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| Investigation: FIELDS |
| Progress accomplished this period: | Nov 2012 Reporting Period |
| 1. | Project Management and Product Assurance |
|  | a. | Project Management* Hosted SwRI and Goddard PM visit at UNH.
* Supported the following Acceptance Reveiews
	+ EDI GDU SN1.
		- Panel agreed to delivery
* Supported the following PSRs:
	+ None
* Supported the following PERs:
	+ FM4 AEB
		- Panel recommended continue
	+ GDU SN3
		- Panel recommended continue
* Supported the following TRRs:
	+ FM3 CEB vibration test
	+ EDI-GDU SN3 vibration test
	+ EDI-GDU SN3 TV test
* Received delivery of the following flight hardware items at UNH
	+ SN3 EDI Gun and GDE (from IWF)
	+ SN3 EDI Optics (from IWF)
* Delivery of the following flight hardware items from UNH to FIELDS partners
	+ Returned 20 EDI HV opto-couplers following partial discharge testing (to IWF)
* Delivery of the following flight hardware items from UNH to the IS
	+ EDI GDU SN1
* CDRL and contract deliverable submissions this month:
	+ None
* Prioritized and coordinated the efforts of subcontractors, foreign partners, outside vendors and in-house workshops to optimize schedule performance. This month’s activities in this regard include:
	+ UNH machine shop
		- Worked on EDI Shipping Plate
		- Worked on EDI Close Out Covers
		- Worked on MCP Clamp Rings
		- Worked on SDP Trumpets
		- Worked on SDP Metering Wheel Shafts
	+ - UNH electronics shop
		- Worked on SDP 9/10 Strain Gauges
		- Worked on SDP 9/10 Motor Cable Harnesses
		- Worked on EDI SN 06 HV Capacitor Board
		- Worked on EDI SN 05/06 Pre-Amp Boards
	+ Vendors
		- Coordination of vibration test activities with our vendor, BAE (SDP).
		- Surface treatment of FM SDP and EDI parts
	+ FIELDS team partners, IS and S/C teams
		- This continues to be a major part of the agenda at weekly FIELDS team meetings
		- The weekly meeting is used to coordinate deliveries to and testing at IS and S/C levels. It is important that these teams participate in the weekly FIELDS meeting.
		- U of Iowa for assembly of EDI Sensor Digital Boards
 |
|  | b. | Product Assurance |
|  |  | Turco / Salwen* In process inspection of EDI and CEB PWAs
* Support of PERs for ADP RE and EDI GDU
* Support TV testing of SDP FM 7 & 8
* Support integration of EDI FM3
* Final bagging and contamination inspection of EDI SN1, SDP 5 & 6
* Outgassing certification for EDI SN1, SDP 7 & 8, SCM FM3 harness
* SDP TVAC Testing
* SDP Ferrule/Thin wire issues QA
* SDP Probe repair
* EDI Sensor Digital Kitting; sent Digital Sensor FM7-9 kits to Iowa for assembly
* EDI Sensor Connection Board Kitting
* Vendor visit: Resolved SDP outer cylinder surface treatment issues with vendor General Magnaplate

Software Product Assurance (Heirtzler)* EDI and CDPU software packages are stable.
 |
| 2. | Systems Engineering and FIELDS I&T |
|  |  | Rau / Dors* Delivered SDP SN05/06 to IS Deck 2 I&T
* Performed EDI GDU SN01 magnetics, FIT and Acceptance testing
* Performed FM3 AEB FIELDS Acceptance test
* Performed FM3 AEB FIT test and released test report
* Supported SDP SN08 thin wire crimp FRB and resolution
* Continued FIELDS verification entry into DOORS
 |
| 3. | Post-Delivery Support |
|  |  | IS-1 and Obs-1 FIELDS* Fit check the fluxgate magnetometer to flight mag boom
* Supported and reviewed WOA development at IS and OBS
* Reviewed mag sensor to mag boom FM I&T plans
* Supported integration of IS deck 1 to S/C deck 1
* Supported Observatory #1 electrical integration and functional testing

IS-2 and Obs-2 FIELDS* Performed EDI SN01 IPA, In-rush and functional test on IS#2
* Performed SDP 05-06 IPA, In-rush and functional test on IS#2
* Performed S2M and functional testing of IS ADP simulator on IS Deck#2
* Delivered EDI GDU SN01 to IS Deck 2 I&T
* Supported IS #2 CPT
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| 4. | Science activities |
|  |  | SWT and SWG * Supported science activities as needed

