

March Financial Review

April 15, 2013





ZIN Manager: Michael Johanson
 ZIN Engineering Lead: M.O'Toole
 ZIN Operations Lead: T. Wasserbauer
 ZIN Integration Lead: C. Rogers

NASA Program Manager: Tom St'Onge
NASA Project Manager: Bob Corban (Kevin McPherson)



SpaceDOC 101 encompasses the International Space Station (ISS) Fluids and Combustion Facility (FCF) Project and its initial payloads, Light Microscopy Module (LMM) and the Multi-user Droplet Combustion Apparatus (MDCA) have been launched and the flight units are installed on the ISS. The Flight units on the ISS, as well as the units on the ground (Ground Integration Units and the Engineering Development Units) need to be operated and maintained. This Delivery Order is for the operation of the FCF racks on orbit and on the ground, resolution of any anomalies, evaluation of trends, software upgrades, hardware obsolescence evaluation, new hardware development to support future capabilities, verification, and training the crew and operators on the hardware/software. Also, as new payloads are developed for the FCF, analytical modeling and engineering analysis of the interface will be required.



The CIR Flight Unit, along with MDCA, was delivered to the ISS by STS-126 (November 2008). The FIR Flight Unit along with the LMM were delivered to the ISS by STS-128 (August 2009).



Issue	Potential Impact	Action Plan	Resolution Date
Methanol fuel line damaged during nominal crew activity for remove and replace of fuel reservoir	Delay to FLEX science Program	<p>Continue nominal on-orbit ops plan (heptane & FOMA cal) though Tues . 4/16.</p> <p>OCR for crew procedure and schedule product submitted.</p> <p>Expedite request made through MSFC POM office and LIS</p>	TBD
ACE-M-1 Data Corruption	Loss of Science Data	<p>PI objectives of first sample have been met</p> <p>Root cause of data corruption has been identified as an error with data transfers internal to FIR.</p> <p>Operational workaround has been validated on the GIU and implemented for ops start with Sample #2</p> <p>Software patch has been identified and authorized flight development.</p>	May 3
HRDL/Rack Lock –ups	Loss of HRDL downlink capability	<p>Develop software patch that eliminates HRDLOS disk writes to /sd0. This resolves the root cause of the file allocation table conflict</p> <p>Procedure work-around implemented successfully to allow operations</p>	March

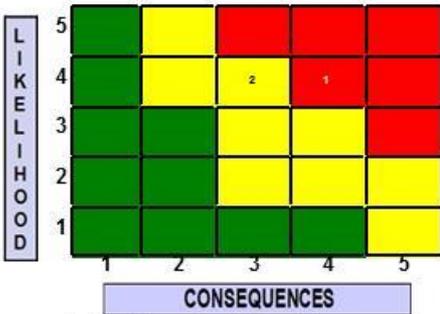
- **FLEX Science**
 - Completed FLEX Science Heptane Air Matrix
 - Completed and down-linked 18 test ignitions
- **ACE Science**
 - Completed the ACE-M-1 Sample #1 ops
 - Performed FIR IOP/FSAP disk maintenance operations in prep for ACE-M-1 ops
- **Safety**
 - Released GCIP Fracture Control Summary Report
- **Software**
 - Pre-release of FCU S/W with update for GCIP support
- **Integration**
 - Developed draft Systems Engineering Plan, project schedule and design concept for the Professor Ferl LMM/Bio experiment
 - Conducted on-site TIM with Prof Ferl to determine LMM imaging parameters and operational requirements
- **Hardware deliverables**
 - Completed LCB power supply board assembly
 - Completed LCB PCB board vibe (set 1 of 2)
- **IPSU-G**
 - Conducted the IPSU-G System Requirements Review (SRR)
 - Initiated preliminary design efforts

Deliverable	Planned	Actual	Note
GCIP flight unit	Mar-13		HTV delivery moved to May 8 th
IPSU/Camera SRR Presentation Package	Mar-13	Apr-13	
MDCA Avionics Package spare	Apr-13		Assembly and test completed. Final GIU functional validation planned in May
LMM Control Box spare (No Environmental)	Apr-13		Out of plan board vibrate required. Assembly complete scheduled April
IPSU Analog repair (SN 2001)	Apr-13		
IPSU-G C-Specification (draft)	Apr-13	Apr-13	
LMM Camera Procurement Specifications	Apr-13	Apr-13	
IPSU spare - Remora	May-13		Thermal cycle April
MDCA Color Camera spare	May-13		Vibe planned May
IRR GC Filter (3)	May-13		
IRR Vent Filter (3)	Jun-13		
FCF Obsolescence Plan and Safe Life Analysis	Jun-13		
QD Lubrication Kit (if required)	Jul-13		
Spare Hoses (4)	Jul-13		
Spare Cables (7)	Sep-13		
IPSU/Camera Phase I/II Safety	Sep-13		
NdYAG Development Assessment	Sep-13		
IPSU/Camera PDR Presentation Package	Sep-13		
WFCA Controller (2)	Oct-13		
FOMA Re-Circulation Pump	Nov-13		
GC Manifold Test Unit	Nov-13		
EPCU Rack Power Switch	Dec-13		



