

MODIS Team Meeting Minutes

Minutes of the MODIS Team Meeting held on Tuesday May 24, 1994.

Action Items:

75. Determine if the four electronic module boxes can be individually thermal tested in air, or must the thermal testing be done in a vacuum. Assigned to Silva 10/26/93. Due 11/ 9/93
86. Complete CDR Action Items. Assigned to ALL 3/15/94. Due 4/ 7/94
87. Review detailed and summary level schedules for reasonableness. Also identify any additional detailed schedule events which should appear in the monthly summary level schedule. Assigned to Davis, Safren, Waluschka, Ferragut, Daelemans, and Martineau 5/10/94. Due 5/31/94
88. Obtain drawings from SBRC for CDR Actions 65 & 68. Assigned to Ken Anderson 5/19/94. Due 6/15/94

The following items were distributed:

- 1) Weekly Status Report #139
- 2) SBRC Memos submission from week #131
- 3) Minutes of the previous team meeting

Attendees:

✓ Richard Weber	Bruce Guenther	Larissa Graziani
✓ John Bauernschub	✓ George Daelemans	✓ Bob Martineau
✓ Rosemary Vail	John Barker	Bob Silva
Lisa Shears	Patricia Weir	Robert Kiwak
✓ Mike Roberto	✓ Mitch Davis	✓ Harvey Safren
Nelson Ferragut	✓ Jack Ellis	✓ Ed Knight
✓ Gene Waluschka	✓ Ken Anderson	✓ Harry Montgomery
✓ Bill Barnes	✓ Rick Sabatino	Marvin Maxwell
✓ Les Thompson	✓ Cherie Congedo	Bill Mocarsky
		Rick Mills

MODIS Technical Weekly May 24, 1994

Preparations for Thermal Vacuum Testing of Radiative Cooler

George Daelemans assisted with preparations for the radiative cooler thermal vacuum test last week and returned to GSFC at the end of the week. He expects the lowest achievable temperature will be reached around Friday, May 27, after about one week of cool down. There appears to be a detector cable short which could imply a thermal short. No indication yet of the impact of this on cooler performance. George took photos of the test setup, collected cool down plots, and brought back a copy of the radiative cooler thermal vacuum test procedure. There were some shortfalls with the test procedure. There were 24 TBDs or TBRs. No criterion are listed for the Responsible Engineering Authority (REA) and/or the Responsible

Thermal Analyst (RTA) to use in determining lowest achievable temperature, nominal load temperature, cold focal plane assembly temperature stability, worse case temperature, etc. George plans to return to SBRC to observe the thermal vacuum test of the radiative cooler.

Radiative Cooler Cool Down Problem

The first thermal/vacuum test of the MODIS cooler was not successful. David Jones, the GSFC MODIS representative at SBRC, provided the following information in a telemail report on May 26:

The radiative cooler failed to reach the required temperature plateau was 75K; it reached 90K. Electrical resistance measurements point to a thermal short. More measurements will be made. Then the radiative cooler will be brought back to above ambient temperature so the T/V chamber can be vented, and the radiative cooler removed. The cooler will then be taken to a clean room and carefully disassembled to find the cause of the failure.

Detectors

Bob Martineau discussed two new detector problems with Joe Banuck on May 24:

1. PC detector cracks were apparently caused by handling of the plastic box in which they were stored. According to SBRC, these detectors are ruined. This was the one good protoflight unit.

The PC detector array had been mounted in a testing type chip carrier where it was held in place by a temporary adhesive. It was removed from the chip carrier, cleaned, and then inspected under a microscope for dimensions and defects.. There were no problems with the PC detector array. It was then put in a plastic box. At this time, Joe believes the damage occurred because the array rattled around in the plastic box.

Three weeks of reserve for delivery of the LWIR Focal Plane Assembly (PFA) has been lost and there may be one or more weeks of slippage in delivery. A second set of PC detectors is in test (two subarrays) and may fill in the gap.