Science data processing activities* Conducted discussions about contents of CDF data files and the MMS Data Products Guide
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| 5. | Magnetometers |
|  | a. | DFG  |  |
|  |  |  | * Completion of  FM4 data package
* Full functional test after cleaning of board and sensor
 |
|  | b. | AFG |  |
|  |  |  | Completed deliveries prior to November:* FM1 complete set [DFG Sensor S/N 04, AFG Sensor S/N 05, AFG Electronics S/N 01],
* FM1 flight harness set (boom S/N 01 and S/N 02, CEBW6 S/N 01, CEBW4 S/N 01)
* FM2 complete set [DFG Sensor S/N 08, AFG Sensor S/N 06, AFG Electronics S/N 02],
* FM2 flight harness set (boom S/N 03 and S/N 04, CEBW6 S/N 02, CEBW4 S/N 02)
* FM3 complete set [DFG Sensor S/N 07, AFG Sensor S/N 09, AFG Electronics S/N 03]
* FM4 DFG Sensor (S/N 10) delivered
* FM4 AFG Sensor (S/N 11) delivered to UCLA

Sensors*:** No current fabrication activities for sensors - flight spares to be built after harness deliveries

Cables:* Completed FM3 fabrication, bakeout.
* Continued FM4 harness set fabrication

Flight Electronics:* AFG FM4 calibration and characterization completed
* AFG FM4 EIDP in work
* FM4 cleaning and packaging for delivery in work
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|  |  |  |  |
|  | c. | SCM | * SCM FM1 => SENSOR S/N FM1 + PREAMP S/N FM1
	+ - Delivered to UNH, 03 OCT 2011
* SCM FM2 => SENSOR S/N FM2 + PREAMP S/N FM2
	+ - Delivered to UNH, 25 JUL 2012
* SCM FM3 => SENSOR S/N FMS + PREAMP S/N FM4
	+ - Delivered to UNH, 25 JUL 2012
		- FM3 harness delivered at UNH without the outgassing certification
* SCM FM4 => SENSOR S/N FM3 + PREAMP S/N FM5
	+ - Sensor vibrated safely at protoflight levels
		- Preamp vibrated safely at acceptance levels
		- Thermal vacuum performed on the Sensor
		- Thermal vacuum performed on the Preamp
* SCM FMS => SENSOR S/N FM4 + PREAMP S/N FM3
	+ - Preamp vibrated safely at acceptance levels
		- No additional drift measured on the Preamp noise after vibration.
		- Preamp compliant with the sensitivity requirements, except at 10 Hz where the noise is slightly above the requirement
		- Waiver requested for a use as a spare model
	+ NCR => MMS-SCM-NC-PRE-140
	+ Waiver => MMS-SCM-RW-PRE-606
* Misalignment measured on an extra triaxial sensor, at different torque values (holder S/N FM4 has been used with spare coils). Several configurations have been tested. Measurements repeatability is observed but with a same torque value, the deviation depends on the device under test. It is not possible to conclude that FM1 deviations can be deduced from the deviations measured on the FM2 sensor. NCR and alignment measurements report to be completed (MMS-SCM-NC-TRI-623-LPP and MMS-SCM-PR-TRI-622).
* Performed SCM FM3 Harness bake out and TQCM measurement at UNH
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| 6. | EDI |
|  |  | Ship set 1 - GDU SN 1* Completed Detector Characterization
* Performed FIT Test and Magnetics Test
* Pre-ship inspections
* Delivery to GSFC and Integration Support

Ship set 1 - GDU SN 3* Finished Assembly
* Performed Baseline FFT
* EMI/EMC Test
* PER
* Vibration

Sensor* Ship set 2 - SN 4
	+ Vacuum Test
* Ship set 2 - SN 5
	+ Board level tests
		- Digital Board
		- MCP Supply Board
	+ Sensor tests
		- Preamplifier Trimming
		- Preamplifier delay test
		- Thermal Test
* Ship set 3 - SN 6
	+ Board population
		- HV Connection board
	+ Board level tests
		- Digital Board
		- Pre-amp/HV-Capacitor board stack
* Ship set 3 - SN 7 and Ship set 4 - SN8
	+ Board Population
		- HV Capacitor Boards

Gun - UNH efforts* BGS SN 9 & 10 delivered to IWF

Gun - IWF efforts* Ship set 2 - SN 4
	+ Integrate board stack and test board stack
	+ Final Gun Assembly
	+ Functional Test
	+ Start of Gun Calibration: discovered failure of Wehnelt on HV&FIL board
	+ Disassembly of Gun and further testing;
	+ Swapped in HV&FIL board SN 5
	+ Started reassembly
* Ship set 2 - SN 5
	+ Board level testing

