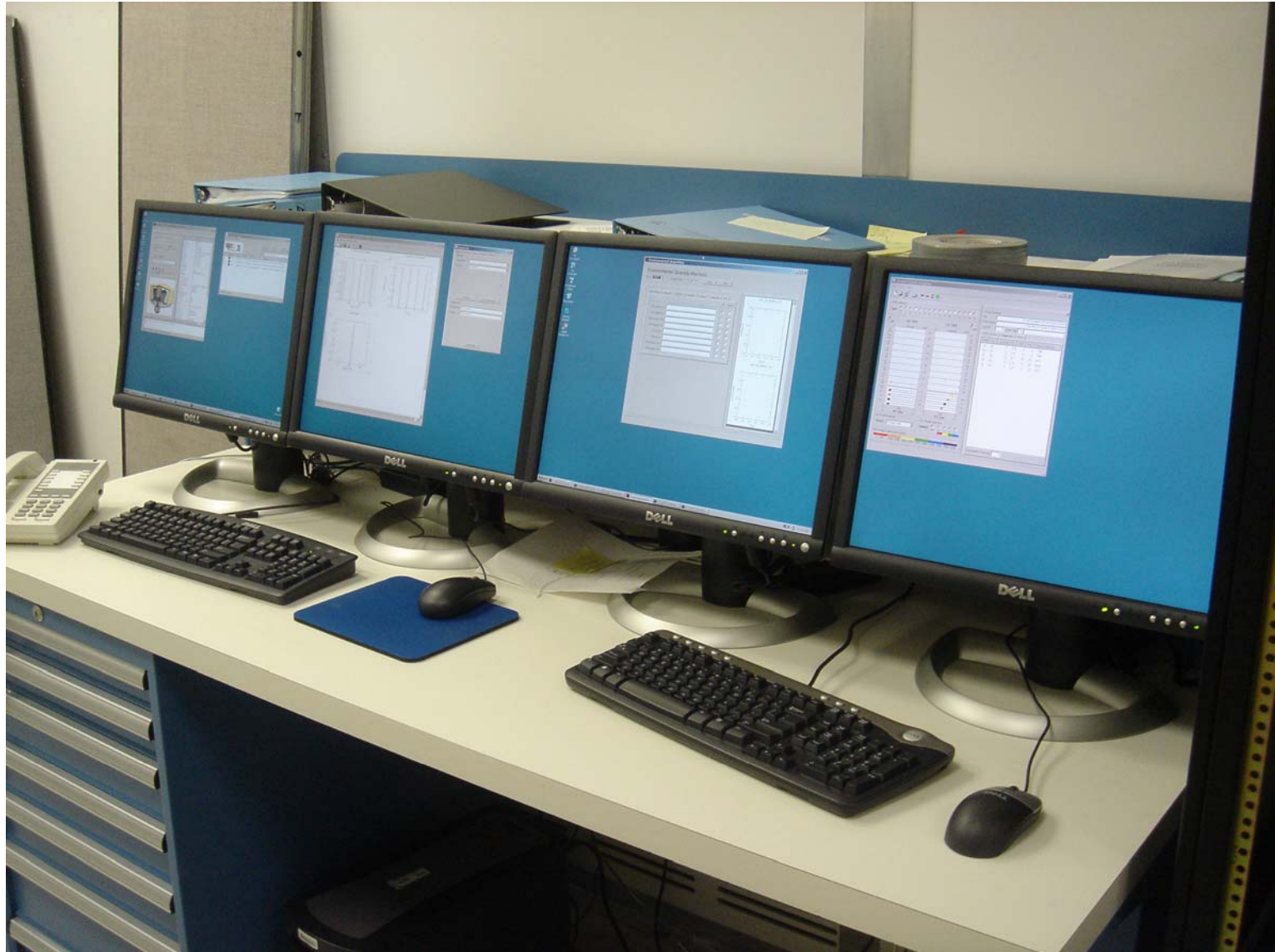


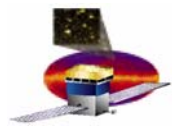
Online Roadmap

- LAT-TD-03075 Document written and agreed to February 2004
- Describes work to be done to prepare for flight part arrival

- **All this work is essentially done, including V&V. This will be described latter in the talk.**

