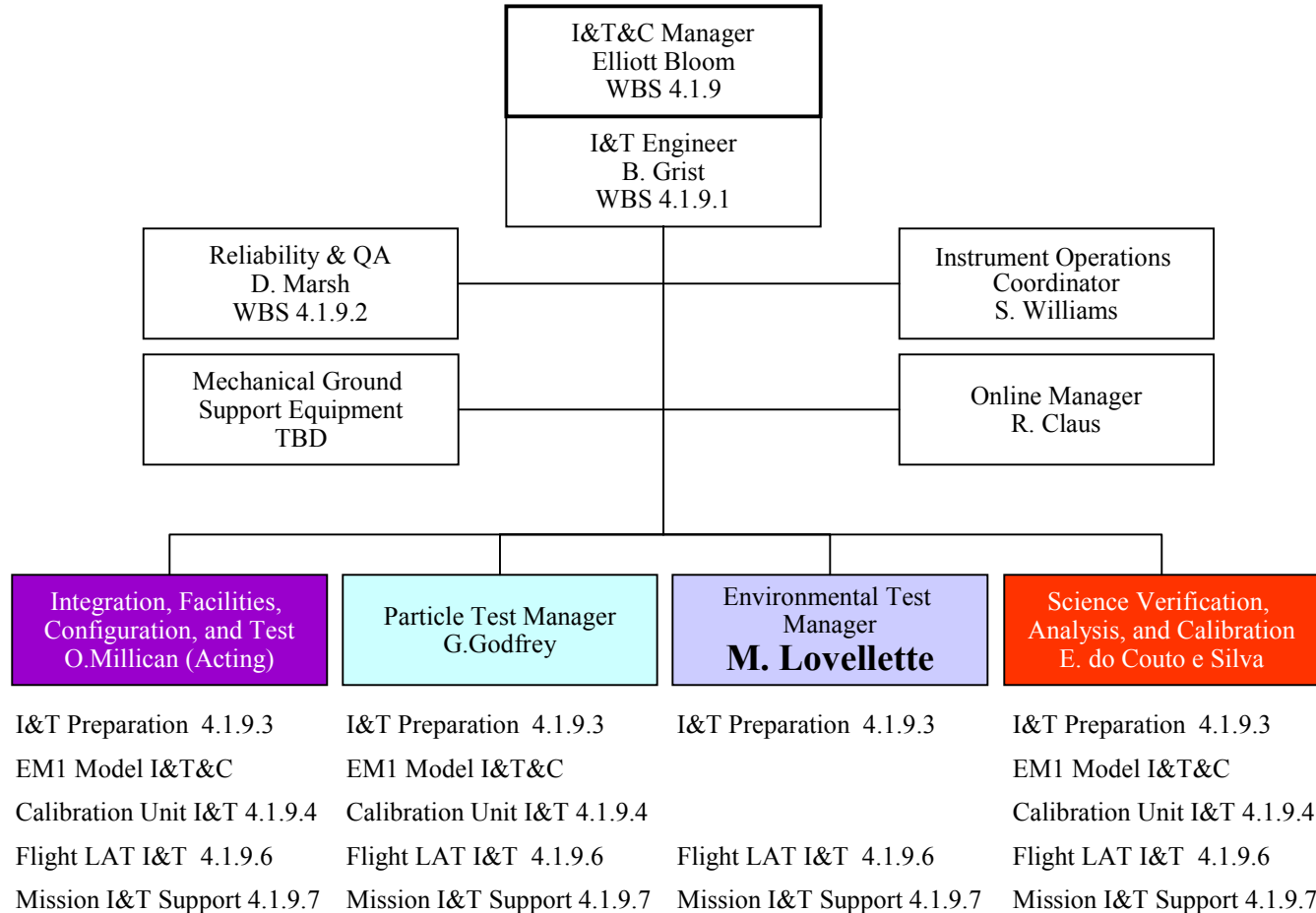
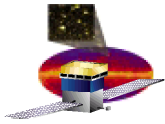