GDE* Ship Set 3 - SN 6
	+ Delivered unit to IWF
* Ship Set 3 - SN 7 and Ship Set 4 - SN 8
	+ Thermal cycling completed

Optics* Continued work on ship sets 2,3,4
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| 7. | SDP/BEB/LVPS  |

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|  | a. | SDP/BEB/LVPS (KTH/IRFU/Oulu)KTH/IRFU SDP BEB’s:* Completed comprehensive at IRFU on units FM13-14.
* Sent and receive back units FM13-14 from paralyning . Performed incoming inspection, staking and final electrical test.
* Planned to perform final testing on Unit FM13-14 mid Dec.
* Received FM15-16 assemblies. Performed incoming inspection, and initial testing at KTH.
* Unit FM15-16 completed comprehensive testing at IRFU, all nominal.
* Additional test for EMC motor anomaly was performed at -25C with no disturbances encountered.
* Continue to define and manufacture SDP Calibration test at IRF-U, ready for testing next trip to Sweden.

KTH/IRFU SDP Preamp/Boom Cable Assembly:* Received FM15-16 assemblies, Performed incoming inspection and initial test at KTH (all nominal).
* Unit FM15-16 have been sent to IRFU along with S-BEB’s for comprehensive testing.

KTH/Oulu/IRFU Sphere / Yo-Yo Mechanism:* Received E2 probe for refurbishment after slipped crimp.

KTH/IRFU/Oulu Management:* Continue to work all issues related to testing, documentation, hardware, shipping and QA/PA and shipping needs.

KTH Product Assurance (OHB Sweden):* Inspection performed on SDP FM13-14 after trimming, IRFU testing, before parylening
* Follow up of the problems on SDP13-14, Sensor inductor failure on GT13 and tensions out of spec on SDP14 (resistor changed)
* Inspection of travelers, test results and documentation for SDP FM13-16
 |
|  | b. | SDP/BEB/LVPS (UNH)LVPS:* FM5 awaiting Comprehensive test at UNH.
* FM LVPS

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| --- | --- | --- | --- | --- |
|  | **Assembly** | **Test** | **Shipped** | **Incoming** |
| **Unit** | **Board Status** | **MIP** | **EE at KTH** | **EE at IRFU (Thermal)** | **Parylene** | **To** | **Inspection** |
| FM1 | Complete | Complete | Complete | Complete | Complete | UNH | Complete |
| FM2 | Complete | Complete | Complete | Complete | Complete | UNH | Complete |
| FM3 | Complete | Complete | Complete | Complete | Complete | UNH | Complete |
| FM4 | Complete | Complete | Complete | Complete | Complete | UNH | Complete |
| FM5 | Complete | Complete | Complete | Complete | Complete | UNH | waiting UNH Test |

 A-BEB’s:* Remove two bad helicoils from FM5 (spare) housing based on discussion with LASP. After which shipped lower housing to LASP to replace locking helicoils (need special tool).
* FM ADP

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Assembly** | **Test** | **Shipped** |
| **Unit** | **Board Status** | **MIP** | **EE at KTH** | **EE at IRFU (Thermal)** | **Parylene** | **To UNH,****Incoming Inspection** | **To LASP** |
| FM1 | Complete | Complete | Complete | Complete | Complete | Complete | Done |
| FM2 | Complete | Complete | Complete | Complete | Complete | Complete | Done |
| FM3 | Complete | Complete | Complete | Complete | Complete | Complete | Done |
| FM4 | Complete | Complete | Complete | Complete | Complete | Complete | Done |
| FM5 | Complete | Complete | Complete | Complete | Complete | Complete | Stored at UNH |

S-BEB’s:* SS#5 Completed mounting of connectors and transformer at UNH
* SS#5, MIP and staking completed.
* Set up, but not yet exucted is the review of FM 12 BEB set. Returned early from KTH with possible bad connector causing motor/ HOP intermitted operation.

SDP MGSE:* Continuing, Documentation updates to reflect duel set-up and assembly

UNH SDP EGSE:* Continue, minor GSEOS software up-dated (displays).

SDP Preamp:* No new developments

SDP Damper:* Waiting for update from GSFC.

SDP Mechanical:* FM8 thin wire investigation.
* FM9 & FM10 sub-assemblies started in support of I & T.
* SDP Trumpets and Metering Wheel shafts complete for S/C 3.
* FM11 & FM12 kits started

SDP Thermal:* Conducted thermal vacuum testing on SDP FM7 & FM8 thermal testing
* Continue to write thermal test report / as run procedure for FM5-6.

