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| Investigation: FIELDS |
| Progress accomplished this period: | May 2013 Reporting Period |
| 1. | Project Management and Product Assurance |
|  | a. | Project Management* Supported EDI GDU tiger team activities including pre-cap inspection at UNH
* Supported the following Acceptance Reviews
	+ SDP SNs 11&12
	+ SDP SNs 5&6 following rework of the fine wire crimp
	+ EDI GDU SN5
* Supported the following PSRs:
	+ None
* Supported the following PERs:
	+ AEB SN5, previously the flight spare, now designated for ADP SS#3 ADP
* Supported the following TRRs:
	+ Thermal test of ship set 4 AFG Sensor (SN11)
* Supported the following FRBs
	+ AEB SN3 rework and test plan. AEB SN3 is now the designated flight spare
* Received delivery of the following flight hardware items at UNH
	+ AFG Sensor SN11 for thermal test. Returned to GSFC 3 June.
* Delivery of the following flight hardware items from UNH to FIELDS partners
	+ DFG flight spare sensor (from UCLA to IWF with acceptance in place by UNH in between)
* Delivery of the following flight hardware items from UNH or LASP to the IS and Observatories
	+ SS#3 ADP Booms
	+ SS#2 and SS#3 ADP Launch Latches
	+ EDI GDU SN5
	+ SDP SNs 5&6, 11&12
* CDRL and contract deliverable submissions this month:
	+ None
* Updated the Gun/GDE schedule. Steve Myers has been assigned responsibility for all FIELDS schedules.
* Supported the flight opto-coupler manufacture and test
* Prioritized and coordinated the efforts of the UNH team, subcontractors, foreign partners, outside vendors and in-house workshops to optimize schedule performance. This month’s activities in this regard include:
	+ UNH team
		- Priority given to the UNH EDI GDU HVOC and build effort. This feeds the Gun effort at IWF, the critical path for GDU and FIELDS. The SDP effort, given the shared commitments of key individuals, is most affected by the assumption of this task at UNH.
	+ UNH machine shop
		- Continued fabrication of housings and plugs for UNH-built EDI HVOCs
		- Fabricated connector blocks for the HVOC test boards
		- Fabricated flight parts for SDP
	+ - UNH electronics shop
		- Completed assembly of first FM HVOCs for EDI GDU
		- Began assembly of the test boards and harnesses for testing the HVOCs
		- Support for SDP integration
	+ Vendors
		- Coordination of vibration test activities with our vendor, BAE (upcoming tests for GDU and SDP).
		- Surface treatment of FM SDP parts
	+ FIELDS team partners, IS and S/C teams
		- Coordination of UNH support of the EDI Gun test effort on site at IWF. Myers and Singer will travel again to IWF in June
		- U of Iowa will support SN6 EDI Optics/Sensor integration at UNH in June
		- Coordination of UNH support for the SDP and AEB activities at KTH. King will travel again to KTH/IRFU in June
		- Continue weekly FIELDS team meetings
		- Participate in weekly IS I&T meetings
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|  | b. | Product Assurance |
|  |  | Turco / Salwen* Support HVOC assembly
* EDI GDU FM5 outgassing certification
* EDI/SDP acceptance review support
* Support HVOC pre-cap inspection
* Upload of instrument EIDPs
* In-process inspection of EDI Sensor PWAs
* Parts procurement for HV Filament 10 PWA
* Supported FRBs as needed
* Submitted LM124 device, removed form AEB SN3, for DPA
* Support HVOC device screening design and assembly
* EDI TVAC testing support
* EDI Fabrication inspections
* EDI HV OPTO Iso build support
* EDI HV OPTO GSE kitting
* SDP assembly QA
* SDP FFT support
* SDP preamp closeout support
* SDP Probe assembly support
* SDP FM5, 6 retrofit support
* SDP Bracket thermal bonding
* SDP Fabrication inspections
* SDP incoming inspection of Probes
* SDP/ GDU cleaning