FCF Sustaining Engineering

Task Level Risk Assessment



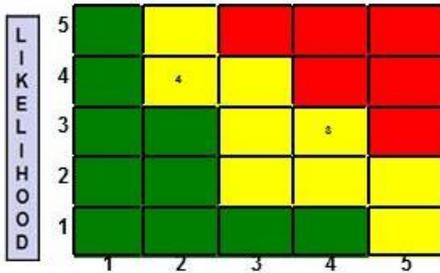
Criticality

- High (Red)
- Med (Yellow)
- Low (Green)

L x C Trend

- Decreasing (Improving) - Down arrow
- Increasing (Worsening) - Up arrow
- UnChanged - Right arrow
- New since last month - Star

Risk Id	Risk Title	Risk Statement	L	C	Approach
FCF SE-033 ➡ Technical O'Toole	FOMA high pressure limit switches life exceeded prior to ISS end-of-life in 2028	Given that CIR operations to 2028 exceed the operational life life of FOMA high pressure limit switches then CIR life may end prior to ISS end-of-life.	4	4	Mitigate: The FCF team will perform a study to implementspares and develop a procedure to remove and replace PS-5. The FCF team will developground procedure to periodically actuate PS-1, PS-2, PS-3, PS-4, and PS-7. Status: 01/23/13 - The FCF team is just getting started on this plan. Tasks have been identified and personnel assigned. 03/20/13 - The current plan is to show that the FOMA high pressure 'limit switches' life will meet the "2028 End of Life" requirement. ECD: 12/31/2013
FCFSE-037 ➡ Technical O'Toole	FOMA GC supply manifold reliefvalves do not meet the 2028 ISS life extension	Given that FOMA GC supply manifold relief valves have operational life-times that do not meet the 2028 ISS life extension; then there is the possibility that the CIR GC system will not be available through ISS end-of-life.	4	3	Mitigate: The FCF team will perform a study to assess options to re-certify the GC supply manifold relief valves by verifying relief function or development of a remove an replace option. Status: 01/23/13 - The FCF team is just getting started on this plan. Tests have been



CONSEQUENCES

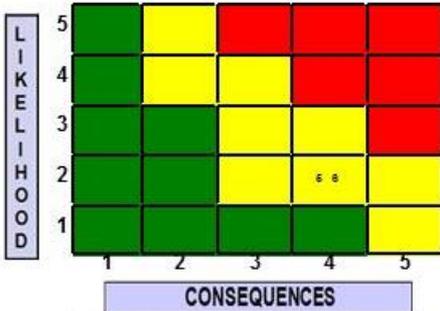
Criticality

- High** (Red)
- Med** (Yellow)
- Low** (Green)

L x C Trend

- Down arrow: Decreasing (Improving)
- Up arrow: Increasing (Worsening)
- Right arrow: UnChanged
- Star: New since last month

Risk Id	Risk Title	Risk Statement	L	C	Approach
FCFSE-036 ➔ Technical O'Toole	CIR sparing plans do not meet life extension through 2028	Given that CIR sparing plans do not meet life extension through 2028 then CIR life may end prior to ISS end-of life.	3	4	<p>Mitigate: Perform a formal sparing analysis for CIR based on projected utilization through 2028</p> <p>Status: 01/23/13 - The FCF team is just getting started on this plan. Tasks have been identified and personnel assigned.</p> <p>ECD: 12/31/2013</p>
FCFSE-034 ➔ Technical O'Toole	No approved CIR GCIP gas supply transducer calibration procedure	Given there is no approved calibration method for GC gas supply transducers PT-19, PT-20, or PT-24 then there is the possibility that the GC system will not be allowed to operate.	4	2	<p>Mitigate: The FCF team will perform a study to assess re-certification of the GC supply PT-19, PT-20, and PT-24.</p> <p>Status: 01/23/13 - The FCF team is just getting started on this plan. Tasks have been identified and personnel assigned</p> <p>03/20/13 - The FCF team is investigating the possibility of removing the GCIP gas supply transducers as hazard controls with the PSRP</p> <p>ECD: 12/31/2013</p>



Criticality

High (Red)

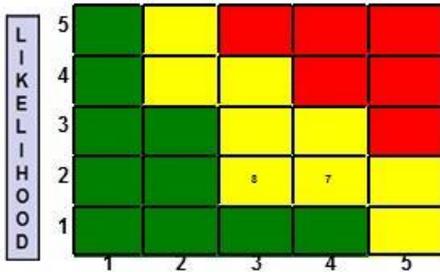
Med (Yellow)

Low (Green)

L x C Trend

- Decreasing (Improving) - Down arrow
- Increasing (Worsening) - Up arrow
- UnChanged - Right arrow
- New since last month - Asterisk

Risk Id	Risk Title	Risk Statement	L	C	Approach
FCFSE-030 ➔ Technical O'Toole	CIR combustion chamber life exceeded prior to ISS end-of-life in 2028	Given that operation through to 2028 may exceed the assumptions identified in the Chamber safe-life analysis then CIR life may end prior to ISS end-of-life.	2	4	<p>Mitigate: The FCF team will assess chamber structure actual vs projected cycle life and update cycle projection through 2028 and perform updated safe-life analysis as required.</p> <p>Status: 01/23/13 - The FCF team is just getting started on this plan. Tasks have been identified and personnel assigned</p> <p>03/20/13 - The CIR combustion chamber has been modeled and awaiting pressure history to finish the analysis.</p> <p>ECD: 12/31/2013</p>
FCFSE-031 ➔ Technical O'Toole	CIR combustion chamber window life exceeded prior to ISS end-of-life in 2028	Given that operations to 2028 will exceed the assumptions identified in the Chamber Window safe-life analysis, then CIR life may end prior to ISS end-of-life.	2	4	<p>Mitigate: The FCF team will assess chamber window actual vs. projected time at pressure and update usage projection through 2028 and perform updated safe-life analysis as required.</p> <p>Status: 01/23/13 - The FCF team is just getting started on this plan. Tasks have been identified and personnel assigned</p> <p>03/20/13 - The CIR combustion chamber has been modeled and awaiting pressure history to finish the analysis.</p> <p>ECD: 12/31/2013</p>



