



Test Procedure Name: Coastal Surface Piercing Profiler Health & Status Monitoring Validation Test Procedure

Document Control Number: 1158-02021 Rev: 1-00

Test Plan Document Control Number: 1158-02000	Test Plan Revision Number: 1-00	Test Date(s): <YYYY-MM-DD>
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Test Procedure Approval Signature Block (signed before the test procedure is executed; signature indicates approval of the procedure content)				
Approval Authority (role)	Print Name	Signature	Date (yyyy-mm-dd)	Revision
Chief Systems Engineer	John Pesaturo		2015-mm-dd	1-00

Test Type(s) (select all applicable)
 Requirements Verification
 Developmental
 Integration
 Interface
 Stability
 Performance
 Validation
 Acceptance
 Other

Test Procedure Description

This procedure contributes to the Validation Testing of the uncabled Coastal Surface Piercing Profiler, which is required for Commissioning. It applies to Coastal Surface Piercing Profilers that are deployed at the Pioneer Inshore, Pioneer Central, Endurance Washington Inshore, Endurance Washington Shelf, and Endurance Oregon Inshore sites. This procedure does not apply to the cabled Coastal Surface Piercing Profiler deployed at the Endurance Oregon Shelf site.

This procedure is the Health & Status Monitoring Scenario (Section 4.4.1, Validation Test Plans for OOI Coastal Pioneer and Endurance Arrays – 1153-05000 and 1158-02000).

- Confirm functionality of telemetry paths (platform-to-mooring, platform-to-shore)
- Confirm that platform status is transmitted to shore (OMC) and engineering data are reasonable
- Confirm operations of platform components (engineering and science sensors)
- Confirm error indications/alerts in the OMC are functional

Test Location

Platforms will be deployed in their defined locations within the Coastal Pioneer and Endurance Arrays. Testers will be located where they have access (directly, via internet, or via WebEx) to the Coastal Pioneer and Endurance Array data, command and control software, and monitoring displays (e.g., the OMC).

Test Equipment				
Equipment ID or Serial Number	Calibration Due Date (yyyy-mm-dd)	Equipment Technician (print name)	Certification Signature (indicates that calibration has not expired)	Date (yyyy-mm-dd)
N/A				

Test Software (Including custom and COTS)	
Software Product Name	Software Version
CGSN Data Server software	<to be filled in at time of test>
CGSN Platform Shore Server software	<to be filled in at time of test>
WET Labs JProfilerHost software	<to be filled in at time of test>
WET Labs JMAFileProcessor software	<to be filled in at time of test>

Input Data					
Dataset Name	Dataset Description	Dataset Source (e.g., IOOS, CTD sensor)	Dataset Location (e.g., complete file path and name)	Data Volume	Procedure Step(s) (Where Data is used)



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Output Data

Dataset Name	Dataset Description	Dataset Source <small>(e.g., IOOS, CTD sensor)</small>	Data Storage Location <small>(e.g., complete file path and name)</small>	Comments <small>(e.g., explain any naming conventions used)</small>

Test Safety

Tests shall be conducted in accordance with the OOI Environmental Health and Safety Plan (1006-00000), and in accordance with institutional operational safety policies.

Preconditions

The platform(s) to undergo Validation Testing must be deployed. The OMC must be operational and have the Coastal Surface Piercing Profiler Shore Server (AMPServer) and JProfilerHost and JMAFileProcessor software integrated.

Test Reports

<Identify the document numbers of any test reports produced from the execution of this procedure>



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Step No.	Instructions	Requirement ID (If applicable)	Expected Results	Actual Results (If different than Expected)	Step Completed By (Enter initials, unless test is automated)	Pass / Fail	Notes	Redmine Issues (Identify issues found in this step)
A	At-Sea Status/Functionality							
A-1	Pull together deployment documentation (e.g., cruise report, deployment logs)	N/A					Alternately, run during deployment testing	
A-2	Review documents to confirm successful Iridium satellite communications during deployment Record document, date/time of latest comms	L3-CG-RQ-166	From a ship, one can VNC to the OMC through a VPN. See the JProfilerHost program on the OMC's profiler server for evidence of when a profiler last made successful connection to shore. See profile summary tab for last comms.				EA server can be found at 172.28.0.212 until DNS issues are resolved by CI. JProfilerHost uses the computer time, which should be UTC	
A-3	Review documents to confirm successful Iridium beacon communications during deployment Record document, date/time of comms	L3-CG-RQ-489	Within 20 minutes of turning the beacon on it will send set users and e-mail and a few minutes later will appear on assets.joubeh.com where it will show when the beacon successfully talked with an Iridium satellite.					
B	Sea-to-Shore Status/Functionality							
B-1	Review status on OMC Profiler Shore Server	N/A						
B-2	View Status page for deployed CSPP:	N/A	There should be an instance of JProfilerHost open for each deployed profiler. In the control window, click through tabs to see the current settings.					
B-3	Grab a screen shot of the Profile Summary window	N/A	Click the Profile Summary window in JProfilerHost. It should show the beginning and end of each profile in which the profiler was able to call home. Note, typical about 60% of actual profiles include a successful Iridium call after the profiler reaches the surface.					
B-4	Grab a screen shot of the Start Depth plot in the Summary tab of the control window	N/A	Should be within 10 meters of the bottom for EA sites, 90+/-10 meters at Pioneer Central, 70+/-10 meters at Pioneer Inshore					
B-5	Grab a screen shot of the Rate plot in the Summary tab of the control window	N/A	Should be 25+/-5 cm/s					
B-6	View AMPServer log Record End Time of last Iridium Transfer Session	L3-CG-RQ-1002	On platform server: /home/ooiuser/AMPServerLogs The time stamp of the latest communication should have occurred the last time a profiler surfaced				This log has all recent communications for all EA or Pioneer uCSPPs, depending on which OMC is being viewed.	