2. Yield problems for S/MWIR detectors

SBRC had assumed 100% correlation between cold wafer probe data and Fanout Detector Array (FDA) data. However, the FDA data has a lower background noise because of SBRC probe limitations at the wafer level.

If all good wafers based on probe data yielded good FDAs, Joe believed 10 good sets of S/MWIR subarrays would yield two good sensor chip assemblies (SCAs). This would provide for the PFM and one backup. Joe has determined that the correlation between good wafers based on probe data and FDA results is 85% at best. Based on this, he has only two good sets of subarrays instead of ten. He needs three more sets just to get one good SCA. Some recovery options:

a). Joe has a request in to start to process a new lot of wafers in September.

b). He may also try another anneal step which he hopes will raise the yield to three or four good sets. These steps are usually proprietary. Bob's educated guess is that the anneal step may cause an electro-chemical effect which will improve the interface between the passivation layer and the bulk material. A few less likely possibilities from this annealing would include driving out contaminants or moisture and possible mechanical stress relief.

c). Another consideration raised by Bob is that there can be one bad detector in a band and up to two bad detectors in a focal plane.

GROUND SUPPORT EQUIPMENT

The following GSE status was provided on teletype by Bill Mocarsky:

SBRC GSE STATUS

5/23/94

Notes based on telephone conversation with Vern Alferd 5/23/94

Modified PMIRR Bench Test Cooler: Currently the PMIRR has stability problems. The O-ring is either undersized or the material is not correct. They are looking into other material, taking care about outgassing. Will use this knowledge as for Modis BTC development.

Integration and Alignment Test Set (IATS): Currently waiting for FPA I&T team to use the IATS. Made available to I&T team Friday. They mated unit with 1 focal plane of VIS/NIR "simulator"(?) -signals looked good. Currently the GSE team is upgrading displays/push button layouts for ease of use. Had group expend overtime (2 mm?) to get delivered. Will have to absorb manpower later. Any access to IATS by GSE folks will be after hours if the IATS is in use by FPA I&T.

System Test Equipment #1:

- a. The PIC software that is common to MEM group is almost done. They expect to deliver it to MEM group July 1.
- b. Have interfaced OASIS to PIC software. Communication working.
- c. Have interface PIC to Archiver hardware (SUN). Have transferred data- but not put it away in the DB.
- d. Archiver will use UNI-SEQUEL(?) as the DBMS.
- e. The EPOCH jukebox (116 GB) is in-house - but not yet interfaced with the SUN.
- f. Basically STE #1 components are in for Oct delivery. Need to fab cables.
- g. SBRC feels that Archiver s/w is the next hurdle. Define DB and some reduction algorithms. They don't believe it is difficult to make EPOCH to SUN - SBRC has 5-6 units in-house.
- h. Modifications to command/telemetry data base are ongoing as result of input from system engineering.

Polarization Measurement Assembly: The design is done. Procurements are starting.

MODIS Dedicated Calibration Facility: They have issued the purchase order to XIRON. They LOJ (whatever that is) was approved. Minor modifications to the specification were made. The price is still within the LOJ.

Space Background Simulator (SBS) leaked in thermal cycle test. Problems will be taken into account in future design.

External Scan Mirror Controller: Wired except for 1 connector. Unit testing software. Expect delivery the end of June.

Fixtures: Vern says things are going well. He does have a fixture that is due in Aug 94 (Rotary fixture or Modis support fixture?) The PRs are just being cut - so need to watch this.

Bill Mocarsky

Mechanical

An update to the Honeywell Vibration, Acceleration, and Temperature Test Procedure for the Loral American Beryllium Main Frame has been received. It is dated April 22, 1994. An updated schedule (May 24) for the mainframe testing has also been received from Al DeForrest and J. Neumann. The dry fit check is scheduled for 3 days between June 6 and June 9. Vibration testing is scheduled for 10 days between July 26 and August 9.

Mike Roberto May 27, 1994