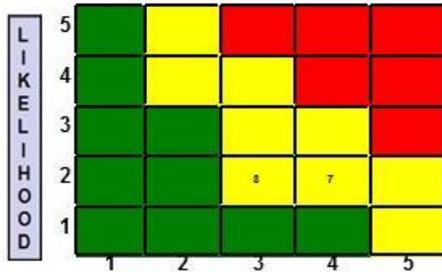
CONSEQUENCES

Criticality

L x C Trend

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- ★ New since last month

Risk Id	Risk Title	Risk Statement	L	C	Approach
FCFSE-033 → Technical O'Toole	CIR FOMA solenoid valves internally leak	Given that CIR operations to 2028 will exceed the operational life of FOMA solenoid valves then there is the possibility that internal valve leakage will occur.	2	4	<p>Mitigate: The FCF team will generate flight operational procedures to periodically establish positive closure indication of all FOMA solenoid valve inhibits.</p> <p>Status: 01/23/13 - The FCF team is just getting started on this plan. Tasks have been identified and personnel assigned</p> <p>ECD: 12/31/2013</p>
FCFSE-014 ↓ Technical Beltram	IOP removable hard drive shelf life	Given that the IOP removable hard drives have a limited shelf life; then there is the possibility that these hard drives won't work over time and the FIR and CIR racks will not be able to provide support for their payloads to perform science operations will occur.	2	3	<p>Mitigate: Implement a procedure to re-format the hard drive on-orbit to minimize loss of magnetic field encoding data on the disk.</p> <p>Status: 04/23/12 - Currently on track for the development of the formatting procedure. 06/18/12 - This risk was reviewed and there are no updates at this time. 07/27/12 - Formatting being developed. 09/12/12 - Documented format procedure is in process of being developed. 10/17/12 - A procedure to format an IOP removable hard drive has been developed on the CIR GIU and a preliminary IOP removable hard drive format procedure has been drafted. 01/23/13 - Procedure development has been initiated</p> <p>ECD: 08/30/2013</p>



CONSEQUENCES

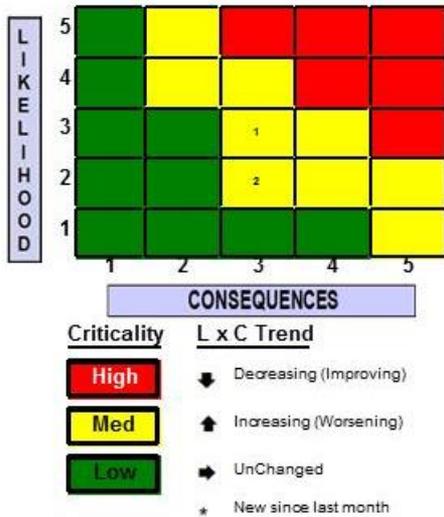
Criticality

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- Low

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FCFSE-033 ➡ Technical O'Toole	CIR FOMA solenoid valves internally leak	Given that CIR operations to 2028 will exceed the operational life of FOMA solenoid valves then there is the possibility that internal valve leakage will occur.	2	4	<p>Mitigate: The FCF team will generate flight operational procedures to periodically establish positive closure indication of all FOMA solenoid valve inhibits.</p> <p>Status: 01/23/13 - The FCF team is just getting started on this plan. Tasks have been identified and personnel assigned</p> <p>ECD: 12/31/2013</p>
FCFSE-014 ↓ Technical Beltram	IOP removable hard drive shelf life	Given that the IOP removable hard drives have a limited shelf life; then there is the possibility that these hard drives won't work over time and the FIR and CIR racks will not be able to provide support for their payloads to perform science operations will occur.	2	3	<p>Mitigate: Implement a procedure to re-format the hard drive on-orbit to minimize loss of magnetic field encoding data on the disk.</p> <p>Status: 04/23/12 - Currently on track for the development of the formatting procedure. 06/18/12 - This risk was reviewed and there are no updates at this time. 07/27/12 - Formatting being developed. 09/12/12 - Documented format procedure is in process of being developed. 10/17/12 - A procedure to format an IOP removable hard drive has been developed on the CIR GIU and a preliminary IOP removable hard drive format procedure has been drafted. 01/23/13 - Procedure development has been initiated</p> <p>ECD: 08/30/2013</p>



Risk Id	Risk Title	Risk Statement	L	C	Approach
TSC-004 * Cost Beltram	Lack of support depth	Given that there is no more than 1 subject matter expert in the areas of TSC System administration, FCF Ground software, and FCF data post-processing, there is a risk that FCF will not be supported adequately to ensure mission success.	3	3	Mitigate: Cross train additional personnel to adequately support the TSC. Status: ECD: 04/30/2013
TSC-002 * Technical Beltram	DICES III voice loop system obsolete	Given that DICES III system hardware is at end-of-life, there is a risk that voice loop services will not be available to support mission operations.	2	3	Mitigate: Transition all TSC PDs to the IVoDs voice loop system. Status: 12/18/12 - A list of GRC TSC PDs was submitted to the HOSC at MSFC to obtain user names and passwords, but this was put on hold due to concerns from GRC IT security. 03/20/13 - The DICES III voice loop system is now inoperable and most of the TSC PDs have used the new IVoDs voice loop system. ECD: 01/31/2013

Engineering Lead Jennifer Keller & Ray Pavlik

NASA Program Manager: Tom St. Onge

NASA Project Lead: Kevin McPherson / Bob Hawersaat



SAMS Objective:

- Provide acceleration measurement systems that meet the requirements of the researchers on board the International Space Station.
- SAMS measures the acceleration environment in the 0.01 to 400 Hz range for payloads.