SDP EMC:* Conducted EMC/EMI and magnetic testing for unit FM7-8. Both FM7, 8 passed but are not in family with FM3-6. Study commencing

SDP Motors:* On going, Data compiled and Motor Selection/Characterization report.

FM SDP * Prepare and conducted PSR for S/N 3-6

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|  | **Electrical** | **Mechanical** |  | **Test** |
| **Unit** | **Board Status** | **Assembled** | **Inspection** | **Test (FFT)**  | **Vibe** | **Test (FFT)** | **TV** | **Post Test** |
| Test Unit FM1 | Needs rework | Modified & in test | NA, test unit | NA, test unit | NA, test unit | NA, test unit | NA, test unit | NA, test unit |
| FM2 | Needs rework | In Storage | NA | NA | NA | NA | NA | NA |
| FM3 | Completed | Completed | Completed | Completed | Completed | Completed | Completed | Completed |
| FM4 | Completed | Completed | Completed | Completed | Completed | Completed | Completed | Completed |
| FM5 | Completed | Completed | Completed | Completed | Completed | Completed | Completed | Completed |
| FM6 | Completed | Completed | Completed | Completed | Completed | Completed | Completed | Completed |
| FM7, 8 | Completed | Completed | Completed | Completed | Completed | Completed | Completed | Completed |
| FM9-10 | Completed | In-process | In-process |  |  |  |  |  |
| FM11-12 | Complete |  |  |  |  |  |  |  |
| FM13-14 | Complete |  |  |  |  |  |  |  |
| FM15-16 | In-process |  |  |  |  |  |  |  |
| FM17-18 | In-process |  |  |  |  |  |  |  |

SDP QA:* Continued working out shipping and receiving details for SDP.
* Continued work on SDP assembly activity, with review and complying of work sheets.
* Monitored the assembly and test activities for the flight units

AEB (UNH)* Reworking two housing heliciols (SN5, spare).
 |
|  | c.  | SDP (LASP) (door and preamp)* LASP supported activities associated with the SDP SN08 fine wire pull out failure. Crimp samples were pull tested, thermal tested, and dimensionally inspected. Input was provide to UNH in support of the FRB.
* Bill Vermeer traveled to UNH to assist in crimp process development and crimping of flight units.
* Developed a method to insulate the SDP bootstrap from the PTFE insulated conductors on SN09 to SN18 preamps. Provided information on this concept to UNH.
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| 8. | ADP |
|  | a. | ADP Extensible Boom * The ADP QM Boom was delivered to ATK. The QM was successfully deployed and passed its post deployment inspection.
* FM1 – FM4 ADP Boom fit checks with their corresponding ADP RE’s successfully complete.
* GSFC MLI designer, Diane Schuster, scheduled a trip to LASP to fit check engineering model MLI and templates to the ADP Boom. Due to illness she had to cancel. The EM MLI and templates were sent to LASP, and LASP performed the fit checks. With some minor tweaks, the MLI design will work. Feedback was provided to Diane via phone and email.
* An agreement was made on the placement of MLI attachment buttons on the ADP Boom canister. Buttons were provided as CFE by Goddard. LASP reviewed and will use the GSFC button bonding procedure with 2216 adhesive. Electrical grounding of the buttons will be made with Chotherm tape.
 |
|  | b. | ADP Receiving Element * Completed ADP RE ship set #4 TVAC test.
* Completed ADP RE ship set #4 post-TVAC FFT (deployment + electrical)
* Anomaly – During the post-TVAC functional deployment test of ADP RE SN01 (ship set 3), the sensor contacted a wire rack in the cleanroom. This resulted in a 12” long scratch on the tip on the sensor. Root was determined to be an inadequate deployment keep-out zone definition in the procedure. An FRB with the project was held. After a DAG repair process has been developed by LASP, a follow-up FRB will be held in the 2nd week of Dec.
* Progress has been made in developing a DAG repair process. The next steps are to test the candidate process on the QM ADP and to perform a localized cure.
 |
|  | c. | Axial Electronics Box (AEB)* Completed final mechanical assembly and inspection of FM4 AEB.
* Performed pre-environmental FFT on the FM4 AEB.
* Held a successful PER for the FM4 AEB.
* Successfully completed vibration testing of the FM4 AEB. The post-vibration FFT was successful.
* Performed vacuum bake out and outgassing certification via TQCM measurement. The data was reviewed and approved by the MMS IS Contamination Engineer.
 |
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| 9. | DSP, Thermal, Systems Engineering, Product Assurance and Management (LASP) |
|  |  | DSP* Complete review of thermal acceptance test data for SN12 and SN13 DSPs (ship set #4).
* DSP SN12 and SN13 calibration report is in process.
* DSP SN12 and SN13 verification is in process.