# I&T&C Organization Chart

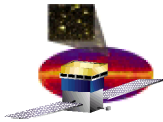




## Function of Environmental Test

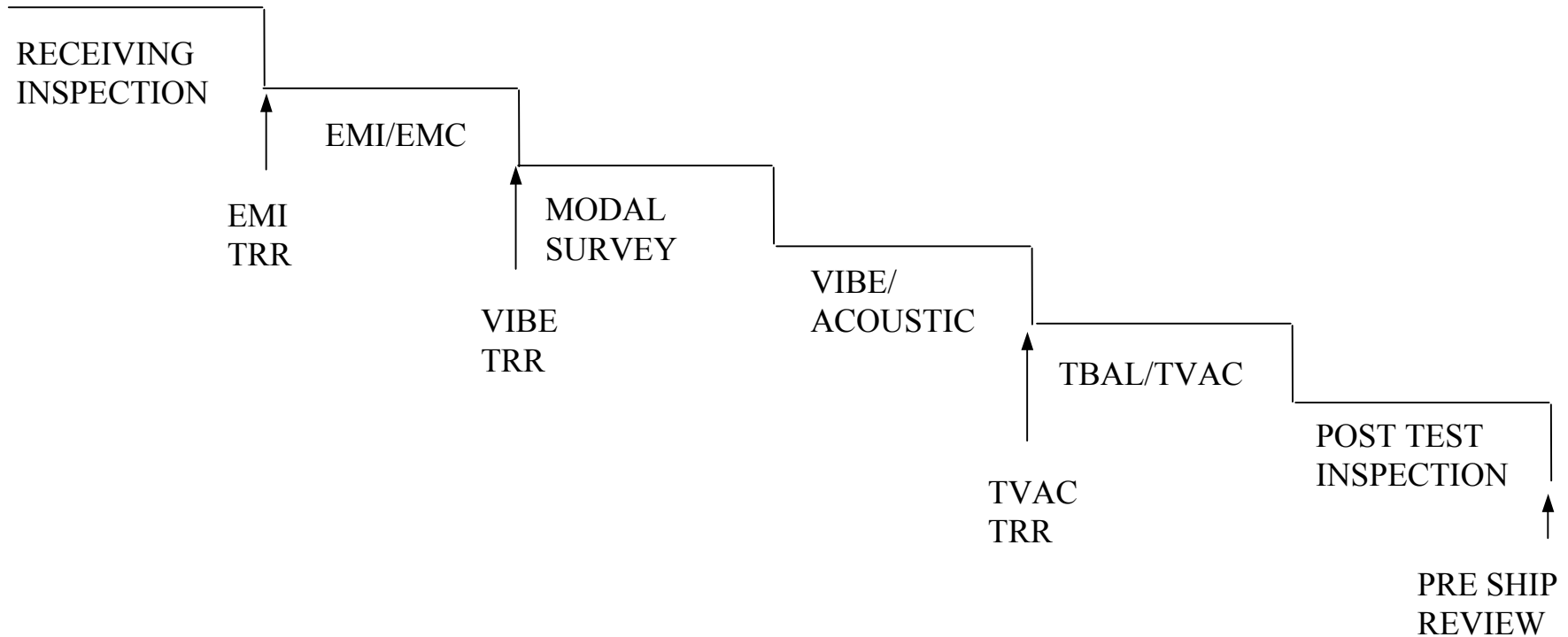
---

- **Demonstrate the the LAT meets all environmental requirements**
  - Electromagnetic Compatibility
  - Structure: “modes” & “loads”
  - Thermal limits
  - Workmanship
- **Exact test requirements/ implementation is TBD**
- **Do not over test**

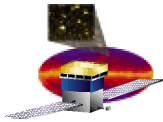


# ENVIRONMENTAL TEST FLOW

- Before shipment to NRL there will be combined preship and environmental test readiness review
- Functional test required before and after each environmental test
- Inspection of instrument will be performed before and after each test



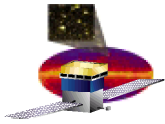
TRR = Test Readiness Review



## EMI/EMC TESTING

---

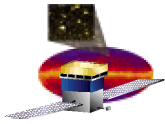
- **Test to: GSFC 433-RQMT-0005**
- **Demonstrates that adequate margin exists between susceptibility and noise levels**
- **Ensure compatibility of LAT with other SV systems**
- **Ensure compatibility of other SV system with LAT**
- **Principal test areas**
  - Radiated Emissions
  - Conducted Emission
  - Radiated Susceptibility
  - Conducted Susceptibility
  - Magnetic survey if required
- **Baseline test facility Naval Center for Space Technology -**
  - 2 Anechoic chambers
- **Typical test duration 3-5 days**



# MODAL SURVEY

---

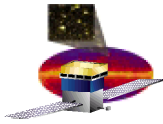
- Verifies dynamic characteristics of structure
- Issue:
  - With the deletion of the qual. grid we expect the requirement for a fixed base modal survey
- Not determined at this point if this will be done on the grid with mass simulators or on the integrated LAT
  - Late in the program if there is a problem
- Modes could also be verified with a base driven shake
- Fixed base modal survey can be done at NRL
  - Expected duration one week



## Random vibration/acoustic

---

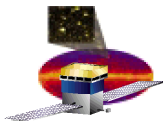
- **Verifies workmanship**
- **Verifies structural integrity**
- **Verifies modes**
- **Can be performed by random vibration testing, acoustic, or vibroacoustic testing**
- **Typical test duration 3 - 5 days**