MAMS Objective:

- Provide acceleration measurement system that measures the Quasi steady and vibratory acceleration data in the 0.00001 to 100 Hz frequency range on board the International Space Station (ISS) vehicle

PIMS Objective:

- Provide acceleration measurement data to Principal investigators who conduct scientific research on board the International Space Station.
- The SAMS acceleration measurement system provides the raw data that PIMS uses to provide analysis to the Principal Investigators. SAMS measures the acceleration environment in the 0.01 to 400 Hz range for payloads.



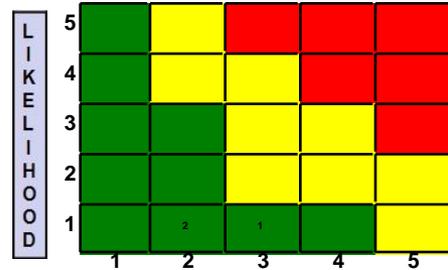
WBS	Milestone	Start	Baseline	Projected	Actual	Schedule Variance
1.8.9	SE Cable – at least 144 inches in length	7/12		12/12	1/13	Delivered for ATV4 launch
1.8.10	Spare TSH-ES	7/12		12/12	1/13	Delivered S/N 03 for ATV4 launch
1.8.10	TSH-ES 08	1/13		12/13		

Issue	Potential Impact	Action Plan	Resolution Date
Network issues onboard delaying EE-F05 boot process	EE-F05 not booting	Work with DMC to help determine network issues.	Moved sensor back to EE-F05 and the network troubles have not appeared as of late. Continue to work with Express if/when it does occur.
Crew office cannot properly torque the SAMS MSG baseplate into the MSG WV	Not a good surface mount for the SAMS TSH-ES	<ol style="list-style-type: none"> 1. ECO the SAMS AIDD to call out the torque values for the baseplate 2. Request in writing the issue and why it cannot be performed. 	<p>9/15/09 – telecon held with MSG. It was decided that the fasteners on the SAMS baseplate for the TSH-ES will not be torqued. Integrated Safety Hazards are being updated on the MSG side, and SAMS is clarifying a SAMS safety hazard.</p> <p>TSH installed in MSG and working with SODI. Crew procedures said to be hand tight.</p>
TSH-ES S/N 08 failed the failed the SAMS TSH-ES Functional Acceptance Test	TSH-ES S/N 08 will not fly on ATV-4	<ol style="list-style-type: none"> 1. Work the NCR SAMS-NCR-271 	April 2013
Rack to rack network issues preventing SAMS booting EE in JEM.	No acceleration data can be collected in the JEM.	<ol style="list-style-type: none"> 1. Supporting MSFC and JSC in the troubleshooting efforts. 	Unknown
SAMS ICU laptop will not boot.	No acceleration data	<ol style="list-style-type: none"> 1. Replace the hard drives 2. Replace the laptop 	<ol style="list-style-type: none"> 1. 4/12/13 hard drives were replaced. It did not correct the problem. Suspect the hard drive controller in the laptop has failed. Working to prepare for a laptop swap.



Acceleration Meas Proj (SAMS MAMS PIMS)

Task Level Risk Assessment



CONSEQUENCES

Criticality

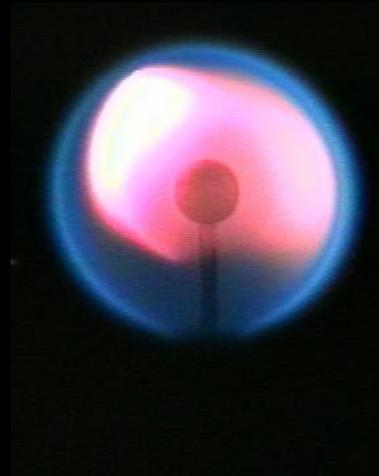
L x C Trend

- High ↓ Decreasing (Improving)
- Med ↑ Increasing (Worsening)
- Low → UnChanged
- * New since last month