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B-7	View latest status e-mail sent by OMC vendor software (JProfilerHost) when profiler last surfaced	N/A	Example: Established Coms at 18:38:19 Sent (optional line) Profile number:48 Travelled from 67.92 to 0.81 in 3.97 mins. Home pos was -13309332. Winch voltage was 30.7. Remaining disk space is 304922624 File (10897732.PPB) is 282983 bytes. BF Voltage, low cell and watts was 31.12 3.888 290.17 Departed at 18:38:24 expected at 18:41:38				When there is successful Iridium comms an e-mail is sent from JProfilerHost to set users. The destination e-mail addresses of these status messages can be set in JProfilerHost.	
B-8	Record Filename of latest decimated science data file (*.PPD) sent from the profiler to shore.	L4-CG- RQ-890	A *.PPD file. The PPD file is binary. To view its contents, which is needed for subsequence test steps, it will have to be parsed by JMAFileProcessor into ASCII files.				See Files tab in JProfilerHost for where these files are stored.	
B-9	View Iridium beacon log on Joubeh website	L3-CG-RQ-1002	The Joubeh website stores recent communications. There should be communications from the hour before the profiler was deployed. There should be no comms subsequently unless is breaks away.				Asset.joubeh.com (Ask MIO operator at OSU or WHOI for user ID and password.)	
B-10	View acoustic modem log	L3-CG-RQ-777	There should be a file from each acoustic modem call, which by default occurs every time a mooring calls shore.				The acoustic modem files log to the DCL with the acoustic modem on it. For example, /home/ce01issm/D00001/dcl17/ucsp The log files go to them OMC after each ACOMM session is initiated by its neighboring mooring	



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B-14	View contents of an acoustic modem session in one of these log files.	N/A	Example, 2014/04/28 12:00:17.116 sent: +++ 2014/04/28 12:00:17.684 rcvd: user:1-> 2014/04/28 12:00:17.688 sent: ATR2 2014/04/28 12:00:21.443 rcvd: Range 1 to 2 : 175.6 m 2014/04/28 12:00:21.445 sent: AT\$V2 2014/04/28 12:00:24.695 rcvd: Remote Battery Voltages 2014/04/28 12:00:24.714 rcvd: DSP Bat = 02.9V 2014/04/28 12:00:24.732 rcvd: Xmit Bat = 19.9V 2014/04/28 12:00:24.735 sent: ATD2 2014/04/28 12:00:27.990 rcvd: CONNECT 00800 bits/sec 2014/04/28 12:00:27.996 sent: \$PWETC,,BC,,DATE*48 2014/04/28 12:00:35.762 rcvd: \$PWETA,BC,,PC,P1,DATE,3,4/28/2014,12:00:38,0.0*14 2014/04/28 12:00:35.872 sent: \$PWETC,,BC,,PFS*19 2014/04/28 12:00:43.328 rcvd: \$PWETA,BC,,PC,P1,PFS,1,13*5A 2014/04/28 12:00:43.445 sent: \$PWETC,,BC,,PST*0B 2014/04/28 12:00:51.223 rcvd: \$PWETA,BC,,PC,P1,PST,3,16:00:03,04/28/2014,14350*7 6 2014/04/28 12:00:51.338 sent: \$PWETC,,BC,,SUM*17 2014/04/28 12:00:59.920 rcvd: \$PWETA,BC,,PC,P1,SUM,14,20.42,0.53,1.15,31.8,- 5308623,11184167.PPB,94179,452689920,184,24,32,04, 4.025,-2059,01,2*08 2014/04/28 12:01:00.039 sent: +++ 2014/04/28 12:01:00.131 rcvd: user:4-> 2014/04/28 12:01:00.132 sent: ATH 2014/04/28 12:01:00.225 rcvd: Off Line				These files are usually incomplete because the ocean is not uniformly dense and because the modems are deployed near the top or bottom of the water column where there are noisy reflections. About one out of 8 files can be expected to be mostly complete.	
C	Data transfer to shore							
C-1	Review data on OMC Platform Shore Server	L3-CG-RQ-163 L3-CG-RQ-890 L3-CG-RQ-275	*.PPD, *.ACD, and *.SND files are decimated data files. Recovered files have *.PPB, *.ACS, *.SNA, *.DBG, and *.WC extensions. Data can be unpacked into ASCII files with WET Labs' JMAFileProcessor application. The PPB & PPD files parse into SBE (CTDPF), OPT (DOSTA), TRP (FLORT), OCR (SPKIR), ADCP (VELPT), and PARS (PARAD) text files. ACD and ACS are OPTAA files. SND and SNA are NUTNR files. DBG files parse into PDBG files. WC files parse into HMR, SBE, WDBG, and WM files.				See Files tab in JProfilerHost to see where the raw files are placed. The OMC has a script that will periodically unpack these files and place unpacked versions in a folder that is periodically synced with CI.	
C-2	View PARAD science data	L3-CG-RQ-285	Data present. At night, PAR should be near zero. During the day PAR should decrease with depth				The *PAR.txt files derive from *.PPD and *.PPB files. The CSPP PARAD instrument is a WET Labs ECO PARS. See ASCII file header for content description.	



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C-3	View FLORT science data	L3-CG-RQ-280	Data present.				The *ECO.txt files derive from *.PPD and *.PPB files. The FLORT instrument is a WET Labs ECO Triplet. It includes measurements of chlorophyll fluorescence, optical backscatter, and colored dissolved organic matter (CDOM). See ASCII file header for content description.	
C-4	View CTDPF science data	L3-CG-RQ-277	Data present. Density decreases with depth, so temperature mostly decreases with depth and conductivity mostly increases with depth at the CSPP sites.				The *CTD.txt files derive from *.PPD and *.PPB files. The CTDPF instrument is the SeaBird 49 FastCAT. It measures temperature, conductivity, and pressure. Note, in the coastal ocean 1 decibar of pressure corresponds to a depth change of nearly 1 meter.	
C-5	View DOSTA science data	L3-CG-RQ-278	Data present. Oxygen generally decreases with depth at the CSPP sites. Profiles start from the bottom to the top, so the last data in a file are from the top of the water column.				The *OPT.txt files derive from *.PPD and *.PPB files. The CSPP DOSTA instrument is an Aanderaa Optode 4831. See ASCII file header for content description.	
C-6	View VELPT science data	L3-CG-RQ-279	Data present. Eastward and northward velocity should be less than a meter per second and on average above 5 cm/s. Upward velocity should on average be an order of magnitude smaller than eastward and northward velocity.				The *ADCP.txt files derive from *.PPD and *.PPB files. The CSPP VELPT instrument is a Nortek Aquadopp. ADCP is acoustic Doppler current profiler. See ASCII file header for content description.	
C-7	View SPKIR science data	L3-CG-RQ-283	Data present. Should be near zero at night. Each of the 7 channels should decrease with depth during the day.				The *OCR.txt files derive from *.PPD and *.PPB files. The CSPP SPKIR instrument is a Satlantic OCR 507. See ASCII file header for content description.	
C-8	View NUTNR science data	L3-CG-RQ-284	Data present. Data records include an instrument-calculated nitrate concentration and spectra that can be used to calculate this concentration using CTD data.				The *SNA.txt files derive from *.SND and *.SNA files. The CSPP NUTNR instrument is a Satlantic SUNA. See ASCII file header for content description.	
C-9	View OPTAA science data	L3-CG-RQ-282	Data present. Records contain spectra used to calculate optical attenuation and absorption.				The *ACS.txt files derive from *.ACD and *.ACS files. The CSPP OPTAA instrument is a WET Labs ac-s. See ASCII file header for content description.	



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C-10	Debug		Log data present				The *PDBG.txt files derive from *.DBG files. These are profiler debug log files.	
C-11	Winch		Log data present				The *HMR.txt, *SBE.txt, *WDBG.txt, and *WM.txt files derive from *.WC files. These files provide information about the profiler's winch, compass, pitch, roll, and pressure sensors.	

Post-Test Signature Block (Signatures indicate that the test procedure has been completed according to the instructions and results documented above or as noted in comments below.)				
Role (e.g., Test Lead, Test Operator, Systems Engineer, Design Engineer, Safety Engineer, QA/QC Engineer, Witness)	Print Name	Initials	Signature	Date (yyyy-mm-dd)

Comments:
 Artifacts referenced by procedure:



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Document Control Sheet

Version	Date	Description	Originator
1-00	4/07/2015	Initial Release adapted from 1153-05001	J. Fram