Software Product Assurance (Heirtzler)* CDPU and EDI SW is stable
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| 2. | Systems Engineering and FIELDS I&T |
|  |  | Rau / Dors* Closed out FM4 AFG anomaly investigation with sensor thermal cycle test
* Updated trend data and operating hours charts from FIELDS ship set 4 PSR
* Performed FIELDS testing (FIT, EMI, magnetic, acceptance) on re-crimped SDP 05/06, SDP 11/12 and GDU SN05
* Supported SDP 11/12 and GDU SN05 Acceptance reviews
* Restarted investigation of SCM low frequency tones observed in data
* Shipped AEB SN05 to LASP and supported PER
* Continued FIELDS verification entry into DOORS
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| 3. | Post-Delivery Support |
|  |  | * Supported IS deck 3 CPT, Burst testing, PSR and delivery to S/C
* Removed GDU SN03/02 from IS deck 3 and installed on OBS-1
* Removed SDP 09/10 from IS deck 3 and stored in clean room
* Removed EQM SDP and EM BEB from IS deck 3 and returned to UNH
* Delivered SDP 05/06 to GSFC and installed on OBS-1 locations SDP3/SDP4
* Delivered SDP 11/12 to GSFC and installed on OBS-4 locations SDP1/SDP2
* Delivered GDU SN05 to GSFC and stored in clean room
* De-integrated Magnetometers from OBS-4 and stored in clean room
* Supported OBS-1 chassis leakage retest exonerating CEB
* Supported +Z ADP functional test on OBS-2 and –Z ADP test on OBS-1
* Supported and reviewed WOA and procedure development at IS/OBS levels
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| 4. | Science activities |
|  |  | SWT and SWG * Supported science activities as needed

Science data processing activities* The SODAWG has agreed to be the reviewing body for the MMS Science Products Guide.  SCM, AFG/DFG, and EDI have good drafts submitted.  Once there is feedback from reviewers, the other drafts will updated to similar levels of content.
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| 5. | Magnetometers |
|  | a. | DFG  |  |
|  |  |  | * Participation in AFG/DFG data processing and calibration meeting at UCLA
* Remote support of DFG functional testing at Goddard
* Transport of DFG Spare Sensor to Graz and incoming inspection
 |
|  | b. | AFG |  |
|  |  |  | Completed deliveries prior to April:* Ship Sets 1-4 AFG Electronics, AFG and DFG Sensors and harnesses

May activities:* Delivered DFG Spare Sensor
* Participated in LM6142 parts review telecon with UNH, SwRI, and TI representative
* Continued data reduction/software development activities
* Submitted revised FY13 to End of Mission budget and cost narrative
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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 to UNH without the outgassing certification
* SCM FM4 => SENSOR S/N FM3 + PREAMP S/N FM5
	+ - Delivered to UNH, 27 FEB 2013
		- FM4 PSR on April 23.
* SCM FMS => SENSOR S/N FM4 + PREAMP S/N FM3
	+ - Sensor environmental testing complete at proto-flight levels
		- NCR (Sensor Vibration) => MMS-SCM-NC-PRE-140 to be written
		- Waiver written by Olivier Le Contel and Roy Torbert ( Higher noise on SCM preamplifier).
		- MMS-SCM-RW-PRE-60 => accepted on April 5 (Waiver-10160-129-CA)
		- Post thermal cycles at LPP done on May 27.
		- Rx Inspection performed on June 4.
* NCR and alignment measurements report to be completed (MMS-SCM-NC-TRI-623-LPP and MMS-SCM-PR-TRI-622).
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| 6. | EDI |
|  |  | Ship Set 2 - GDU SN5* Completed TV Test
* Acceptance Review
* Delivered to GSFC

Sensor* Ship set 4 - SN 6
	+ MCP module assembly and final sensor assembly
	+ Electrical and Vacuum Test;
	+ Sensor ready for integration with optics
* Ship set 3 - SN 7
	+ Board level test of MCP Supply board 7
	+ Performed trimming of preamplifiers and delay test
	+ Thermal test
* Ship set 3 - SN 8
	+ Board level test of MCP Supply boards 8
	+ Partial assembly of sensor
	+ Performed trimming of preamplifiers and delay test
* Ship set 1 - SN 9
	+ Finished population of MCP supply board
	+ Performed board level test of digital board

Gun - UNH efforts* Performed board level test for HV-FIL board SN 8
* Completed population of HV-FIL board SN 9

Gun - IWF efforts* Updated board level procedures (need arose due to use of different test equipment after leave of analog engineer)
* Ship set 4 - Gun SN 4
* Performed test of assembled Gun; deflection channel 5 (DEFL2 board) exhibited a failure: HV output does not work below 1500V. The electronics board stack was disassembled and the following tests were performed
	+ The DEFL2 board was tested on the bench with no problems.
	+ Nothing was found during a visual inspection of the board under a microscope.
	+ During a test in a thermal chamber between -30C and +70C (four cycles), one out of approximately 65 tests (near 50C) showed the problem
	+ Further testing in the temperature range 50C to 60C (approximately 190 tests) did not show the problem
	+ The board stack was reassembled
	+ The problem re-occurred when testing the assembled board stack. putting a small amount of pressure on the board made the problem disappear. Removing that pressure made it re-appear.