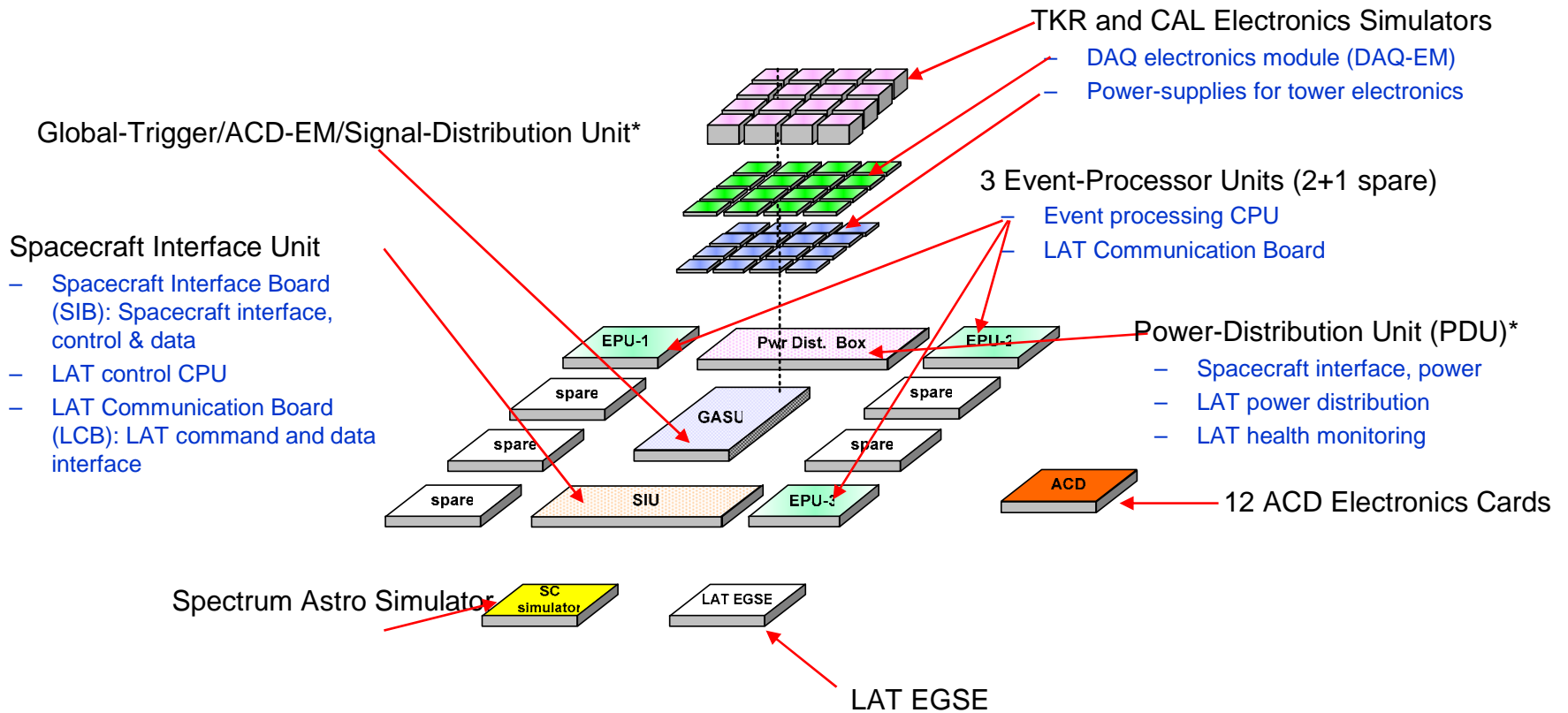
6.9 – Building 33 EGSE room 102 set-up





Flight Software Test Bed

Used in V&V Procedures for EGSE/Online

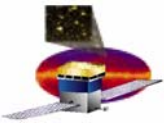




LATTE for 1&2 Tower I&T Almost Complete

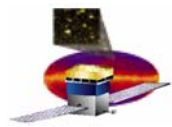
- Outstanding items:
 - ✓ Hardware monitoring (includes trending)
 - Power-up sequence
 - Depends of FSW deliverables (ECD 11/19)
 - In progress (ECD 12/3)
 - Simple event filtering
 - In progress (ECD 11/18)
 - Subsystem scripts
 - Awaiting deliveries
 - A month is no longer needed given all scripts are expected to be delivered in LATTE 4.x form. Couple of days is sufficient for check-out and I&T Configuration Control.
 - Working with development versions
 - System scripts (SVAC & PT/E2E)
 - In progress (ECD 12/15)
 - ✓ Security completion
 - ✓ Pipeline
 - Training
 - In progress with development test scripts
 - Final scripts available soon after final subsystem deliveries of scripts
 - V&V (following pages)
 - Matrix of verification criteria

- Online has been and shall continue practicing I&T testing from end to end with SVAC and IFCT involvement to ensure there is no missing critical functionality



Online logbook Status

- The Shift Log, Mate/Demate and Component Installation Record are already installed in the clean room for practice.
- the Material Mix Record and EGSE Log will be installed in the clean room by 1/3/05.
- The material mix record will be finished in the next two weeks,
- the EGSE log will be designed and implemented right afterwards.
- The Configuration Log and Software Installation Log should follow on in that order.

