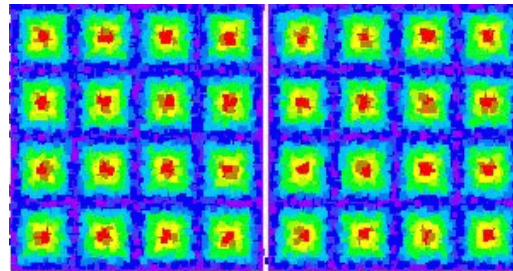
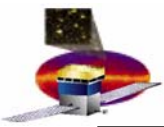


# Data Taking During LAT Integration



**Eduardo do Couto e Silva**  
**Instrument Analysis Workshop 1**  
**June 8, 2004**



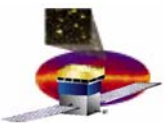
# Test Philosophy

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- **During LAT Integration there are two types of tests**
  - **Type 1 – PASS/FAIL tests**
    - Done within the I&T framework
    - Determine if the LAT Integration continues or not

**This talk concentrates on Type 2 test data which are relevant to this Workshop**

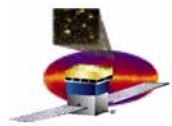
- **Type 2 – Subset of the same data taken from cosmic rays and VDG photons during Type 1 tests**
  - We will analyze these data to look for serious, and probably subtle, problems
  - A problem is deemed serious if it compromises the quality of the science data
  - A mechanism will be in place to provide feedback to the LAT Integration team (currently under discussion)



# Type 2 Data

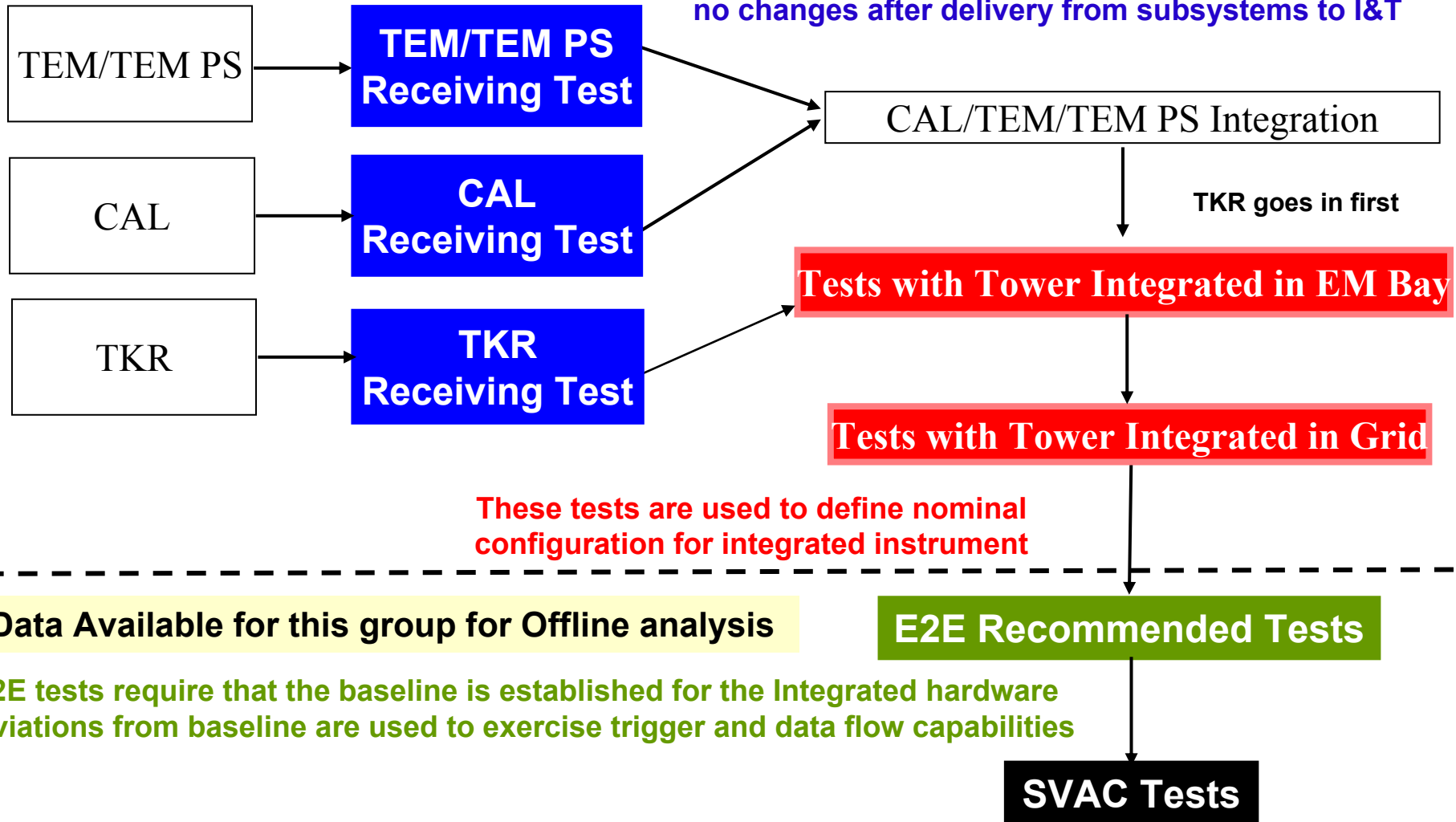
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- **Reference Dataset**
  - **There will be a baseline run for the Type 2 data analysis, which will be used as reference**
    - **current best operational settings from the Integrated instrument will be used (e.g. DAC settings, timing, voltages)**
- **Data Runs**
  - **Restricted to about 200 MB per run (TBR) to facilitate transfer whenever needed**
- **Data Integrity**
  - **Will be verified by I&T and automated reports will be produced on run by run basis**
- **Status Condition and Run logs**
  - **I&T will provide an interface to allow the user to know what was the status condition of the instrument for each data run**