Optics* Continued work on ship sets 3,4

Software* New FSW build 05: Implemented and tested requested change to FSW to detect insertion of HV Safe/Arm plug and safe GDUs. Delivered scripts for loading of FSW build 05 at GSFC. Assisted in loading FSW build 05 on observatory #1. Other observatories to follow.
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| 7. | SDP/BEB/LVPS  |

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|  | a. | SDP/BEB/LVPS (KTH/IRFU/Oulu)KTH/IRFU SDP BEB’s:* All testing, Parylening and post testing completed for units FM15-16.

KTH/IRFU ADP BEB’s:* Olsson: Investigated the AEB SN3 DAC noise issue. Determined root cause and recommended corrective action to FRB. FRB agreed to replace the U12, LM124 device. Retest successful following rework. AEB SN3 is now designated as the flight spare.
* Sent the faulty LM124 device to UNH for DPA.

KTH/IRFU SDP Preamp/Boom Cable Assembly:* No activity

KTH/Oulu/IRFU Sphere / Yo-Yo Mechanism:* Refurbished the last 2 flight probes: probes B1 and B2; delivered to KTH

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):* Participating in the rework of the AEB FM3 BEB5 board (noise at  -30 C): creation of rework activity sheets to record the rework performed and inspection of the board during rework.
 |
|  | b. | SDP/BEB/LVPS (UNH)LVPS:* No activity

A-BEB’s:* Supported FRB regarding DAC bias channel noise observed at cold temperature (SN FM3). SN3 is now the designated flight spare.
* Delivered SN5 AEB to LASP for testing and calibration with ADP ship set 3.

S-BEB’s:* No activity

SDP MGSE:* Stable. No new developments.

UNH SDP EGSE:* Stable. No new developments.

SDP Preamp:* No activity

SDP Mechanical / Electrical:* Supported delivery of FM5 & 6 and FM 11 & 12 SDP's, 4 units! Included closeouts, Cho-foil , UV and cleaning.
* Supported Integration of FM's 13 & 14; kitting support for FM 15-18, an on-going activity;
* Completed last 4 Feeder Rings in shop and surface treatments at PFE.
* Reviewed Vib. test report by Colin Frost for FM 11 & 12;
* Submitted final 4 Outer Cylinders to shop for tapping
* Prepared SDP FM 11 &12 for vibration testing
* Completed assembly of SNs 13&14
* Kitting for FM15 & FM16 in process

SDP Thermal:* No New Developments.

SDP EMC:* No activity

FM SDP * Final assembly of SNs 13 and 14. FFT conducted successfully
* Two minor NCRs were raised and closed with rework of the motor/harness assembly. See problems.

SDP QA:* Monitored the assembly and test activities for the flight units

AEB (UNH) |
|  | c.  | SDP (LASP) (Preamp)* No activity
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| 8. | ADP |
|  | a. | ADP:* ADP flight hardware was shipped to Goddard via FedEx custom critical. The shipment included ship set #2 Latches, ship set #3 Latches, and ship set #3 Booms
* Last set of ADP connector brackets modified and conversion coated.

ADP I&T activities* Revised/release test procedures in MIS
* Obs #1
	+ –Z ADP Boom (SN02) removed from Obs #1, connected brackets were replaced, and it was reinstalled
	+ –Z ADP RE (SN04) installed
	+ –Z ADP RE (SN04) STM and LFT performed and –Z ADP RE connected to the AEB
	+ –Z ADP RE (SN04) Latch first motion deployment test performed
	+ –Z ADP RE (SN04) Functional test performed. Review of test data indicates that external AC stimulus GSE may not have been configured correctly. This portion of the test will be repeated at a later date.
* Obs #2
	+ +Z ADP RE Latches (SN05) installed
	+ +Z ADP RE (SN05) installed
	+ +Z ADP RE (SN05) STM and LFT performed and –Z ADP RE connected to the AEB
	+ +Z ADP RE (SN05) Latch first motion deployment test performed
	+ +Z ADP RE (SN05) Functional test performed
* Obs #3 – No activity this month
* Obs #4
	+ –Z ADP Boom STM performed
	+ –Z ADP Boom (SN06), incoming inspection, degaussed, and MLI installed.
	+ –Z ADP Boom (SN06) integrated to Obs #4