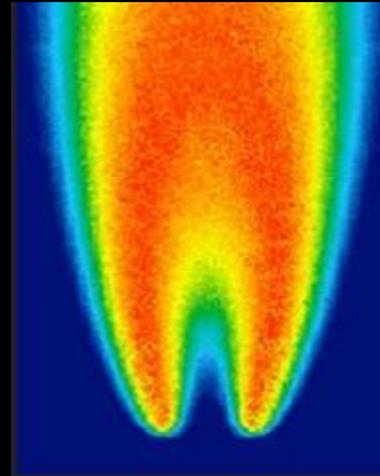
Risk Id	Risk Title	Risk Statement	L	C	Approach
AMP-001 → Technical Keller	SAMS Sparing	Given that SAMS PCS hardware is not supported by the ISS program then there is the possibility that limited spares will become depleted and SAMS will not be operational on the ISS	1	3	Mitigate: SAMS Control Unit upgrade plan has been approved and is the implementation process. When complete, the spare pool will be vastly increased to include PCS/ISS laptop hardware available on the ISS. Status: ECD: 01/01/2014
AMP-002 → Technical Keller	SAMS Fan Regulator	Given that the SAMS RTS Drawer #2 fan regulator frequency varies, there is a possibility that the fan regulator could fail.	1	2	Watch: SAMS data allows tracking of the fan frequency signature continuously. Should a fan regulator failure occur, the spare fan unit will be installed. Status: ECD: 01/01/2015



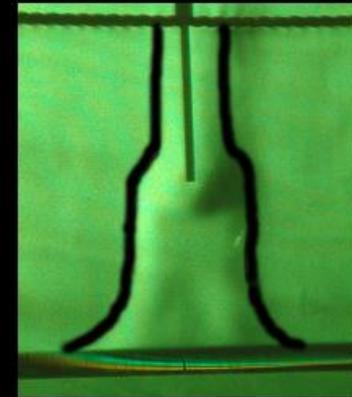
s-Flame
(drop test)



Flame Design
(drop test)



CLD Flame
(aircraft test)



2850 V

E-FIELD Flames
(1g schlieren)

Manager: Brian Borowski

NASA Program Manager: Tom St. Onge

NASA Project Lead: Mark Hickman

NASA Project Scientist: Dennis Stocker

SpaceDOC 110 encompasses the initial development phase of ACME including requirements and verification development and planning, flow system breadboard interface with existing FOMA breadboard and color camera trade studies to ultimately provide a new diagnostic capability for CIR. Work on Engineering Model design is included following completion of Preliminary Design Review in January of 2011.

Issues	Potential Impact	Action Plan	Resolution Date
<p>There are some requests to the project from the Project Scientist to change Science Requirements</p>	<p>If these changes are approved the ACME budget and schedule will be impacted. The longer the decision process takes, the more severe the impact will be as the flight design continues moving forward</p>	<p>A review panel was convened by NASA Project Management to discuss the potential changes. Actions were distributed to help make a determination</p>	<p>?</p>
<p>Following functional testing of the E-Field Subsystem and EMI testing of the same subsystem some requirement compliance issues have arisen with regard to energy levels</p>	<p>Unable to meet science requirements</p>	<p>Review Board has been convened to further discuss and provide guidance to management</p>	<p>12/12</p>
<p>Still have not received requirements for BRE, due January 30, 2013</p>	<p>Will miss deliverable date of 1/2013</p>	<p>Project Scientist has provided preliminary changes to ISRD, mostly based on BRE but there is no authorization for use</p>	<p>?</p>

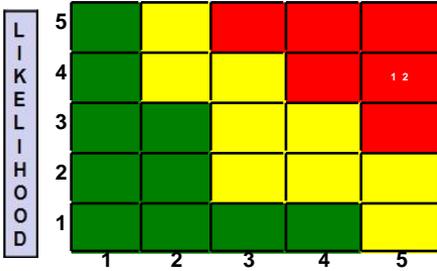
- Continued build of EM Avionics Package
- Continued build of Flight Avionics Package
- Build of an EM Radiometer Assembly continues
- Color Camera Package drawing package nearing completion
- Several internal wiring harness assemblies have been completed and tested

WBS	Milestone FY12	Credit	Start	Baselined	Projected	Actual	Scheduled Variance
1.3	Phase 2 FSR SDP	0% Complete	December 2013	December 2013	December 2013		0
1.1	CDR Presentation Package	0% Complete	November 2013	November 2013	October 2013		-1 month
1.2	Updated Science Compliance Matrix for BRE	0% Complete	January 2013	February 2013	May 2013		+3 month



ACME

Task Level Risk Assessment



CONSEQUENCES

Criticality

High

Med

Low

L x C Trend

↓ Decreasing (Improving)

↑ Increasing (Worsening)

→ UnChanged

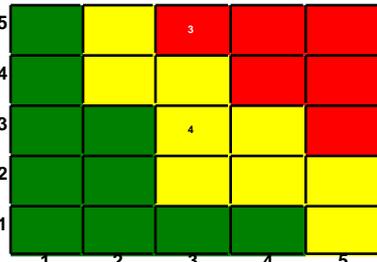
* New since last month

Risk Id	Risk Title	Risk Statement	L	C	Approach
ACME-024 → Cost Medved	ACME software could be re-classified as safety critical software	Given that NASA is reviewing all software to determine if it should be designated safety critical software; then there is the chance that ACME software will be designated as safety critical software and significant costs and schedule delays will occur.	4	5	Watch: Wait for the GRC group that met the week of 1/14/2013 to provide a consensus as to the approach for dealing with safety critical software. Status: 02/19/13 - Still waiting for the GRC group and their recommendations. ECD: 11/01/2013
ACME-022 ↑ Technical Mroczka	BRE science requirements	Given that there is not an updated SRD for BRE; there is a risk that the design for BRE will be deficient at the PDR milestone.	4	5	Mitigate: Project scientist to write the SRD. Status: 02/19/13 - RDR/PDR for BRE is scheduled for June 2013. 02/19/13 - ACME NASA Project Scientist to have a hardware requirements update to the SRD for tentatively 3/5/2013. ECD: 02/19/2013



