




Verification Procedure & Results

Document No.: 3167-20104 rev A

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|--|--|--|---|--------------------|
| Test Case ID: 004, Ver-CG-71 | Test Case Name: VE-CG-3100 Acoustic Modem Test | Test Plan Document No.: 3167-20000 | Test Plan Rev.: 2-00 | Test Date: |
| Test Director (Print Name) Ed Dever | Signature in lieu of electronic signature | Design Engineer | Approval Signature John S. Dingess in lieu of electronic signature | Date 10-11-2012 |
| Test Conductor (Print Name) David Neiman | Signature  | System Engineer | Approval Signature Ed Dever (in lieu of electronic signature) | Date 10/15/2012 |
| Witnessed by (Print name) | Signature | QA/QC Engineer | Approval Signature | Date |

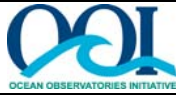
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|-------------------|---|--|--------------------------------------|--|--|---------------------------------|
| Test Class | <input checked="" type="checkbox"/> Performance | <input checked="" type="checkbox"/> Behavioral | <input type="checkbox"/> Reliability | <input type="checkbox"/> Endurance / Longevity | <input type="checkbox"/> Survivability | <input type="checkbox"/> Safety |
|-------------------|---|--|--------------------------------------|--|--|---------------------------------|

Test Description
The glider will communicate bidirectionally with the SM75 mooring. The mooring will be placed at ~1500m depth at ~30m above the sea floor. This test case may be a review of vendor testing.

Requirements Addressed
L4-CG-GD-RQ-148 (L3-CG-RQ-229), L4-CG-GD-RQ-149, L4-CG-GD-RQ-150, L4-CG-GD-RQ-151, L4-CG-GD-RQ-152, L4-CG-GD-RQ-154

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| Test Setup Glider flight and acoustic modem test documentation | Test Artifacts This document Acoustic modem communication records. Modem deployment location (lat/lon/depth/distance to bottom) and time Glider deployment location (lat/lon/time) |
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|----------------|--|---|--------------------------------|--------------|-----------|---|
| Step No. | Instructions | Expected Results (Accept Criteria) | Requirement ID | Test Data | Pass/Fail | Notes/Waiver No. |
| NA | Record lat/lon/water depth/height above bottom (mooring chain link)/ deployment time for SM 75 | | | | | Lat Lon Water depth Mooring chain length' Deployment time |
| NA | Record lat/lon/water depth/ deployment time for glider | | | | | Lat Lon Water depth Deployment time |
| 4.1 | Examine data files transferred acoustically from the SM75 mooring to the glider | Data files received to shore will be identical to those transferred from the mooring. | L4-CG-GD-RQ-148 (L3-CG-RQ-229) | | | |



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| Step No. | Instructions | Expected Results (Accept Criteria) | Requirement ID | Test Data | Pass/Fail | Notes/Waiver No. |
| 4.2 | Compare specific data blocks to requests from shore station | The glider can specify which data blocks the mooring modem transmits. | L4-CG-GD-RQ-149 | | | |
| 4.3 | Compare relative horizontal and vertical position of glider and SM75, verify the glider can send to and receive from the mooring. | The open ocean glider acoustic modem communicates bi-directionally when the glider is between the surface and 1000 meters depth and the compatible unit is at a distance of 3000 meters or less in the horizontal plane and at a depth between surface and 5000 meters. | L4-CG-GD-RQ-150 | | | A possible method is to send the SM75 data from the glider and then request it be sent back from the modem. |
| 4.4 | Examine method of establishing and tearing down the acoustic link. | The open ocean glider establishes and tears down the acoustic link to the remote node. | L4-CG-GD-RQ-151 | | | |
| 4.5 | Examine transfer time for several different transfers. | The open ocean glider acoustic link is capable of transferring 50 kilobytes from a remote unit in less than one hour including the time spent establishing and tearing down the link. | L4-CG-GD-RQ-152 | | | For this step, generation of a plot of transfer speed versus file size would inform production modem use by giving insight into time overhead for link. |
| 4.6 | Demonstrate polling of the SM-75 to request retransmit of data. | Protocols for the open ocean glider acoustic link with other acoustically-linked devices enable polling of remote devices to allow for request to retransmit data. | L4-CG-GD-RQ-154 | | | |



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