AEB* Received AEB SN05 from UNH
* Performed final mechanical assembly steps (torqueing and staking) on SN05
* Planning and scheduling of AEB SN05 environmental testing
* Performed a pre-environmental test Full Functional Test on SN05
* Held a successful PER for SN05. No RFA’s were assigned.
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| 9. | DSP, Thermal, Systems Engineering, Product Assurance and Management (LASP) |
|  |  | DSP* No activities this month.

Thermal* No activities this month

Systems Engineering & Project Management* Reviewed and provided comments on a draft revision of the LASP SOW
* Made agreements with UNH regarding puts and takes

Quality Assurance, Parts, and Materials Engineering* Supported program as needed
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| 10. | CEB  |
|  | a. | Hardware |
|  |  |  | CEB (Rau, Dors, Bodet, Nolin)* Compiled and released CEB FM4 TV test report
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|  | b. | CDPU Software, Support for Operations, I&T and Post-Delivery activities (Needell) |
|  |  |  | * Supported FM4 Delivery
* Supported OBS1 CPT Dry runs
* Supported IS3 CPT
* Supported IS3 Burst Test
* Supported other Post Delivery Tests as needed.
* Continued participation in Commissioning planning.
* Continued participation in MRT8 (SDP deployment) planning.
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| 11. | GSE (Mello, Chutter, Bodet) |
|  |  | GSE Hardware* Reconfigured a GSEOS PC for 2nd ITF PC to connect to SOC

FIELDS Simulator* No activity

GSEOS & GSE Software* Telemetry Screen Improvements
* Support IS & OBS Testing
* CMD spreadsheet improvements/testing, combine EDI/FLD
* SOC Testing
* Keep software repository up to date
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| 12. Problems encountered (some resolved) and updates this period |

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|  |  | AEB* [UPDATE] Out of Family Noise on Bias Voltage DAC (AEB FM3, ADP5 Side, TV cold) (PFR-10160.53-94-IP)
	+ After analyzing data from FM4 AEB TV testing, it was found that during FM3 AEB TV testing, out of family noise levels were found at the -30C plateau on the Bias Voltage DAC line.
	+ UPDATE
		- Parylene removal, inspection and rework (part removal and replacement) were successfully completed. Retest of the board at KTH, including testing at -30C, demonstrated that the rework was successful. Test of the removed part demonstrated that it was the cause of the problem. AEB3 will now go to IRFU for testing.
		- Continue testing of SN3 AEB with the intention that it become the flight spare. This will include tests at IRF-U, final checkout at KTH, return to UNH for acceptance test. SN3 (now the spare) will not undergo environmental testing unless needed for flight. SN5 AEB is now designated for use with FIELDS ship set 3.
		- Tests at IRF-U and KTH of the reworked SN3 AEB were completed successfully. SN3 AEB is now designated as the flight spare.
		- OPEN WORK: DPA on the failed part.

SDP* [NEW, CLOSED] Anomalous motor temperature reading on SDP SN 14 during first FFT deploy (PFR-10160.53-108-CL)
	+ The AD590 temperature sensor on the motor assembly was defective. This was demonstrated in testing the motor assembly both with the FM and the QM BEBs.
	+ Rework and retest successful. CLOSED.
* [NEW, CLOSED] Safe to mate results out of family - motor harness (SDP FM13) (PFR-10160.53-107-CL)
	+ Assembly/workmanship error. Inspection of the motor assembly uncovered that the radiation housing (Chassis) had been accidently shorted to pin 6 (return of the AD590, PGND) via conductive epoxy. Somehow during the assembly of this housing epoxy found its way through a void in the 2216 epoxy that holds the device inside the housing and insolates the conductor from other conductors.
	+ Rework and retest successful. CLOSED
* Wire deploy stopped during FFT-gearbox jam (SDP FM10) (open work: SNs 3,4,7,8) (PFR-10160.53-86-IP)
	+ Closed for SDP SNs 5&6, 9-18
	+ Open work for units yet to be returned to UNH includes acoustic noise measurements.
* Fine wire disconnected - crimp slip (SDP FM8), Open rework (SNs 3, 4) (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.
	+ Crimp process redefined and approved
	+ Impact to other units:
		- SNs 3-6 will be reworked
		- New process applied successfully to 7-12
		- New process applies for all subsequent units
	+ NCR to remain open until rework is complete on units already delivered: SNs 3-6. A plan for this rework was presented and agreed at the PSR for SNs 7-10.
	+ UPDATE: The probes were removed from SNs 5&6. Prescribed rework and retest was performed at UNH in April and early May 2013.

EDI* EDI GDU SN2 open work (PFR-10160.53-101-IP)
	+ GDU SN2 exhibited problems during the Gun calibration and component level TV test. See PFR-10160.53-56 [Thermal Vacuum Com Locks and Fold-Backs (EDI GDU SN2)] and PFR-10160.53-47 [GDE fold-back during SN2 Gun Calibration]. The unit was delivered to GSFC to participate in I&T, but needs to be returned to UNH and IWF for rework.
	+ Rework plan:
		- -Install new UNH-built optocouplers on DEFL1 and DEFL2 board and in any other gun HV amplifiers that have exhibited LED current trends.
		- -Remove 27 Ohm resistor from GUN25V supply line in GDE/Gun harness
		- -Install 20 Ohm resistor on HV-FIL board in Gun
	+ Retest plan:
		- -Gun calibration at IWF
		- Sensor stand-alone vacuum testing at UNH
		- GDU integration and environmental testing
* EDI GDU SN3 open work (PFR-10160.53-103-IP)
	+ GDU SN3 exhibited problems during the component level TV and vacuum tests. See PFR-10160.53-81 [GDE Converter Fold Back and Comm Locks observed during TV test (GDU SN FM3)] and PFR-10160.53-83 [Sensor FPGA reset (EDI GDU FM3)]. The unit was delivered to GSFC to participate in I&T, but needs to be returned to UNH and IWF for rework.
	+ Rework plan: Install new UNH-built optocouplers on DEFL1 and DEFL2 board and in any other gun HV amplifiers that have exhibited LED current trends.
	+ Retest plan:
		- Gun calibration at IWF
		- Sensor stand-alone vacuum testing at UNH
		- GDU integration and environmental testing
* EDI GDU SN5 open work (PFR-10160.53-106-IP)
	+ GDU SN5 exhibited problems during the component level TV and vacuum tests. PFR-10160.53-105 [Red Limit Violations on GDU SN5] and PFR-10160.53-96 [Converter Foldbacks (GDU FM5)]. The unit was delivered to GSFC to participate in I&T, but needs to be returned to UNH and IWF for rework.
	+ Rework plan: Install new UNH-built optocouplers on DEFL1 and DEFL2 board and in any other gun HV amplifiers that have exibited LED current trends.
	+ Retest plan:
		- Gun calibration at IWF
		- Sensor stand-alone vacuum testing at UNH
		- GDU integration and environmental testing
* Anomalously low LED current of channel D5 in Gun FM4 (PFR-10160.53-104-IP)
	+ At IWF: performed test of assembled Gun; deflection channel 5 (DEFL2 board) exhibited a failure: HV output does not work below 1500V. The electronics board stack was disassembled and the following tests were performed
	+ The DEFL2 board was tested on the bench with no problems.
	+ Nothing was found during a visual inspection of the board under a microscope.
	+ During a test in a thermal chamber between -30C and +70C (four cycles), one out of approximately 65 tests (near 50C) showed the problem
	+ Further testing in the temperature range 50C to 60C (approximately 190 tests) did not show the problem
	+ The board stack was reassembled
	+ The problem re-occurred when testing the assembled board stack. Putting a small amount of pressure on the board made the problem disappear. Removing that pressure made it re-appear.
	+ Plan forward: Pursue assembly and test of spare Deflection boards. Conduct inventory of spare parts and boards currently available.
* [UPDATE] Revised: HV amplifier failure during Gun/GDE calibration at IWF (S/N1 EDI Gun) (PFR-10160.53-89-AP)
	+ This record replaces that previously recorded in (PFR-10160.53-51-CL. The earlier record had erroneous data and was marked void.
	+ Problem with deflection channel 2 on Gun SN1 reported during Gun/GDE SN1 calibration at IWF.
	+ Conducted DPA of damaged parts.
	+ Cause: Likely a discharge event that propagated within the GUN.
	+ Replaced transistor Q33
	+ Replaced op amp U14
	+ Retest successful. Closure awaits paperwork.
	+ UPDATE: This unit, SN1, successfully completed environmental testing, characterization and PSR, and was delivered to the IS. Given that root cause is uncertain, a residual risk is warranted. UVF tracked as IS residual risk #134
* [UPDATE] Negative Current spikes seen on Plate 7 Optocoupler during calibration (GUN SN4) (PFR-10160.53-85-AP)
	+ HK data analysis done at IWF indicates problems with several optocouplers. OC7 shows the isolated downward spikes. Manfred (IWF) is confident that replacing the positive side optocoupler will solve the issue. For OC6 the case is not as clear as we do not understand the behavior, so we may have to replace both optocouplers and maybe also the drive circuit for the LEDs.
	+ An FRB, conducted 4 Jan 2013, defined additional diagnostic steps. Another FRB will be conducted to review the diagnostic results prior to any disassembly
	+ Screening of optocouplers: all optocouplers in Gun FM4 were screened. It is pretty obvious that our screening process is not helping us to identify bad parts. Lack of being able to use elevated temperatures may be the most likely factor.
	+ Further activity with SN4 Gun awaits tiger team recommendation.
	+ 1 Apr 2013: UNH has identified screened IWF HVOCs to use for the rework of this Gun and has provided them to IWF.
	+ Replacement parts have been integrated at IWF, board level testing was successful.
	+ UPDATE: Awaiting DPA results on optocouplers sent to Goddard.
* [UPDATE] Failure to set the Wehnelt voltage (EDI Gun SN4, Q4 on HV-FIL board 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 was returned to UNH for test and DPA of the suspected part, Q4.
	+ 8 May 2013
		- The DPA revealed electrical overstress (excessive voltage) applied to the Emitter.
		- Q4 was replaced in HV&Fil board SN4 and the board retest was successful.
		- Since the exact location of HV discharge is unknown it is hard to know if other parts may have been stressed.
		- Clarify the configuration at the time the problem was noticed. Determine what other boards and components might have been overstressed.
	+ UPDATE: 31 May 2013
		- Configuration was the fully assembled gun board stack. The arc path cannot be determined.

