GLAST LAT System Engineering

LAT Test Planning Meeting
Performance and Ops Test Plan Update
Alternate Integration Plans

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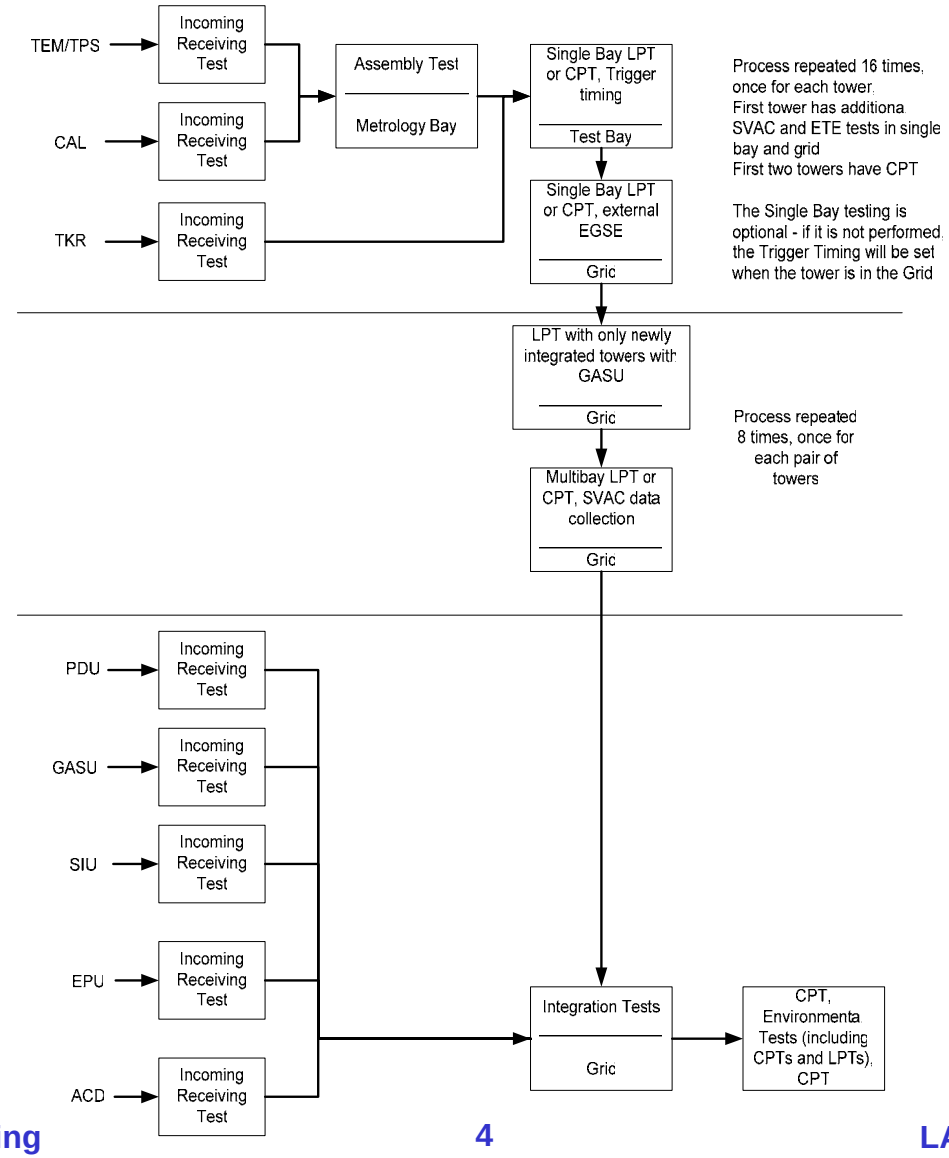
Performance and Operations Test Plan Updates

- Incorporate LAT-CR-06815 to eliminate the clock margin test.
- Update Cal and Tracker test definitions
  - Calorimeter test definitions – simplification of the descriptions and discussion of parallelized scripts.
  - Updated Tracker test definitions to discuss parallelized scripts.
- Incorporate LAT-CR-07178 to define the ACD receiving test.
- Incorporated LAT-CR-06616. This CR updated Figure 5-1 to allow tower integration directly onto the grid. This update includes further changes to Section 7 and Figure 5-1 to allow either tower integration directly into the grid or tower integration starting in the test bay.

Change details

- LAT-CR-07178 was written to allow integration of the towers directly onto the grid.
- The update to the Performance and Ops Test Plan allows both testing in the single bay and integration directly onto the grid.
  - Figure 5-1 updated to show the flow assuming integration in the test bay, with a note to indicate that the single bay testing is optional
  - Section 7 was updated with a definition of the baseline sequence and some allowable variations
  - The test matrix (Table 7-1) was updated to collapse the definition of a CPT into one set of columns, rather than three sets (test bay, single tower in grid, multiple towers in grid)

Figure 5-1 update



Sequence Options

- **The baseline tower integration sequence is:**
  - Integrate the tower into the test bay, perform a CPT (first 2 towers) or a LPT. Perform trigger timing tests.
  - Integrate the tower into the grid, perform a CPT (first 2 towers) or a LPT on the newly integrated tower. Note that typically two towers at a time are integrated.
  - Perform a CPT (at 2,4,8 and 16 towers) or LPT with all the integrated towers.
  - Perform the SVAC calibration and muon runs with all the integrated towers.
- **Variations to the baseline sequence are:**
  - The tower may be integrated directly into the grid. In this case, the trigger tests will be performed in the grid. The test bay LPT/CPT will be replaced by the LPT/CPT in the grid.
  - More than two towers may be integrated at a time. In this case, a LPT or CPT will be performed as each tower is integrated.
  - Note that two tracker tests (TE702 and TE704) are Tracker level tests that could not be performed earlier due to test set limitations. These two tests should be performed as early as practical.

Existing Test Sequence Summary

- The existing test sequence to be performed with 16 towers is:
  - TEM register tests
  - LAT CPT for Calorimeter and Tracker
  - TE702 and 704 to complete Tracker subsystem testing
  - Time in the new towers
  - Calibration runs (CalibDac, CalibGen, MuTrig, TE601, 602 and 604)
  - SVAC runs

Proposed Test Sequence Discussion

- The proposed modifications to the planned tests are:
  - Skip the register tests as they will have been performed during the installation of the last 8 towers
  - Run LAT CPT for Cal and Tracker
    - About a day of testing
    - Gives good confirmation that the towers are operating properly
    - Given that the single bay LPTs were performed as part of the installation process, could we skip this test here and do it after the ACD is installed?
  - Run Tracker tests TE702 and 704 (necessary to complete testing of the trackers, less than one shift)
  - Time in the 8 new towers (Time duration needs to be worked – what can be done in parallel?)
  - Defer the calibration runs until the ACD is installed
  - Defer the SVAC runs until the ACD is installed
    - Perform a short TBD Muon run to demonstrate that the 16 towers are working together (calibration for this muon run is TBD, since the Calorimeter or Tracker would not have been calibrated with the flight TEM/TPS)