Verification Procedure & Results

Test Procedure Document No.:	Test Procedure Rev.:
3166-70101	1-01

Test Case Name:	Test Plan Document #	Test Plan Rev.:	Test End Date:
MFM Controller Functionality	3166-70000	1-01	

Test Conductor (Print Name)	Signature	**Design Engineer** (Print Name) Taylor Semingson	Approval Signature	Date 2013-07-01
Test Director (Print Name)	Signature	**System Engineer** (Print Name) Sheri N. White	Approval Signature	Date 2013-06-28
Witnessed by (Print name)	Signature	**QA/QC Engineer** (Print Name) Gary Gook (I&T Lead)	Approval Signature	Date 2013-06-28
DOORS Verification Procedure ID Ver-CG-261	**DOORS Verification Event ID** CG-VE-3023	**Test Results Reviewed**	**QA:**	Date
			Test Dir.	Date

Test Description

This test consists of performing a series of command and controls operations to verify proper behavior and functionality for the secondary and main controller prior to integration and deployment of the MFM. Emphasis will be placed on communications paths to all mooring nodes to ensure that all paths can be established. Each of the controllers will be checked individually. Inductive modem communications will not be exercised as part of this test.

Requirements Addressed

L4-CG-PC-RQ-81 Platform Controllers shall have a low power or quiescent state to conserve power.
L4-CG-PC-RQ-82 Platform Controllers shall be capable of awakening from the low power/quiescent state by an interrupt from any serial port.
L4-CG-PC-RQ-814 Platform Controllers shall implement power conservation features to maximize endurance and scientific measurement potentials.
L4-CG-PC-RQ-219 Platform Controllers shall provide the data storage capacity to accommodate the engineering and science data to be recorded over the deployment interval for the platform in which it is located.
L4-CG-PC-RQ-255 Platform Controllers shall provide an operator interface for purposes of performing diagnostics, operational verification, testing and troubleshooting.
L4-CG-PC-RQ-844 Platform Controllers shall support an acoustic bi-directional communications capability.

Test Environment

- Main controller is located in the load cage at the burn-in site.
- Secondary controller is located in the 64" sphere cage insert, which is loacated at the burn-in site.
- Acoustic modem is located in the load cage at the burn-in site.

Test Setup

Pre-Conditions:
- 64" sphere cage insert assembled with instruments and secondary controller
- Load cage assembled with main controller and acoustic modem

Hardware Preparations:
- PC with serial RS232 port
- Local acoustic modem with transducer, RS-232-interface to PC
- Serial communication cables for main and secondary controller

Software Preparation:
- Controller serial port configuration: 9600,8n1,none
- Controller terminal software: HyperTerm, RealTerm, TeraTerm
- Local acoustic modem serial port configuration: 9600,8n1,no handshaking

Test Artifacts

Test Artifacts consist of the Pass/Fail results for steps contained within this procedure as well as various log files.

Test Procedure 3166-70101 Rev 1-01				Test Results		
Step#	Instructions	Expected Results	Requirement ID	Observed Results	Pass/Fail	Notes
1	Connect serial communications cable from PC to secondary controller communications port. Start a terminal program and save the log file as follows: ***sn*** **_controller_*yyyymmdd*** **_tc001.log**					
2	Press the **<space>** key and wait for a message or a prompt ">" to be displayed. Don't type anything, and a message showing "Entering low-power sleep mode" will be displayed.	Verify that secondary controller has a low power state.	L4-CG-PC-RQ-81 L4-CG-PC-RQ-814			
3	Measure voltage and current on controller board to verify low-power state.	Current consumption should be < 1 mA.	L4-CG-PC-RQ-81 L4-CG-PC-RQ-814			
4	Press the **<space>** key and wait for a message or a prompt ">" to be displayed. Type StopDeployment<enter> (case sensitive).	Verify that communication to secondary controller can be establisthed via serial port.	L4-CG-PC-RQ-82			
5	The controller is now in menu mode. Various controller diagnostics can be checked by going to the "3-test" menu by typing: **3<return>** Two example diagnostics (battery voltage and temperature) can be checked by typing:	The controller will now display battery voltage and circuit board temperature. Verify that: Battery Voltage > 15.0VDC Temperature is within ±15°C ambient temperature	L4-CG-PC-RQ-255			
6	Go back to test menu by typing **0<return>** Go back to main menu by typing **0<return>**					
7	After setting the controller sampling parameters, from the "config" menu, type 7<enter> to go to the CF card menu. Type Y<enter> when asked to format the flash card. The space available from the CF card and the space required for a 400 days deployment will be displayed.	Verify that the capacity of the compact flash card is more than the required space	L4-CG-PC-RQ-219			
8	Save and stop the log file.					
9	Connect serial communications cable from PC to main controller communications port. Start a terminal program and save the log file as follows: ***sn*** **_controller_*yyyymmdd*** **_tc001.log**					
10	Press the **<space>** key and wait for a message or a prompt ">" to be displayed. Don't type anything, and a message showing "Entering low-power sleep mode" will be displayed.	Verify that secondary controller has a low power state.	L4-CG-PC-RQ-81 L4-CG-PC-RQ-814			
11	Measure voltage and current on controller board to verify low-power state.	Current consumption should be < 1 mA.	L4-CG-PC-RQ-81 L4-CG-PC-RQ-814			
12	Press the **<space>** key and wait for a message or a prompt ">" to be displayed. Type StopDeployment<enter> (case sensitive).	Verify that communication to secondary controller can be establisthed via serial port.	L4-CG-PC-RQ-82			

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Step#	Instructions	Expected Results	Requirement ID	Observed Results	Pass/Fail	Notes
13	The controller is now in menu mode. Various controller diagnostics can be checked by going to the "3-test" menu by typing: **3<return>** Two example diagnostics (battery voltage and temperature) can be checked by typing:	The controller will now display battery voltage and circuit board temperature. Verify that: Battery Voltage > 15.0VDC Temperature is within ±15°C ambient temperature	L4-CG-PC-RQ-255			
14	Go back to test menu by typing **0<return>** Go back to main menu by typing **0<return>**					
15	After setting the controller sampling parameters, from the "config" menu, type 7<enter> to go to the CF card menu. Type Y<enter> when asked to format the flash card. The space available from the CF card and the space required for a 400 days deployment will be displayed.	Verify that the capacity of the compact flash card is more than the required space	L4-CG-PC-RQ-219			
16	Connect serial communications cable from PC local acoustic modem. Start a terminal program and save the log file as follows: **sn_acomm_yyymmdd_tc001.log**					
17	Connect to primary controller via acoustic pass-through mode by typing: where n=acoustic ID of remote modem **at$kn<return>** type: **status<return>** and wait 5 seconds for local acoustic modem to forward command	Verify that communication to main controller can be established via acoustic modem pass-through mode.	L4-CG-PC-RQ-844			