CEB* [UPDATE, CLOSED] AFG Z-axis measurement unstable during early part of FM4 CEB TV test (PFR-10160.53-98-IP)
	+ During CEB TV the AFG z-axis measurement has exhibited anomalous behavior. During a time of quiet operation (no stimulus) the z-axis measurement has jumped and drifted by +\-50 to 100nT. During a time of stimulus the z-axis did not respond accordingly.
	+ In consultation with UCLA, the suspected cause is a slight change in contact resistance in some element of the GSE harnesss. The TV test is continuing.
	+ UPDATE:
		- Completed the TV test as planned with no further anomalous performance observed.
		- 11 Apr 2013, Summary of FRB:
		- Perform the actions identified:
			* Inspections of Sensor and box connector and connector saver (Turco) THIS WAS DONE. NO ANOMALIES OBSERVED.
			* Resistance measurements on Sensor incl. thermal test (Rau) DONE. NO ANOMALIES OBSERVED
			* Review of pre and post vibe FFT data for similar effects (Rowe) - THIS WAS DONE. NO ANOMALIES OBSERVED
		- Continue with the FM4 CEB and FIELDS 4 testing working toward PSR.
		- Unable to reproduce the symptom, use as is; register a residual risk
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| 13. Issues and concerns |
|  |  | From FIELDS PM* The pace of Gun assembly and Gun/GDE test and calibration activity is slow given that a key engineer for this effort at IWF has left the institute. This is the critical path for GDU and FIELDS. UNH will provide support of testing activities on site at IWF as requested. Katherine Singer will support Gun board and assembly testing at IWF in June.