Thermal* Resolved concerns about high ADP Preamp temperatures during an anomaly LV separation scenario. Review of the build process and documentation of the ADP RE’s revealed that every flight preamp was exposed to 150 C during the DAG coating cure. This elevated temperature cure process effectively qualifies the preamp to this temperature. The mission SE has given direction not to proceed with a QM thermal test.
* Supported GSFC inquiries regarding ADP Thermal model assumptions, masses, etc.
* Prepared for AEB FM4 TVAC test

Systems Engineering & Project Management* An estimate for a spare ADP Receiving Element was provided to UNH.

Quality Assurance, Parts, and Materials Engineering* Supported inspection activities as necessary.
 |
| 10. | CEB  |
|  | a. | Hardware |
|  |  |  | CDPU & BPM (Bodet)* No activity. Awaiting assembly of FM4 board set.

CEB (Rau, Dors, Nolin)* Prepared for and supported FM3 CEB Vibration test
* Performed CEB FM3 post vibe FFT
 |
|  |  |  |  |
|  | b. | CDPU Software, Support for Operations, I&T and Post-Delivery activities (Needell) |
|  |  |  | * Supported IS1 Observatory Functional Test @ GSFC
* Supported IS2 CPT @ GSFC
* Continued support of IS2 Post Delivery activities
* Continued support of OBS1 Post Delivery activities
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| 11. | GSE (Mello, Chutter, Bodet) |
|  |  | GSE Hardware* No activity

FIELDS Simulator* No activity

GSEOS & GSE Software* Support SDP Testing
* Support I&T Efforts
* Configured SOC Connectivity & Tested
* GSEOS CDPU FM3 Configuration
* Telemetry Screen Improvements
* Keep software repository updated
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| 12. Problems encountered (some resolved) and updates this period |

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|  |  | ADP RE* Sensor Tip Scratches during Deployment (ADP RE SN01) (PFR-10160.53-76-IP)
	+ Scratch the ADP RE SN01 (ship set #3) sensor during a functional deployment test. The deployment test procedure has been corrected to prevent this from happening again. The plan going forward is to repair SN01. A process for this repair is currently in development.

SDP* Anomalous wire deployment (EMI-related) (SDP TVAC, S/N FM7 & FN8) (PFR-10160.53-77-IP)
	+ Still resolving EMI issue seen in TV chamber.
	+ FRB disposition: study the effect using EM hardware when available. Proceed with SN7&8 acceptance testing and delivery.
* SDP Anomalous wire deployment (2nd of 2, EMI-related) (SDP TVAC, S/N FM5) (PFR-10160.53-69-IP)
	+ Fully recoverable situation
	+ Evidence points to EMI related to the TV test environment as the cause. NCR to remain open until additional testing can clearly identify the root cause.
	+ Risk of proceeding with SDP delivery is low.
	+ Continued monitoring for and studying this anomaly during the SDP 7&8 TV test. Still unresolved.
* Wrong teflon insulation used on SDP Preamplifier wiring (SNs 9-18) (AR-10160.53-11-AP)
	+ It was determined the PFTE insulated wire was used in 10 of the SDP preamps.
	+ LASP analysis concludes radiation exposure will be below level of concern
	+ Determine if an insulator can easily be added between the bootstrap and PTFE insulated wires on the affected preamps.
	+ Disposition (FRB 7 Dec): coat bootstrap surface with arethane respecting a keep-out zone where the Ultem sleeve makes contact.
* Sweep Test Response - fine wire disconnected (SDP FM8) (PFR-10160.53-75-IP)
	+ Inspection revealed the fine wire from the probe/yo-yo assembly had come completely out of the crimp ferrule inside the preamplifier during the TV test.
	+ TV test of SDP SNs 7&8 was completed.
	+ Root cause investigation revealed inadequate control of the crimping process. FRB defined rework and retest activities.
* Post Coating Functional Test Anomaly (SN12 SDP BEB CP12 and AM12 PWAs)
	+ Observed at KTH just prior to planned hand-carry of multiple units by Brian King to UNH.
	+ Import licensing required this unit to be returned to UNH.
	+ UNH will do passive inspection and return the unit to KTH for rework.

