KONGSBERG

Harbour Acceptance Test

Product: / **Produkt:**	EM 710 Multibeam Echo sounder					
Product reg.no: / **Produkt reg.nr:**			**Rev.A Created by:** / **Rev.A Laget av:**	BHL/KEN		
Doc.reg.no: / **Dokument reg.nr:**	840-223303		**Rev.A Controlled by:** / **Rev.A Sjekket av:**	BHL		
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Revision: / **Revisjon:**	A	B	C	D	E	F
Date: / **Dato:**	April 18, 2005	Sep 17 2012	Jan 21, 2013			

Contents

1 DOCUMENT HISTORY

Rev	Description of changes	Created by
A	Original issue	BHL/KEN
B	Added Data records section	KTU
C	Added information under Testimonial: "The HAT approval is only valid if the test is performed by an engineer certified by Kongsberg Martime A/S."	HS

2 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).

3 REFERENCES

The FAT record.

4 TEST EQUIPMENT

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

Test equipment			
Item	Equipment	Serial number	Calibration expiry date
1	Multimeter		
2	Test PC		

5 LIST OF ITEMS

List of items to be tested			
Item	Manufacturer, type and/or registration number	Equipment	Serial number
1	125-223159	EM 710 TRANSCEIVER UNIT	230
2	HP MP6300	HWS 10 WORK STATION	CZC3407HBV
3		HEADING SENSOR	
4		MOTION SENSOR	
5		FIXED SOUND SPEED SENSOR	
6		SOUND SPEED PROFILE SENSOR	
7		POSITIONING SYSTEM	
8			

6 CONFIGURATION

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

7 CHANGED SW- OR HW MODULES

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

Replacement list			
Item	Equipment	Registration number	Serial number
1			
2			
3			
4			
5			
6			
7			

8 INTERCONNECTION/ARRANGEMENT

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

9 TEST PROCEDURE

Switch on power to the Operator Station and to the Transceiver Unit. Perform all tests as described in the check list and fill in the results for each individual test.

10 CHECK LIST

Check list				
Pos	Test operation	Result		Specification
		preHAT	HAT	
1	Start the SIS operator software and select the EM 710 Processing Unit (PU)	PASS	PASS	The SIS is started and contact with the Transceiver Unit PU is established.
2	Verify TRU status led cPCI power	PASS	PASS	Green led
3	Verify TRU status led 6 V power	PASS	PASS	Green led
4	Verify TRU status led 12 V power	PASS	PASS	Green led
5	Verify TRU status led 72 V power	PASS	PASS	Green led
6	Start internal test. Execute the following BIST (Built in system tests) tests, one by one.			Verify successful completion of the tests.
	Software date/version			List date and version:
	6.1 BSP 67 master version	PASS	PASS	2.1.4 120208
	6.2 BSP 67 slave version	PASS	PASS	2.1.4 120208
	6.3 CPU version	PASS	PASS	2.7.0 150416
	6.4 DDS version	PASS	PASS	3.5.10 140106
	6.5 RX 32 version	PASS	PASS	1.11 Feb 18, 2010
	6.6 TX 36 version	PASS	PASS	1.09 Dec 16, 2005
	6.7 SIS Software version (press the icon located on the bottom line in the SIS window)	PASS	PASS	4.3.1
7	**Self tests:**			
	7.1 BSP test	PASS	PASS	
	7.2 TX 36 test	PASS	PASS	
	7.3 RX 32 test	PASS	PASS	
	7.4 TRU power test	PASS	PASS	
	7.5 RX 32 - BSP link	PASS	PASS	
	7.6 RX channels	PASS	PASS	
	7.7 TX channels	PASS	PASS	
	7.8 RX noise level	PASS	PASS	
	7.9 RX noise spectrum	PASS	PASS	

Check list

Pos	Test operation	Result		Specification
		preHAT	HAT	
8	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.	PASS	PASS	At the Operator Station Numerical display, verify that the sensor fields changes from red to white and that the sensor values are updated.
9	Test of attitude input. Start the attitude sensor. Make sure that the attitude sensor output matches the serial line 2 setup, and make this port the active one.	PASS	PASS	At the Operator Station Numerical display, verify that the attitude sensor fields changes from red to white and that the sensor values are updated.
10	Test of heading input. Start the heading sensor. Make sure that the sensor output matches the serial line 3 setup, and make this port the active one.	PASS	PACS	At the Operator Station Numerical display, verify that the heading sensor field changes from red to white and that the sensor value is updated.
11	Test of serial line 4. This serial line is normally spare, but connect the heading sensor to it. Ensure that the sensor output matches the serial line setup, and make this port the active one.	PASS	PASS	At the Operator Station Numerical display, verify that the heading sensor field changes from red to white and that the sensor value is updated.
12	Connect all sensors (including 1PPS if required) and configure the system for normal use.	PASS	PASS	At the Operator Station verify all sensor displays and check that all sensor alarms disappears.
13	Test of sound speed probe. If a probe is connected to the echo sounder, check the interface to the probe.	PASS	PASS	Verify that the sound speed is displayed on the Operator Station.
14	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.
15	Test ping mode (It may be to shallow in the harbour to get good results) Fill inn the installation parameters and start pinging. A position simulator may be used	PASS	PASS	Verify the functionality of the cross track displays, the waterfall display, the seabed image display and the geographical display. Verify that the coverage

Check list				
Pos	Test operation	Result		Specification
		preHAT	HAT	
	to make the ship move around in the geographical display.	PASS	PASS	sector can be adjusted.
16	Start pinging and log data.	PASS	PASS	Verify data logging.

Performed by (date/sign)	Witnessed by (date/sign)
Pre-HAT: *Tony Dahlheim Feb, 7, 2016*	Pre-HAT: *7 Feb 2016*
HAT: *Tony Dahlheim feb, 07, 2016*	HAT: *7 Feb 2016*

11 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 file contains info about registration numbers, serial numbers, software versions etc).

- Save 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).

12 TESTIMONIAL

The HARBOUR ACCEPTANCE TEST for the EM 710, for ...ARMSTRONG... 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 Martime A/S.

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

Remarks:

Test performed by	Position	Date
Tony Dahlheim	Field Engineer	Feb 7, 2016
(Please use capital letters)		

Test accepted by	Position	Date
Amy Simoreav	SSSG Tech	7F52016
(Please use capital letters)		

Signatures: