



Verification Procedure & Results

Test Procedure Document No.: 3167-00101		Test Procedure Rev.: 1-01	
Test Plan Document # 3167-00000		Test Plan Rev.: 1-01	Test End Date:
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Witnessed by (Print name)	Signature	QA/QC Engineer (Print Name) Gary Cook	Approval Signature <i>Gary Cook</i>
DOORS Verification Procedure ID Ver-CG-149	DOORS Verification Event ID CG-VE-3092	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 HYPM. 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
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Test Setup
Pre-Conditions:
 - SPP assembled: Mechanism Float, Instrument Float, Communications Float

- 64" sphere cage insert assembled with instruments and secondary controller
- WFP(s) assembled
- Load cage assembled with HYPM controller and acoustic modem

Hardware Preparations:

- PC with serial RS232 port
- FreeWave modem with antenna, interface to test PC
- Local acoustic modem with transducer, RS232 interface to test-PC
- Comm-Cables for SPP, WFP, HYPM Controller

Software Preparations:

- SPP serial port configuration: 19200,8n1,no handshaking
- SPP FreeWave configuration: 19200,8n1,no handshaking
- WFP serial port configuration: 9600,8n1,no handshaking
- WFP terminal software: CrossCut
- HYPM Controller serial port configuration: 9600,8n1,no handshaking
- HYPM Controller terminal software: HyperTerm, RealTerm, TerraTerm
- 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 3167-00101 Rev 1-01				Test Results		
Step#	Instructions	Expected Results	Requirement ID	Observed Results	Pass/Fail	Notes
1	Connect serial communications cable from PC to SPP controller communications port. Start a terminal program and save the log file as follows: sn_spp_yyyymmdd_tc001.log					
2	Wakeup SPP following on screen instructions.	Communication to SPP can be established via serial port				
3	Save and stop the log file.					
4	Connect serial communications cable from PC to WFP controller communications port. Start a terminal program and save the log file as follows: sn_wfp_yyyymmdd_tc001.log					
5	Wakeup WFP following on screen instructions.	Communication to WFP can be established via serial port				
6	Save and stop the log file.					
7	Connect serial communications cable from PC to HYPM controller communications port. Start a terminal program and save the log file as follows: sn_controller_yyyymmdd_tc001.log					
8	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			

Test Procedure 3167-00101 Rev 1-01				Test Results		
Step#	Instructions	Expected Results	Requirement ID	Observed Results	Pass/Fail	Notes
9	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			
10	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 established via serial port.	L4-CG-PC-RQ-82			
11	Press the <space> key to show ">" prompt. If you do not see a ">" command prompt, then press <ctrl>+x to exit sleep mode. The controller will now show a ">" command prompt	Verify that communication to secondary controller can be established via serial port. Verify that secondary controller has a low power state.	L4-CG-PC-RQ-82			
12	Exit deployment mode by typing: <stopdeployment><return>					
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: <1><return>	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 required for a 400-day deployment will be displayed, as well as the total available space.	Verify that the available capacity of the compact flash card is more than the required space.	L4-CG-PC-RQ-219			
16	Save and stop the log file.					
17	Connect serial communications cable from PC to local acoustic modem. Start a terminal program and save the log file as follows: <sn_acomm_yymmdd_tc001.log>					
18	Connect to secondary controller via acoustic pass-through mode by typing: where n=acoustic ID of remote modem <at><n><return> type: <status><return> and wait 5 seconds for local acoustic modem to forward command	Verify that communication to secondary controller can be established via acoustic modem pass-through mode.	L4-CG-PC-RQ-844			
19	Save and stop the log file.					