EDI* GDE Converter Fold Back and Comm Locks observed during TV test (GDU SN FM3) (PFR-10160.53-81-IP)
	+ Three converter shut downs and 1 comm lock observed. Normal operation restored upon reset.
	+ TV test is continuing; data analysis is underway for root cause investigation.
* GDE Converter Shutdown during TV power-on (GDU SN FM3) (PFR-10160.53-80-IP)
	+ Root cause determined to be current limit setting on GSE power supply. Retest successful upon reset of current limit setting.
* Damaged LVDS IC (EDI Gun SN05) (PFR-10160.53-79-IP)
	+ Damage occurred during board level testing at IWF
	+ Test setup, operator error
* Failure to set the Wehnelt voltage (EDI Gun SN4) (PFR-10160.53-78-IP)
	+ During inital tests in vacuum preparing for the calibration of Gun S/N 4 a failure to set the wehnelt voltage occurred (at IWF).
	+ The failure mode could be explained by a damaged transistor on the HV-FIL board.
	+ The HV-FIL board was replaced in SN4 Gun. The suspect board will be returned to UNH for test and, most likely, DPA of the suspected part.
* Increase of beam and filament current (EDI Gun SN3) (PFR-10160.53-73-IP)
	+ Observation made at IWF during calibration with GDE. Evidence of failing filament.
	+ BGS replaced; SN3 Gun/GDE calibration completed successfully
	+ Awaiting further inspection of the defective BGS
* [CLOSED] Inversion of the CINV-bit functionality (EDI GUN SN03) (AR-10160.53-12-IP)
	+ Observation made at IWF during calibration with GDE.
	+ Cause is wiring error at a connector addressed by swapping two wires. This repair has been implemented. NCR paperwork from IWF received
* [CLOSED] Thermal Vacuum Com Locks and Fold-Backs (EDI GDU SN2) (PFR-10160.53-56-AP)
	+ Fixed with 20-Ohm resistor in Gun converter circuit beginning with second unit, SN1. No similar observations made to date with the SN1. Leave NCR open until completion of SN1 TV testing.
	+ SN1 GDU completed all testing without problems. NCR can be closed.
* [CLOSED] Plate 4 Optocoupler Arcing (EDU Gun SN1) (PFR-10160.53-60-IP)
	+ Awaiting DPA on failed parts. Meanwhile, screened parts were used in SN1, retest successful
	+ Active risk record for EDI optocouplers. Mitigation includes screening and partial discharge testing of a subset of devices as recommended at the SIR.
	+ NCR closed upon receipt of DPA report. Tracking issue with active risk record.

DSP* Invalid HSBM packet (DSP SN05) (AR-10160.53-10-IP)
	+ An invalid HSBM packet was intermittently generated in the SN05 DSP thermal acceptance test. It was determined that the cause of this anomalous test data was EMI that resulted from switching 180 Vpp test signals between DSP E-field inputs. The offending script was corrected, and the problem was resolved.
	+ Awaiting NCR report from LASP to close the item in the PIMS

CEB* [CLOSED] Side A Exceedance on CE01/03 EMI Test (FM3 CEB) (PFR-10160.53-74-IP)
	+ Non-conformance was by 0.3dB at 515Hz on the A-side power lead. Previous units came in just below the 65dB limit. (All are still in-family.)
	+ The violations noted are covered under the umbrella of the corresponding FM1 waiver: MMS-DW-0143.
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| 13. Issues and concerns |
|  |  | From FIELDS PM* Further delays of SDP and GDU deliveries given technical problems encountered during TV testing with most recent units. See problems.
* Coordination of post-delivery support activities
	+ Given rapidly changing situations and plans, it is difficult at a distance to know what FIELDS post-delivery support of IS and observatory activities is needed and when.
	+ The FIELDS is establishing a full-time presence of a FIELDS SE team member at GSFC to help coordinate our support.

From SDP/AEB PM/SE (King)* BEBs (AEB and SDP)
	+ AEB FM5 (flight spare) requires two locking helicoils to be replaced. Parts received from LASP, need to find the time to complete task.
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NCR Summary: Provided separately (Excel file)