# Thermal Balance Testing

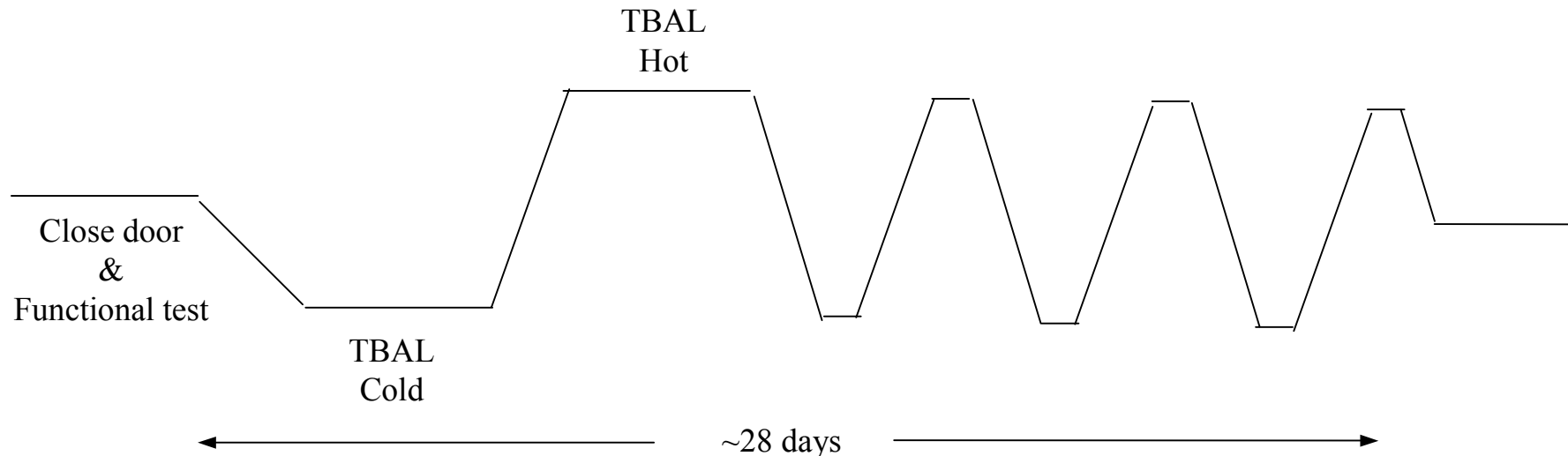
---

- **Verifies thermal model**
- **Verifies ability to operate in vacuum and at upper and lower temperature limits**
- **Test should be performed in as close to flight configuration as possible**
  - **Thermal blankets**
  - **Heat pipes**
  - **Radiators**
  - **Facility inputs: heaters/ solar simulators/ cold plates**
- **Thermal model is verified for cold case and hot case**
- **Functional tests performed after cold soak and during hot plateau**
- **Possibly performed after integration with SV**

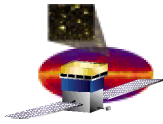


# Thermal Cycling

- **Verification of workmanship**
- **Plan is for four total cycles at integrated LAT level**
  - **Thermal balance counts as one**
- **Duration of cycles TBD**
- **Comprehensive performance testing to be performed at each plateau**
- **Functional testing will be performed throughout TVAC except when the instrument must be off for cooling ramps/soaks**



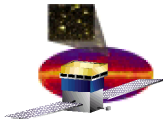




## QA / MA Support

---

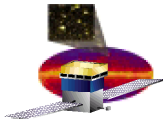
- **GSE verification**
  - **Mechanical GSE document verification**
    - Shipping containers
    - Transportation dolly
    - Test fixtures
    - Lifting fixtures
    - Cooling cart (if required)
  - **Electrical GSE document verification**
    - Computer system
    - Ground power system
    - Test harnesses
    - Breakout boxes
- **Preship review and verification**
- **Dispensation of open problem/non conformance reports and their impact on further testing**



## QA/MA - con't

---

- **Receiving inspection at NRL**
- **Verification of cleanliness, temperature, humidity controls and ESD**
- **Test facilities verification**
- **Review test plans and procedures**
- **Test support and verification of test results**
- **Preparation of work orders, anomaly and anomaly resolution reports**
- **Inspection of hardware prior to and after test**
- **Preparation and management of test logs and status reporting**
  - **Test conductors log**
  - **Event logbook**
  - **Anomaly reports**
  - **Configuration status**
  - **Mate/demate logs, etc.**



## Schedule

---

- **FY02:**
  - PDR Test requirements definition
  - CDR Preliminary test plans & resource identification
- **FY03**
  - Finalize test plans
  - Finalize resource identification / allocation
- **FY04**
  - Finalize test procedures
  - Begin environmental testing
- **FY05**
  - Complete environmental testing
  - Prepare test reports, close all anomalies
  - Support observatory level environmental testing
- **FY06**
  - Support LEO