From LASP* GSFC spacecraft mechanical has indicated that the 50 to 100 Hz sine vibration environment could be a problem even with analytical notches. GSFC mechanical has recommended that Obs #1 vibration test results be evaluated prior to performing any other risk mitigation activities.
* PM continues to watch ADP overspending resulting for ADP RE Latch FRB, AEB FM3 DAC noise issue, and underestimated post-delivery support needs.
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NCR Summary: Provided separately (Excel file)

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| Activities planned for next reporting period |
|  |  | Management |
|  |  |  | * Receive RFP and new Cost Instructions fro SwRI. Prepare corresponding RFPs for the FIELDS subcontractors.
* Prepare for and support the MMS PER and the Pre-PER discussions requested by the IIRT.
* Support NASA supplier audit at UNH as needed
* Continue to support the GDU tiger team.
* Continue to push open RFAs and NCRs to closure
* Continue to prioritize and coordinate the work of the UNH team and its FIELDS partners. Similarly, prioritize and schedule work in the UNH electronics and machine shops and with outside vendors. Note the following.
	+ FIELDS Team, IS and S/C Partners:
		- Continue to use the weekly FIELDS meeting for coordination of near-term activities. Post-delivery support activities are increasingly the subjects of these meetings. Dave Rau and Scott Tucker are key players in coordinating this support.
		- Coordinate UNH support of the EDI Gun effort at IWF. Myers and Singer will travel to IWF in June
		- Coordinate U of Iowa support of Optics/Sensor integration
		- Coordinate delivery of AEB5 from LASP and flight spare SCM form LPP
	+ UNH team
		- Completion of the HVOC fabrication and test activities will get priority if conflicts of resources, particularly with SDP, are encountered.
		- UNH will work with IWF to support its Gun testing efforts.
	+ UNH Machine Shop:
		- EDI HVOC fabrication
		- Fabricate remaining SDP Parts
	+ UNH Electronics Shop:
		- EDI HVOC test board assembly
		- EDI Sensor stack boards
	+ BAE:
		- Vibration services for SDP
* 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 T/V testing as needed
* Update the Gun and GDE schedule.
* Travel to IWF to discuss Gun testing and deliveries;
* Support the flight opto-coupler manufacture/test;
* Receive delivery of the following items at UNH
	+ FM3 AEB (from KTH)
	+ FM5 AEB after testing at LASP
	+ SDP BEBs SNs 15&16 (from KTH)
	+ EDI Optics SN6 (from U of Iowa)
	+ Flight spare SCM Sensor and Preamp (fromLPP)
* Make delivery of the following items from UNH to FIELDS partners
	+ Flight BGSs (to IWF)
* Prepare and conduct the following PERs and associated TRRs
	+ SDP SNs 13 &14
* Prepare for and conduct following PSRs or Acceptance Reviews.
	+ PSR: SDP SNs 11&12, 13&14 (probably early July)
* Make or coordinate delivery of the following to GSFC IS or S/C teams
	+ Return AFG Sensor SN11 (FIELDS SS#4) after thermal test at UNH.
	+ Balance of ADP hardware
* CDRL and contract deliverable submissions:
	+ None planned
* Support/staff T/V testing as needed
* Update the Gun and GDE schedule
 |
|  |  | Product Assurance, Configuration Management, Parts, Materials, Facilities |
|  |  |  | Turco/Salwen* Support NASA Supplier Audit
* Continued support of HVOC assembly and test
* Continued support of SDP and EDI assembly and test activities
* Continued EDIP uploads
* Support FRBs as needed

Software Product Assurance (Heirtzler)* Continue support for EDI and/or CDPU software testing as needed
 |
|  |  | Systems Engineering & FIELDS I&T |
|  |  |  | Rau / Dors* Perform SDP 13/14 In-rush testing
* Perform SDP 13/14 FIELDS level testing (EMI, magnetic, acceptance, CPT)
* Perform AEB SN05 FIELDS level testing (EMI, magnetic, acceptance, CPT)
* Continue investigation of SCM low frequency tones observed in data
* Prepare for and attend MMS PER
* Continue submitting FIELDS verification material for closure
 |
|  |  | Post-Delivery Support |
|  |  |  | IS and Observatory Support FIELDS* Support OBS-2 mag boom 2nd and 3rd segment deployments and FG magnetometer functional testing
* Integrate Magnetometers and ADP simulator for OBS-3 functional test
* Support magnetometer flight install onto OBS-4 booms
* Support OBS-1 CPT and OBS-3 electrical integration and functional test
* Support ADP +Z RE install on OBS-4 and -Z ADP RE install on OBS-2
* Install SDP 09/10 on OBS-2 in locations SDP1/SDP2
* Install GDU SN05 on OBS-2 in location GDU2
 |
|  |  | Science |
|  |  |  | SWT and SWG* Support science telecons as needed