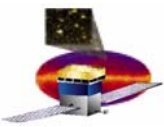


Component Installation Log Specification

Component Installation Log

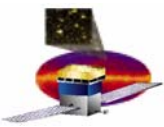
Unit Description	<input type="text"/>			
Component R/D	<input type="text"/>			
Operator:	Operator ID/Password	Operator Date Time	QA ID/Password	QA Date Time
Date Time: (MM/DD/YY HH:MM:SS)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Authorizing Document	<input type="text"/>			
Part Number:	<input type="text"/>			
Serial Number:	<input type="text"/>			
Weight (kg):	<input type="text"/>			
Flatness (per ICD):	Operator ID/Password	Operator Date Time	QA ID/Password	QA Date Time
Verification:	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Torque	<input type="text"/>			
Torque Value:	<input type="text"/>			
Apply Torque:	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Torque Stripe MMR# (autogenerated from Material Mix Record):	<input type="text"/>			
Witness Stripe	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Grounding	Operator ID/Password	Operator Date Time	QA ID/Password	QA Date Time
Installation:	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Limit (per ICD/Spec):	<input type="text"/>			
Measured Resistance:	<input type="text"/>			
Label Tape Witness:	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Label Tape (Lot #):	<input type="text"/>			
Label Tape Expiration:	<input type="text"/>			

Complete Online logbook Specification
LAT-MD-LAT-MD-04601
In Signoff.



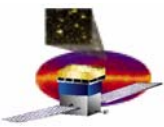
V&V matrix (1)

- LATTE 4.6.0 baseline ready for use.
 - Baseline acceptance review will be a LAT Engineering meeting.
 - Present completion of V&V testing of feature functionality on all platforms, EM, Test Bed, and finally subsystem Flight Hardware.
- Software versioning verification robustness
 - Done
- Housekeeping / environmental quantity monitoring
 - Done
- Power sequencing
 - ECD 12/4 (Test Bed & EM)
- Schema/Configuration reader - Ancillary data handling (e.g., serial numbers)
 - Done (EM, Test Bed, & Flight Hardware at subsystem level)
- Script and Suite execution engine (Run Control) robustness
 - Test robustness against exceptions in each of the various threads
 - Done (EM, Test Bed, & Flight Hardware at subsystem level)
- Persistent file export/archive system only applicable to Bldg 33.
 - Done (EM)
- Raw science data file conversion to FITS
 - Done (EM)
- Online Pipeline processing
 - Done (EM)
- Trending
 - Online data base – MySQL – Done (EM)
 - DB synchronization offline (ISOC & SVAC use) – ORACLE – ECD 12/23



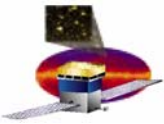
V&V matrix (2)

- Commanding
 - Test every command
 - Done (EM, Test Bed, & Flight Hardware at subsystem level)
 - Performance
 - Done (EM & Test Bed)
- Event stream
 - Science data format (LDF)
 - Done (EM, Test Bed, & Flight Hardware at subsystem level)
 - ACD software counters
 - Done (EM, Test Bed, & Flight Hardware at subsystem level)
 - Prescaling and filtering
 - Done (EM, Test Bed, & Flight Hardware at subsystem level)
 - Performance
 - Done (EM, Test Bed, & Flight Hardware at subsystem level)
 - Playback ability
 - Done (EM, Test Bed, & Flight Hardware at subsystem level)
- Triggering
 - Functionality
 - Done (EM, Test Bed, & Flight Hardware at subsystem level)



V&V matrix (3)

- HippoDraw visualization tool
 - Practically Done (EM, Test Bed, & Flight Hardware at subsystem level)
 - New releases sometimes show new bugs.
- Run and Test Report generators
 - Done (EM, Test Bed, & Flight Hardware at subsystem level)
- Test script completion status setting
 - In progress (ECD 12/1)
- Run comments handling
 - In progress (ECD 12/1)
- E-logbook
 - Online DB synchronization to mirror MySQL data base (ECD after integration starts)
 - Online Standalone GUI
 - In Progress (ECD 1/15/05)
 - SVAC Web GUI
 - Done (EM)
- Subsystem scripts (ELX, CAL, TKR, ACD, E2E, SVAC, system) – Not delivered yet. ECD - CAL Scripts 12/10; ECD-TKR 1/5/05; ECD-ELX ?; ECD-E2E, SVAC, System 12/23
 - Algorithm
 - Robustness
 - Performance
 - Output products



Summary

- EGSE hardware/Online has been extensively used and is currently being used in Flight hardware build for all subsystem.
 - Acceptance testing by electronics on I&T test stands yet to be done.
 - LATTE 4.6.0 is baseline
 - Online logs on schedule for Flight Integration
- Online software V&V is essentially complete and release under configuration control is in place.
- CCB is operational for Online software

<http://jira.slac.stanford.edu>