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Harbour Acceptance Test

Atlantis - WHOI

EM 124 Multibeam Echo Sounder

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Status:	This document is under configuration control at Kongsberg Maritime.

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Document history

<i>Revision</i>	<i>Description of Change</i>
A	First Issue

References

<i>No</i>	<i>Doc No</i>	<i>Description</i>
1		

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1 Introduction

The purpose of this procedure is to verify that the system installed is fully operational. It shall also serve as a record of the successful completion of the Harbour Acceptance Test (HAT).

2 References

A Copy of the Transducer Measurements is to be included with this FAT record.

3 Test equipment

The following test equipment is or may be required to perform this test:

<i>Item</i>	<i>Equipment</i>	<i>Serial number</i>	<i>Calibration expiry date</i>
1	Test PC with position and attitude simulator	NA	NA

4 List of items

List of items to be tested			
Item	Manufacturer, type and/or registration number	Equipment	Serial number
1		EM 124 Transmitter Unit # 1	118
2		EM 124 Transmitter Unit # 2	—
3		EM 124 Receiver Unit # 1	117
4		EM 124 Receiver Unit # 2	—
5		EM 124 Processing Unit # 1	10025
6		EM 124 Processing Unit # 2	—
7		HYDROGRAPHIC WORKSTATION	CZC8128Ww6
8	Steph	POSITIONING SYSTEM	10644 / 110642
9	Mrs 5	MOTION SENSOR	
10	ATL SV	SOUND SPEED PROFILE SENSOR	
11	ATL SV	FIXED SOUND SPEED SENSOR	

5 Configuration

For module serial numbers, refer to the FAT record. Any replaced modules must be documented below.

6 Changed SW- or HW- modules

Any software or modules that are replaced after the FAT shall be listed.

Replacement list			
<i>Item</i>	<i>Equipment</i>	<i>Registration number</i>	<i>Serial number</i>
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			

7 Interconnection/arrangement

The system shall be fully installed and the external sensors shall be connected.

8 Test Procedure

Switch on power to the Operator Station and to the Processing Unit. The Processing Unit will turn on the RX and TX Units. Perform all tests as described in the check list and fill in the results for each individual test.

9 Check list

Check list					
Pos	Test operation	Result		Specification	
		preHAT	HAT		
1	Start the SIS operator software and select the EM 124 Processing Unit.	OK	OK	The SIS is started and contact with the Processing Unit is established.	
2	Verify Transmitter Unit(s) status LEDs	OK	OK	LEDs ok	
3	Verify Receiver Unit(s) status LED	OK	OK	LEDs ok	
4	To acquire item reg. number, revision, serial number and software date and revisions for all modules, run the <i>BIST test -> System Information</i> . Save the result as an appendix to this report (ref Data records chapter).	OK	OK	Report printed	
5	Self-tests: Start BIST test. Execute the following BIST (Built in system tests) tests, one by one			Verify successful completion of the tests (Date and versions are stored in Pos 6, write OK if test passes).	
	5.1 CPU test	OK	OK		
	5.2 CBMF test	OK	OK		
	5.3 RX unit test	OK	OK		
	5.4 TX unit test	OK	OK		
	5.5 CBMF - CPU link	OK	OK		
	5.6 RX - CBMF link	OK	OK		
	5.7 RX channels	OK	OK		
	5.8 TX channels	OK	OK		

Check list				
Pos	Test operation	Result		Specification
		preHAT	HAT	
	5.9 RX noise level Note the average NL	OK	54.1	
	5.10 RX noise spectrum	OK	54.6	
	5.11 For future test	—	—	
	5.12 For future test	—	—	
6	Test of navigation input. Start the navigation system. Make sure that the navigation output matches the serial line 1 setup, and make this port the active one.	OK	OK	At the Operator Station Numerical display, verify that the sensor fields changes from red to white and that the sensor values are updated.
7	Test of motion sensor input. Start the motion sensor. Make sure that the motion sensor output matches the serial line 2 setup, and make this port the active one.	OK	OK	At the Operator Station Numerical display, verify that the motion sensor fields changes from red to white and that the sensor values are updated.

Check list				
Pos	Test operation	Result		Specification
		preHAT	HAT	
8	Move the navigation sensor input to serial line 3. Make sure that the navigation sensor output matches the serial line 3 setup, and make this port the active one.	OK	OK	At the Operator Station Numerical display, verify that the motion sensor fields changes from red to white and that the sensor values are updated.
9	Move the motion sensor input to serial line 4. Make sure that the motion sensor output matches the serial line 4 setup, and make this port the active one.	OK	OK	At the Operator Station Numerical display, verify that the motion sensor fields changes from red to white and that the sensor values are updated.
10	Move the motion sensor input to secondary net port. Make sure that the motion sensor output matches the secondary net, and make this port the active one. Connect the test PC to the PU Secondary net.	OK	OK	At the Operator Station Numerical display, verify that the motion sensor fields changes from red to white and are updated.
11	Connect all sensors (including 1PPS if required) and configure the system for normal use.	OK	OK	At the Operator Station verify all sensor displays and check that all sensor alarms disappear.
12	Test of sound speed probe. If a probe is connected to the echo sounder.	OK	OK	Check the interface to the probe.
13	Test of printer. If a printer is included in the delivery, transfer a file to the printer.	N/A	N/A	Verify the print of the file (picture) transferred from the Operator Station.

Check list				
Pos	Test operation	Result		Specification
		preHAT	HAT	
14	<p>Test ping mode (It may be too shallow in the harbour to get good results)</p> <p>Fill in the installation parameters and start pinging. A position simulator may be used to make the ship move around in the geographical display.</p>	OK	OK	Verify the functionality of the cross track display, the waterfall display, the seabed image display and the geographical display. Verify that the coverage sector can be adjusted.
13	Start pinging and log data.	OK	OK	Verify data logging.

Performed by (date/sign)	Witnessed by (date/sign)
PreHAT: 	PreHAT:
HAT:  7/10/2021	HAT:  7/10/21

10 Data Records

From the Operator station (SIS)

- Run all Built In System Tests. Save the BIST results to file.
- Run the System Info Test and save to file (This contains info about registration numbers, serial numbers, software versions etc.)
- Save the PU parameters to file (this file contains information about runtime and installation parameters).

Transfer these files to Kongsberg maritime head office for update of the ships installation records (Archive).

11 Testimonial

The HARBOUR ACCEPTANCE TEST for the EM 124, for ...R/V....*Atlantis*.
has been performed according to the test procedure.

The HAT approval is only valid if the test is performed by an engineer certified by
Kongsberg Maritime A/S.

The test is: Accepted / Not accepted (Delete as appropriate)

Remarks:

Please use capital letters:

<i>Test performed by</i>	<i>Position</i>	<i>Date</i>
<i>Adam Hargreaves,</i>	<i>Field Engr.</i>	<i>7/10/2021</i>
<i>Test accepted by</i>	<i>Position</i>	<i>Date</i>
<i>ALLISON HEATER</i>	<i>SSS G</i>	<i>7/10/21</i>

Signatures