Science data processing activities* The SDC is expecting to have a draft of a developers guide which will describe interfaces at the SDC.
 |
|  |  | AFG |
|  |  |  | * Follow up on LM6142 concerns
* Negotiate revised FY13 to EOM budget
* Continued data reduction/software development activities
 |
|  |  |  |  |
|  |  | DFG |
|  |  |  | * Remote support of DFG functional testing at Goddard
* Start with tuning tests with DFG Spare Model
 |
|  |  |  |  |
|  |  | SCM |
|  |  |  | * Alignment measurement in June.
* FMS overall calibration from June 10 to 14.
* FMS overall bakeout in June.
* FMS ready for delivery at the end of June
 |
|  |  | EDI |
|  |  |  | Sensor * Ship set 3 - SN 7
	+ - Send out boards for parylening
* Ship set 3 - SN 8
	+ - Thermal test

Gun - UNH efforts* Board level test of HV-FIL board SN9
* UNH will support testing effort at IWF

Gun - IWF efforts* Ship set 4 - Gun SN 4
	+ - Diagnose problem of DEFL2 board;
		- Evaluate availability of spare parts/boards for building a spare DEFL2 board;
		- Re-assemble Gun and test
		- Calibrate Gun
* Ship set 4 - Gun SN 6
	+ - Finish board level tests; perform thermal tests of boards
		- Start assembly of Gun

Optics* Continue work on ship sets 3,4

Software* Continue implementation and testing of electric field mode
 |
|  |  |  |  |

|  |  |  |
| --- | --- | --- |
|  |  | SDP/LVPS/BEBs/Preamp/Probe (KTH/ Oulu/IRFU) |
|  |  |  | SDP:* Complete fabrication of Deployer test calibration set-up at IRFU. This is to provide high-resolution calibration data. Review test plan with double probe team.
* Conduct the high resolution calibration with SDP SN17 probe, preamp and BEBs at IRF-U

S-BEB’s & Preamp & Probe:* Deliver SDP BEBs for SDPs 15-16 to UNH
* Prepare the test reports for the all shipped units.
* Continue test of SS#4 FM17-18, S-BEBs; ship to UNH.

A-BEBs and LVPS:* No activity planned

KTH Management and Product Assurance:* Write the inspection report of the repaired AEB FM3 BEB5
* Inspection of new SDP HW FM17-18
* Submission of Final inspection report for SDP FM13-16
* Acceptance data package preparation for all delivered hardware
 |
|  |  | SDP/LVPS/BEBs/Preamp/Probe (UNH) |
|  |  |  | UNH SDP:* FFT, PER, TRR, vibration test for SNs FM13 & FM14

LVPS and BEBs* No activity planned
 |

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

DSP* No engineering activities planned

ADP* Complete ADP RE SS3 to AEB SN05 calibration
* Install last set of modified connector brackets on the SS4 booms
* Ship remaining ADP flight hardware to Goddard
* Support MMS I&T activities as needed

AEB* Complete SN05 vibration testing
* Complete ADP RE SS3 to AEB SN05 calibration
* Complete SN05 TV testing
* Delivery AEB SN05 to UNH for timing and LF magnetics testing

SDP* Support SDP integration activities as requested by UNH.

Thermal* Support AEB SN05 TV testing

Systems and Program Management* Support requirement verification and EIDP prep
* Submit cost to complete proposal
 |
|  |  |  |
|  |  | CEB Hardware |
|  |  |  | FM4 and FS CEB* Flight spare kits are complete. No further activity is planned.
 |
|  |  | CDPU Software, Support for Operations, I&T and Post-Delivery activities (Needell) |
|  |  |  | * Support OBS1 CPT
* Support OB3 Functional Test
* Support other Post Delivery activities as needed.
* Continued participation in Commissioning planning.
* Continued participation in MRT8 (SDP deployment) planning.
 |
|  |  |  |  |
|  |  | GSE (Mello, Chutter, Bodet) |
|  |  |  | GSE hardware* No planned activity

GSEOS & GSE Software* Telemetry Screen Improvements
* Strip chart improvements
* CPT Cur/Volt logging improvements
* Support IS, OBS & CPT Testing
* SOC Testing
* Keep software repository up to date

 FIELDS Simulator (FS)* Support CIDP SW debugging with EM CEB on FlatSat at GSFC
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|  |  |  |

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