Task Level Risk Assessment

LIKELIHOOD



CONSEQUENCES

Criticality

- High
- Med
- Low

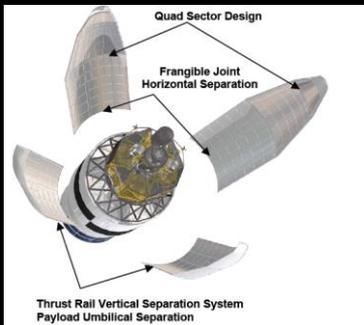
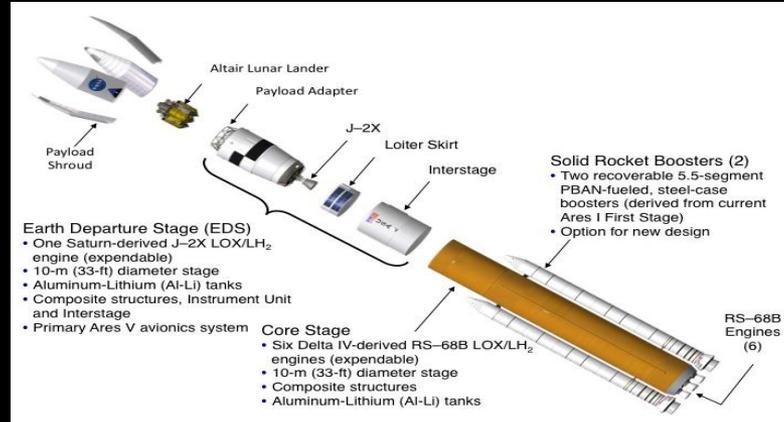
L x C Trend

- ⬇ Decreasing (Improving)
- ⬆ Increasing (Worsening)
- ➡ UnChanged
- * New since last month

Risk Id	Risk Title	Risk Statement	L	C	Approach
ACME-014 ↓ Technical Rogers	IPSU to IOP image transfer rates take too long	Given that the current data transfer rates from the IPSU to the IOP is severely limited, transfer of ACME data may take an unacceptable amount of time and may reduce obtainable science for the allotted operational time on board ISS.	5	3	<p>Watch: Need to keep an eye on this and follow up with the CIR team to keep updated on transfer improvements.</p> <p>Status: 12/13/11 - The FCF team has improved transfer rates by utilizing both IOP hard drives. The FCF team needs to provide quantitative data transfer rates.</p> <p>03/27/12 - Risk reviewed by the ACME team and no status updates at this time.</p> <p>05/08/12 - ACME RMWG has reviewed this risk and there are no updates at this time.</p> <p>06/12/12 - Risk was reviewed at the monthly ACME RMWG and there are no updates at this time.</p> <p>07/27/12 - Negotiations to fund an IPSU upgrade with increased data transfer rates has been initiated.</p> <p>09/12/12 - Currently the IPSU to IOP transfer rate is approx 1.3 Mbps. The IPSU redesign concept calls for a direct downlink from the IPSU directly to ground with ISS downlink capability at 20Mbps. FCF project is submitting a funding request to support development of the concept.</p> <p>09/18/12 - ACME needs a minimum of 10 Mbps.</p> <p>10/16/12 - This was reviewed in the monthly RMWG with nothing new to report.</p> <p>11/20/12 - The FCF NASA PM has obtained funding for a new IPSU design with the ACME data transfer rates as part of the design criteria.</p> <p>02/19/13 - Risk reviewed and there are no updates at this time.</p> <p>ECD: 11/28/2013</p>
ACME-023 ➡ Management Hickman	TFP requirement change	Given that new TFP science requirements are added to the ACME SRD; then there is the chance that the ACME project schedule and budget will not be met.	3	3	<p>Mitigate: The engineering team to provide the cost and schedule to NASA ACME PM. The Science team to provide justification for the changes in science requirements.</p> <p>Status:</p> <p>ECD: 03/29/2013</p>

ZIN Manager: Michael Johanson
ZIN Engineering Lead: Bill Dial

NASA Project Manager: Gerry Sadler



SpaceDOC 119 encompasses evaluation of potential manufacturing approaches focusing on the Heavy Lift Payload Shroud but not be limited to (e.g. can include other element composite dry structures). Approaches may include: existing composite manufacturing sites, MAF, and new sites. ZIN and our subcontractor Zero Point will identify needed composite manufacturing assets and capabilities to support current Heavy Lift Vehicle concept and associated requirements based on manufacturing assessments done by the NASA ESMD ACT project. The scope of the analysis shall include logistics and supply chain requirements.

Issue	Potential Impact	Action Plan	Resolution Date
None			

- Continued to work Shroud Structural Analysis and Design task.
- A no cost extension as extended the POP to 5/04/2013.