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| Activities planned for next reporting period |
|  |  | Management |
|  |  |  | * Respond to open RFAs
* Complete review of the UCLA cost to completion proposal received in October. Resume work toward establishing a subcontract from UNH to University of Michigan for support of Jim Slavin. This effort is tied to redistribution of the Goddard, UCLA, Michigan effort being organized by Chris Russell (UCLA).
* Continue to solicit and review ideas for cost savings.
* Continue to prioritize and schedule flight PWA builds in the UNH electronics shop and flight and flight parts machining in the UNH machine shop. Similarly, prioritize and schedule the work in outside shops assembling flight electronics (U of Iowa) and manufacturing and surface treatment of mechanical parts. Note the following.
	+ UNH Machine Shop:
		- Continue working SDP Parts
		- Continue working EDI Parts
	+ UNH Electronics Shop:
		- Work on EDI Sensor Stack Boards as they are kitted
		- Unfinished SDP work as allocated
		- Lead forming and tinning of ICs for FM4 set of CDPU and EDI Controller boards
	+ BAE:
		- Vibration services for SDP
	+ FIELDS Team, IS and S/C Partners:
		- Continue to use the weekly FIELDS meeting for coordination of near-term activities
		- Coordinate assembly of remaining EDI Sensor digital boards with U of Iowa
* Closely monitor status and schedule performance of team members. Identify schedule risks and provide assistance for mitigation if warranted. Work to minimize schedule slippage.
* Coordinate problem investigations and associated resolution.
* Support FRBs;
* Support/staff the EDI, CEB and SDP T/V testing;
* Update the Gun and GDE schedule.
* Make delivery of the following items from UNH to FIELDS partners
	+ None planned
* Receive delivery of the following items at UNH
	+ FM3 set fluxgate harnesses (from UCLA)
	+ FM4 AFG
	+ FM4 DFG
* Make or coordinate delivery of the following to GSFC IS or S/C teams
	+ SDP SNs 7&8
* Prepare and conduct the following PERs and associated TRRs
	+ SDP SNs 9 & 10
* Prepare for and conduct following PSRs.
	+ SDP SNs 7 & 8 (acceptance review)
* CDRL and contract deliverable submissions:
	+ None planned
* Support/staff the EDI and SDP T/V testing;
* Update the Gun and GDE schedule
 |
|  |  | Product Assurance, Configuration Management, Parts, Materials, Facilities |
|  |  |  | Turco/Salwen* Support EDI SN3 TV testing
* In process PWA inspection as needed
* Final bagging and contamination inspection of SDP 7 & 8

Software Product Assurance (Heirtzler)* Continue support for EDI and/or CDPU software testing as needed
 |
|  |  | Systems Engineering & FIELDS I&T |
|  |  |  | Rau / Dors* Receive FM4 DFG and AFG electronics and sensors and FM3 mag harnesses
* Perform SDP SN07-08 EMI, FIT and FIELDS Acceptance testing
* Perform FM3 SCM Preamp and Sensor thermal bake out
* Awaiting B.Anderson response to EDI GDU SN02 and SDP SS1Magnetics test data
* Continue submitting FIELDS verification material for closure
 |
|  |  | Post-Delivery Support |
|  |  |  | IS-1 and Obs-1 FIELDS* Support S/C EMI Risk Reduction Test
* Perform S2M and functional testing of Observatory ADP simulator at GSFC
* Support integration of FM1 magnetometers to OBS 1 mag booms

IS-2 and Obs-2 FIELDS* Deliver SDP SN07/08 to IS Deck #2 for Observatory 2 electrical I&T
* Continue support of IS #2 CPT
* Support integration of IS deck 2 to S/C deck 2
 |
|  |  | Science |
|  |  |  | SWT and SWG* Support science telecons as needed

Science data processing activities* Nothing planned for December
 |
|  |  | AFG |
|  |  |  | * Close-out of End Item Data Packages  - Deliver CDs/DVDs for FM3 Harness and AFG FM4
* Delivery of AFG FM4 to UNH
* Preparation and delivery of FM4 EIDP
* FM3 Harness delivery and FM3 Harness EIDP preparations
* Continued FY13 and out-year budgeting activities
 |
|  |  |  |  |
|  |  | DFG |
|  |  |  | * Delivery of FM4
* Remote support of FM3 MAG FIT
 |
|  |  |  |  |
|  |  | SCM |
|  |  |  | * FM4 calibration at Chambon-la-Forêt quiet facilites planned on December 10.
* Bakeout of the FM4 Sensor and Preamp.
* Inspection point (December 18-19): Coils manufacturing for the SCM spare
 |
|  |  | EDI |
|  |  |  | Ship set 1 - GDU SN 3* T/V test,
* FIT Test,
* Magnetics Test

Sensor* Ship set 2 - SN 5
	+ - Send boards out for parylening
* Ship set 3 - SN 6
	+ - Preamp Trimming, Preamp Delay Test