# Integration Flow – How do we get data?

Receiving tests are used to demonstrate that there were no changes after delivery from subsystems to I&T



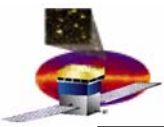
These tests are used to define nominal configuration for integrated instrument

Data Available for this group for Offline analysis

E2E Recommended Tests

SVAC Tests

E2E Recommended Test Baseline is used for SAS offline calibrations  
Final calibrations and analysis that require SAS reconstruction

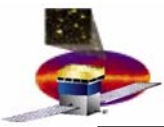


# Type 2 Datasets

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**There are two type 2 Datasets relevant to this Workshop**

- **Datasets from the E2E recommended tests for data handling**
  - **will be taken by varying only one parameter at the time, while keeping the others fixed at their nominal values.**
    - **Current list of proposed parameters are (TBR)**
      - » **Hit, veto and zero suppression thresholds**
      - » **Time delays**
      - » **Trigger types**
      - » **Trigger rates (with and without CPU generated triggers)**
      - » **Flight software filter (e.g. ON/OFF)**
      - » **Temperatures (e.g. cold/hot)**
      - » **Non-regulated Spacecraft voltage (e.g. min/max)**
- **Datasets obtained during SVAC tests**
  - **will correspond to longer periods (TBD) to acquire sufficient statistics at nominal settings (e.g. calibrations with SAS software)**



# Data Taking Plans

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- **Concept**

- Since subtle effects on the data may not be so easy to identify, data taking will occur at different levels of increased complexity (i.e. mechanical, electronics and SAS software)

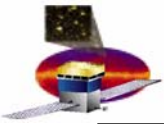
**The exact details are being worked out by the Test Design team**

- **Hardware Configurations**

- The following type 2 dataset will be available for this group to analyze
  - 1 tower
  - 2 towers
  - XX towers (TBD)
  - LAT

**Increase in complexity**





# Summary

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## Data taking plans are still in progress with the I&T/SE Test Design Team

- There will be two data types available for the analysis
  - Type 1 – I&T PASS/FAIL
  - Type 2 – Collaboration effort (relevant to his Workshop)
- Type 2 data will correspond to
  - Different register configurations (e.g. trigger rates, thresholds)
  - Different hardware configurations (single and multiple towers)
  - Runs of Short duration ~ (1 to 2 hrs)
  - Runs of Long duration (TBD hrs) mostly for calibration
- I&T will provide
  - Data runs of reasonable size for data transfer
  - Logs and status condition of LAT hardware for every run