



Happy Holidays



values and retain healthy margins. The focus of the SORCE Electrical System during November has been the MU (Microprocessor Unit). The SORCE MU Engineering Model is functional and consists of an EM (Engineer



SORCE Instrument module harness (above)

SORCE Upgraded MOBI Vacuum Chamber (below)

SORCE Mission Status November December 2001
Major SORCE Mission accomplishments during the month of November 2001 include the completion of the SOLSTICE instrument A/B SURF calibrations, SOLSTICE A/B shake, replacement of GCI (Generic Channel Interface) parts and the testing of the SORCE Integrated Instrument Module in the MOBI Thermal Vacuum Chamber. SORCE continues to closely monitor and adjust schedules for instrument fabrication to respond to changing priorities and facilities availability during fabrication and test. SORCE instrument delivery is now trailing the delivery of the SORCE spacecraft bus that is currently two months behind schedule. A potential launch delay may be requested.

SORCE System Status

The SORCE Integrated Thermal Analysis is complete. Preliminary SORCE IM Thermal Analysis results revealed some slightly unexpected results, but all readings are within operating parameters. In the area of SORCE contamination control initial pump rates from the IM (Instrument Module) in the LASP MOBI chamber indicated that the integrated IM is very clean. TQCM (Total Quartz Crystal Microbalance) have been used for the SORCE IM thermal vacuum test. TIM and SIM vibration tests have been done and retesting continues. Efforts to wrap up the SORCE RTM (Requirement Traceability Matrix) are underway. The SORCE Instrument Module flight harness has been wrapped and baked out.

The SORCE IM underwent a hardware stress/acceptance test in the LASP MOBI chamber. SORCE power, mass and memory budgets are now based on actual measured

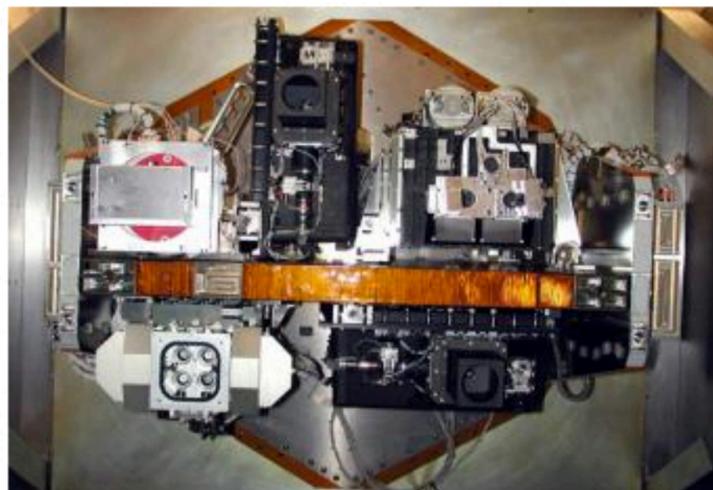


Engineering Model) RAD6000 computer, an EM PCI/IO, and EM Power Card and an EM LVPC (Low Voltage Power Center). Currently, the flight model EM RAD 6000 computer is under repair and the power card needs further test. The flight MU has just finished thermal cycle test and anomalies are being resolved. The hardware versus software disposition is the principle focus of anomaly resolution. In addition, an inrush current transient occurs on the MU LVPC. The problem was traced to the Interpoint DC/DC power converters on the LVPC. A filter circuit was added on the power converter to correct the situation. Testing indicates that the transient has been eliminated. More test, characterization and qualification time is required. The MU GCI's have been repaired with replacement diodes:



DC/DC converters and soft start circuits. The SOLSTICE A and B, TIM and XPS instrument GCI's have completed vibration testing and electronics have been conformal coated. The SIM GCI is currently being conformal coated and will be tested toward the end of December. Door motors will be also be swapped towards the end of December, and a GIDEP (Government Industry Data Exchange Program) was issued on the door motor EMI (Electromagnetic Interference) filters. Fourteen spare filters were returned to RFI Company for hermetic (sealing) testing. All fourteen units passed test and will be inserted when the motor is swapped out. The IM harness has been potted, wrapped, baked, terminated and kapton taped. The integration of the harness on the SORCE IM has resulted in excessing dark counts in the SOLSTICE G tubes. These counts will be investigated as soon as all harness processes are complete. All instrument tasks of the SORCE IM Flight Software are complete through OASIS LPT (Limited Performance Test). MU (Microprocessor Unit) tasks still remaining include: memory, patch and scrub pending ongoing integration issues, shell task module integration test, refinement of logging module, stress testing and identification of interface problems. The RAD6000 SUROM (Start-Up Read Only Memory) was received and tested. It performed well and appears ready for flight. Work interfaces with Orbital Science Corporation are going smoothly with the use of the LASP Instrument Simulator. Ongoing bug fixes and enhancements to the SORCE DSP FSW (Digital Signal Processor Flight Software) continue.

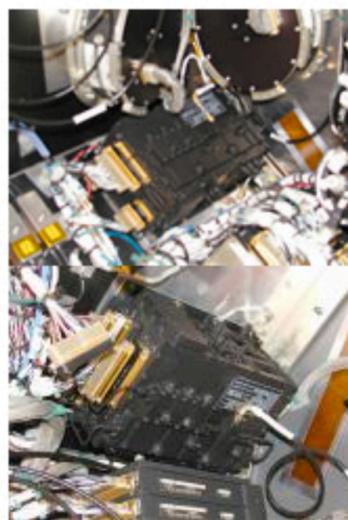
SORCE Integrated Instrument Module



Orbital SORCE Spacecraft Bus Status

The OV-4 APE (Attitude Power Electronics) has been reconfigured. The completed CEU (Central Electronic Unit) new back plane and ATP (Acceptance Test Procedure) have been completed. The completed CEU #1 repair has been installed on the spacecraft bus. The IM heater/thermostat has been installed. FSW (Flight Software) build 4.0 has been put in the spacecraft and the FlatSat for the initial bus performance testing. The integration procedures for the trackers have been completed and the RWA (Reaction Wheel Assembly), FSS (Fine Sun Sensors), MTB (Magnetic Torquer Bars) and TAM (Three Axis Magnetometers) are working. The transceivers have been delivered and the units were successfully integrated with the RF hybrid. All RF paths performed nominally during subsequent tests. The APE flight unit#2 is currently in ATP and has completed vibrate and shock test. Some thermal vac issues have arisen.

SORCE Orbital Tranceiver Hybrid Installation



All solar array panels have been received and wings are in preoperational deployment test. The CCS's (Cosine Sun Sensors) have been repaired and due to initial manufacturing errors and reinstalled.

Upcoming Meetings: SORCE Scientists and Engineers plan to present papers and attend the following meetings:

- MIWG, Boulder, CO February 2002
- SORCE Calibration Workshop Gaithersburg, MD February 2002
- NEWRAD at NIST, Gaithersburg, MD delayed to Spring 2002

To submit information please contact: Kathy.Lozier@lasp.colorado.edu