Gun - IWF efforts* Ship set 2 - SN 4
	+ - Finish re-assembly of Gun
		- Start calibration
* Ship set 2 - SN 5
	+ - Finish Board level testing
		- Start assembly

GDE* Ship Set 3 - SN 7 and Ship Set 4 - SN 8
	+ - EMC testing
* Ship Set 4 - SN 9
	+ - Thermal cycling

Optics* Continue work on ship sets 2,3,4
 |
|  |  |  |  |

|  |  |  |
| --- | --- | --- |
|  |  | SDP/LVPS/BEBs/Preamp/Probe (KTH/ Oulu/IRFU) |
|  |  |  | SDP:* Continue fabrication of Deployer test calibration set-up at IRFU. This is to provide high resolution calibration data.
* Investigate noise contribution to SDP/ADP system.

LVPS & S-BEB’s & Preamp & Probe:* Complete testing of SS#4 S-BEBs, preamp and probes.
* Coat, and post test SS#4 S-BEBs for shipped to UNH.
* Prepare the test reports for the all shipped units.
* Continue to manufacture and test the next SS#5 of probes at Oulu.

A-BEBs:* Done

KTH Management and Product Assurance:* Continue:
* Verification of the modification on the BEB boards and the associated change design and applicable document update (drawings, bill of material, as built, test procedures,...)
* Inspection and documentation of the changed/repaired transformers
* Inspection of SDP FM15-16 after paryleing, before shipping as well as all documentation
* Acceptance data package preparation for all delivered hardware
* Follow up for the spheres/yo-yo
 |
|  |  | SDP/LVPS/BEBs/Preamp/Probe (UNH) |
|  |  |  | UNH SDP:* Continued integration activities for FM9-FM10 for test and upcoming Vibrations and thermal Testing
* PER, TRR for FM9 & FM10 vibes and TV.
* Continued flight model fabrication and integration activities.
* Prepare for PSR.

LVPS and BEBs* Ship SS#4-5, S-BEBs, preamp and probes. Ship to KTH.
* Receive FM4-5 AEB to KTH.
* Perform TV workmanship of next SS# 4 of preamps/boom cable assemblies, ship to KTH.
* Run through acceptance test for LVPS and then process FM3-5 LVPS.
* Process, inspection of remaining FM S-BEB PWAs atUNH and prepare for shipping to KTH.
 |

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|  |  |  |  |
|  |  | ADP/SDP/DSP (LASP) |
|  |  |  | QA/Parts/Materials* Support the project as necessary.

DSP* Complete remaining DSP verification
* Deliver SN12 and SN13 DSPs when UNH requests delivery.
* Complete and submit overdue NCR paperwork for invalid HSBM packet.

ADP* Repaint SN01 sensor and complete post-TVAC FFT
* Perform SS4 ADP RE vibration test and post-test FFT
* Bond MLI attachment buttons on FM1 and FM2 ADP Booms
* Pack SS1 and SS2 ADP Booms and REs for shipment to Goddard in early January.

AEB* Perform FM4 AEB TVAC test
* Perform FM4 AEB post-TVAC FFT
* Repair Helicoils in FM5 (spare) cover and return to UNH

SDP* Support fine wire pullout investigation and corrective action as necessary
* Support PTFE insulation corrective action as needed

Thermal* Support AEB FM4 TVAC

Systems and Program Management* Support requirement verification and EIDP prep
 |
|  |  |  |
|  |  | CEB Hardware |
|  |  |  | CDPU & BPM (Bodet):* Begin testing of FM4CDPU boards

FM3 CEB* Prepare for and perform FM3 CEB TV
* Perform CEB FM3 In-rush testing

FM4 and FS CEB* No activity planned
 |
|  |  | CDPU Software, Support for Operations, I&T and Post-Delivery activities (Needell) |
|  |  |  | * Support IS2 CPT, Burst Test
* Support OBS1 EMI Risk Reduction Test
* Support CEB FM3 TVac testing
* Continued support of IS2 Post Delivery activities
* Continued support of OBS1 Post Delivery activities
 |
|  |  |  |  |
|  |  | GSE (Mello, Chutter, Bodet) |
|  |  |  | GSE hardware* No planned activity

GSEOS & GSE Software* Support CDPU FM3 Testing
* Support SDP Testing
* Support I&T Efforts
* More SOC Connectivity Testing
* Create GSEOS IS4 Configuration
* EDI Beam Generation System Improvements
* Telemetry Screen Improvements
* Telemetry Spreasheets Updated
* Keep software repository updated

 FIELDS Simulator (FS)* No activity planed
 |
|  |  |  |

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