Milestone (Cal 10)	Baseline (Cal 10)	Projected	Actual	Schedule Variance
Payload Shroud Technology Development Plan	November 30, 2010	Nov 30, 2010	Nov 30, 2010	None
Preliminary Element Integration Assessment Report	January 15, 2011	Jan 15, 2011	Jan15, 2011	None
Manufacturing Implementation Plan	February 15, 2011	Feb 15, 2011	Feb 15, 2011	None
Final Element Integration Assessment Report	March 25, 2011	April 25, 2011	April 25, 2011	1 month no cost extension approved by Gerry Sadler
Provide a Basis of Estimate Bottoms Up Assessment of the Current SLS Shroud for metallic and composite 8.4 meter baselines.	June 6, 2011	June 6, 2011	June 6, 2011	None
Assessment of CPS Impacts on Payload Shroud	September 30, 2011	Sept 30, 2011	Oct. 13, 2011	Delivery slipped based on stop work due to lack of funding, slip was approved by Gerry Sadler
Fairing Basis of Estimate Updates 1. PPBE13 Update 2. Initial PPBE14 Update 3. Final PPBE14 Update	1. Oct. 30, 2011 2. May 30, 2012 3. Sep 30, 2012	1. Oct. 30, 2011 2. May 30, 2012 3. Sep 30, 2012	Dec. 12, 2012	The PPBE schedule is determined by NASA and the dates of the deliverables are subject to change.
Analysis and Design Reports 1. SRR 2. SDR	1. Oct. 1, 2011 2. Feb 1, 2012	1. Feb 1, 2012 2. Feb 1, 2012	Oct. 4, 2012	SLS SRR & SDR are NASA determined dates. They are currently planned to be combined and held Feb. 15, 2012.
Payload Fairing Evaluation: Test Plans and Procedures	15 day prior to testing		N/A	Work is de-scoped
Delta IV Stage Integration Assessment	Jan 31, 2012	Jan. 31, 2012	N/A	Work is de-scoped

Study Delivery Order – No risks



ZIN Project Lead: Ray Pavlik
ZIN Software Lead: Jennifer Keller

NASA Project Manager: Diane Malarik
NASA Deputy Project Manager: Mike Zernic
NASA GRC PI: Rich Reinhart
NASA GRC Deputy PI: Sandy Johnson

- An on-orbit, adaptable, Software Defined Radios (SDR)/Space Telecommunications Radio System (STRS)-based testbed facility to conduct a suite of experiments to advance technologies, reduce risk, and enable future mission capabilities on the International Space Station (ISS).
- DO-128 Scope of Work includes:
 - Performing configuration management activities, including software.
 - Remaining development of the CoNNeCT Flight and Ground System Software.
 - Integration with the Payload Operations Integration Center (POIC) and SCaN-provided SN, NEN, and NISN.
 - Sustaining Engineering and Operations of the Flight and Ground System.
 - Experiment Integration and Operation

Issue	Potential Impact	Action Plan	Resolution Date
None			

- Subtask A CM/DM
 - Reviewed, formatted, and released multiple Documents, Process Plans, Change Requests, and NCRs.
 - Processed for storage as-run Mission Operations Procedures and GIU documents.
 - Created CMTS directions for creating a new Software Change Request (SCR) form. The directions are being reviewed to ensure the desired process is documented.
 - Software CM
 - Merged multiple changes to the Release5 branch that would be included in the PAS release for upload.
 - Generated multiple PAS build & releases used for V&V testing, the final to be uploaded once V&V have been completed.
 - Generated release of Safety Critical code modules for V&V testing of the PAS release for upload.
 - Worked on process needed to handle Experimenter files, receiving them from the Experimenter from eRoom drop box, and placing into specific directory structure within Subversion.

- Subtask B SE&I, Software, and Experiment Integration
 - GIU Maintenance (GRC-CONN-PLAN-0895)
 - Downloaded Avionics Files on a weekly basis.
 - Installed new Symantec Virus Definition Files on the GIU TReK Workstation, GIU GSE Terminal, GIU Laptop, ELC SCS #2 and ran a full virus scan.
 - GIU TWTA Pre Amplifier - MWOs with released Process Plans and Drawings were submitted to manufacturing.
 - JPL Characterization (on GIU) MWO closed (MWO 080911MGA700-009).

- Subtask B SE&I, Software, and Experiment Integration (continued)
 - Continued preparing for Agilent on-site calibrations. We are scheduled the week of May 20th and all team members have been advised. Submitted a ZIN ePR for approval.
 - Experiment Development System Digital Side
 - Developed the EDS Digital Side Interconnect.
 - Developed the EDS Equipment Layout
 - Generated and submitted COTS Parts List to NASA GRC for procurement.
 - Reviewed the list of spare parts in SCAN Testbed Bonded Storage in order to find those that could be used for the EDS. These parts were checked out of bonded storage.
 - Interconnect Cable Modification/Fabrication: Worked with GRC Technicians to install a connector on cable 080911EGA726. This cable is needed for 28VDC to the EM Avionics.
 - Continued testing of JPL Breadboard SDR with a Software Development System to obtain 1553 bus captures to aid JPL in determining root cause of lack of JPL SDR serial data on CTADS serial display.
 - While conducting the JPL Breadboard SDR 553 bus capture tests, an issue was noted with uploading odd byte length files using the BCSW file upload command. A brief report was prepared and transmitted to JPL.
 - SE-1 JPL S-band Capture Experiment
 - Conducted 5 development tests on the GIU. There were some issues with the JPL-provided scripts causing an occasional reboot of the JPL SDR. Worked with JPL on debug efforts related to this issue.
 - Conducted a Verification Test and prepared briefing materials for the Experiment Operations Review.
 - Supported two days of SCaN Testbed flight operations. The flight operations went quite smoothly and none of the JPL SDR reboot issues that were seen during ground testing were experienced during flight operations.
 - Collected and transmitted all data products to JPL PI within 24 hours of completion of the experiment.

- Subtask B SE&I, Software, and Experiment Integration (continued)
 - Ground Software
 - Completed CRs for CTADS and CESDB updates including JPL Heartbeat screens.
 - Flight Software
 - Continued with SW V&V of PAS Post Ship Release #1. Implemented changes to correct errors discovered during testing resulting in a new PAS release.
 - Completed the SCaN Script Test Report, continued writing the Experiment Interface Document, and continued Experiment Interface programming

- Subtask C Flight & Ground Software
 - As of FY2013, flight and ground software activities have transitioned to WBS 01-03.

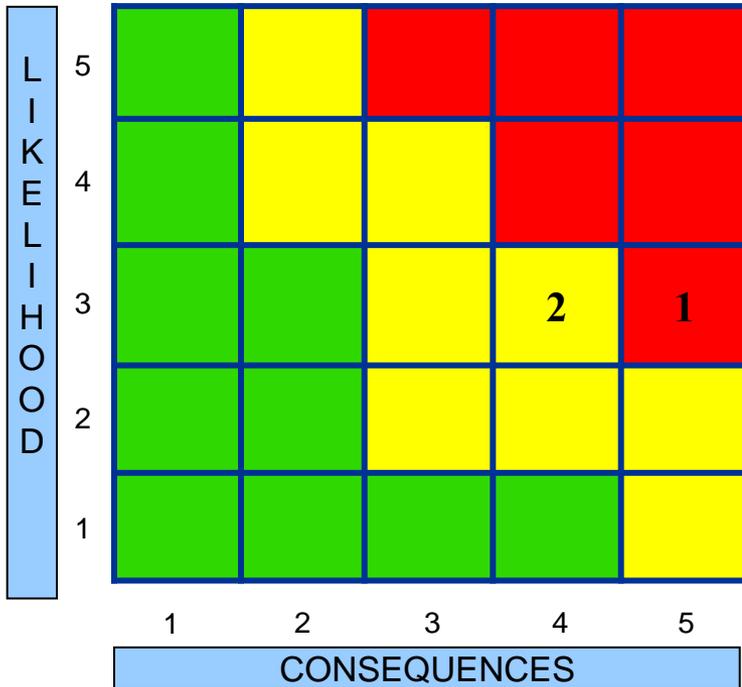
- Subtask D Mission Operations
 - Completed the TCR inputs and submitted to PTG (ISS pointing).
 - Completed the TRK and XML configuration file inputs for the operational weeks.
 - Completed PFD (power flux density) class analysis for the operational weeks.
 - Prepared weekly PPM inputs and the weekly POIC Briefing. Worked with PPM, Prep-OC, and TCO to add SCAN Testbed activities to timeline and make adjustments based on the granted SN/NEN events.
 - Prepared the scripts and procedures necessary for the operational weeks.

- Subtask D Mission Operations (continued)
 - Attended the Experimenter's telecon and provided support to SE&I
 - Worked with Experiment Liaison regarding details of GPS testing scheduled for April. Started draft of flight procedures
 - Working with JSC ADCO to identify and acquire ISS GPS telemetry for the GPS experiment.
 - Performed the NEN-LGA Pattern Characterization test using the JPL SDR proposed by Jim Lux.
 - Performed the stripe realignment on the JPL SDR.
 - Drafted a procedure for the PAS update and checkout.
 - Mission Ops team is transitioning to Remote IVODS for the voice loops. The TSC DICES unit is failing. Working with the HOSC team to add the SCAN TESTBED loop (GSFC, WSC, TSC) to the IVODS list.
 - Completed the second of the three part course on orbital mechanics for SCAN TB. The course was presented on 3/19/2013. After the completion of this course, the third part will be generated and presented to the three MO group members who are tasked with future track file generation. Related, Jim Norton has successfully generated the W25 and W01 inputs for the operations.
 - Updated the XML files for the pST (pitched spiral track) configuration files. Several files were added to create a complete set that can be used interchangeably for either the MGA or HGA.
 - Initiated the transition of TCR generation with the Mission operations group
 - Updated RedMine with the LynxCAT software development proposal. These will be discussed at a future NRB.

Hardware/Software Deliverables CY 2013

No.	Item Description	Planned Completion Date	Actual Completion Date	Note
a)	Subtask A –CM/DM: Configuration Management and Tracking System (CMTS)	December 31, 2013		Hardware
b)	Subtask B – SE&I: First Verified Post-Ship Flight Software and subsequent upload to the Flight System	April 30,2013		Software
c)	Subtask B – SE&I: Verified Ground Software, suitable for use with First Post-Ship Flight Software	April 30,2013		Software
d)	Subtask B – SE&I: Second Verified Post-Ship Flight Software and subsequent upload to the Flight System	August 30, 2013		Software
e)	Subtask B – SE&I: Third Verified Post-Ship Flight Software and subsequent upload to the Flight System	November 30, 2013		Software
f)	Radio Frequency and Electronic Hardware Assemblies	December 31, 2013		Hardware

STATUS AS OF: 02/23/13



LxC Trend	Rank	Approach	Risk Title
→	1	M	Underfunded Operations and Experiments Phase
→	2	M	Experimenter Software Interface

<u>Criticality</u>	<u>L x C Trend</u>	<u>Approach</u>
High	↓ Decreasing (Improving)	M – Mitigate
Med	↑ Increasing (Worsening)	W – Watch
Low	→ Unchanged	A – Accept
	N New	R – Research
		C – Closed