



Product Service

**2.18 INADVERTENT ACTIVATION TEST**

**2.18.1 Specification Reference**

RTCM Paper 77-2002/SC110-STD, Clause A16.0

**2.18.2 Test Results**

Test passed as per customer supplied information, see Annex A for information.



Product Service

**2.19 CARRIER FREQUENCY TEST****2.19.1 Specification Reference**

RTCM Paper 77-2002/SC110-STD, Clause A17.1

**2.19.2 Equipment Under Test**

MT403G EPIRB, Serial Number 33790

**2.19.3 Date of Test and Modification State**

01 February 2008 - Modification State 1

**2.19.4 Test Equipment Used**

The major items of test equipment used for the above tests are identified in Section 3.1.

**2.19.5 Test Set-up and Operating Modes**

The test was performed with the EUT in the following mode(s): Operating

**2.19.6 Environmental Conditions**

Ambient Temperature 23.8°C  
 Atmospheric Pressure 1004mbar

**2.19.7 Test Results**

Parameter	Units	Test Results	
		T <sub>min</sub> (-20°C)	T <sub>max</sub> (+55°C)
Carrier Frequency	MHz	121.4004923	121.4024529



Product Service

## 2.20 MODULATION CHARACTERISTICS (TRANSMITTER DUTY CYCLE)

### 2.20.1 Specification Reference

RTCM Paper 77-2002/SC110-STD, Clause A17.2

### 2.20.2 Equipment Under Test

MT403G EPIRB, Serial Number 33790

### 2.20.3 Date of Test and Modification State

01 February 2008 - Modification State 1

### 2.20.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

### 2.20.5 Test Set-up and Operating Modes

The test was performed with the EUT in the following mode(s): Operating

### 2.20.6 Environmental Conditions

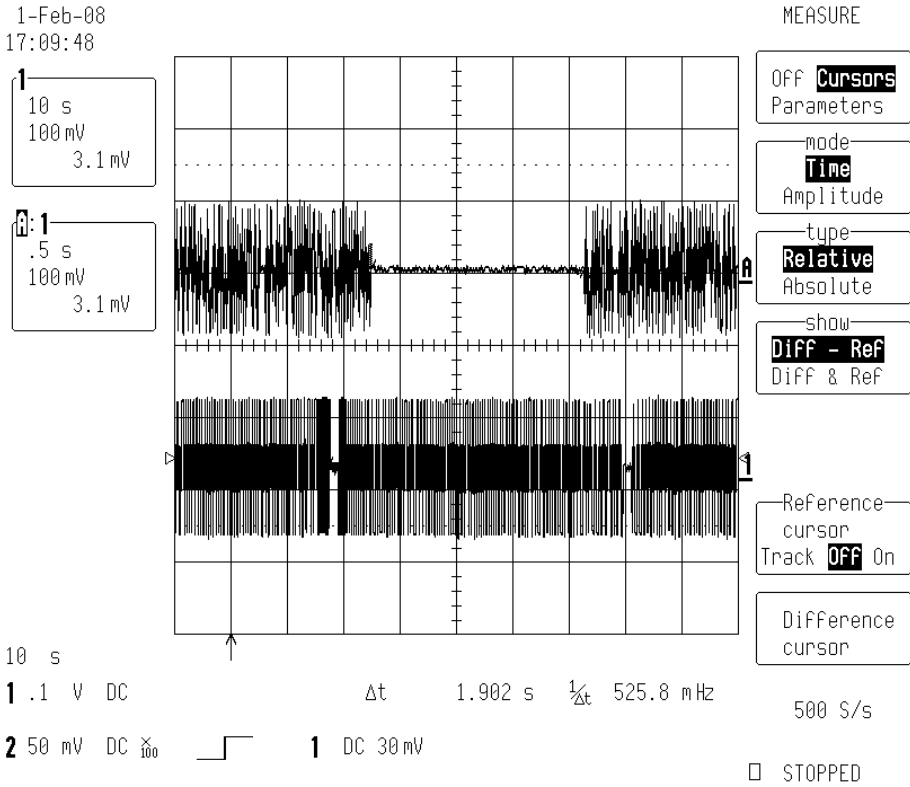
Ambient Temperature 24.1°C  
Atmospheric Pressure 1007mbar

### 2.20.7 Test Results

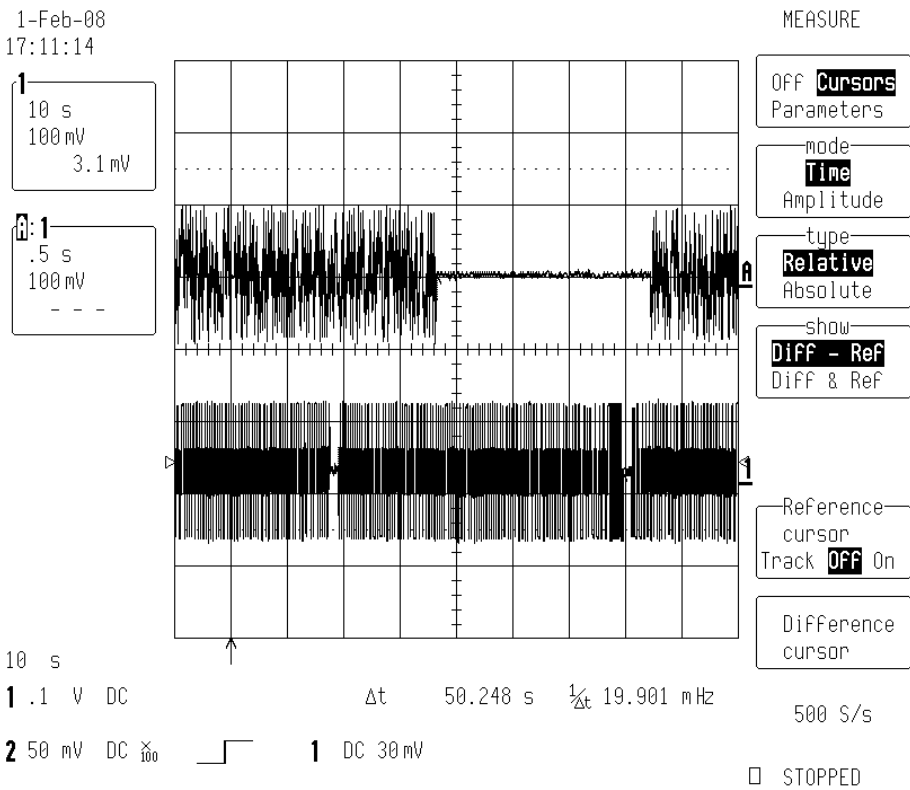
Parameter	Units	Test Results	
		T <sub>min</sub> (-20°C)	T <sub>max</sub> (+55°C)
121.5 MHz transmission interruption duration	seconds	1.904	1.902
121.5 MHz transmission interruption interval	seconds	46.940	50.248
Transmitter Duty Cycle	%	96.10	96.35



Product Service



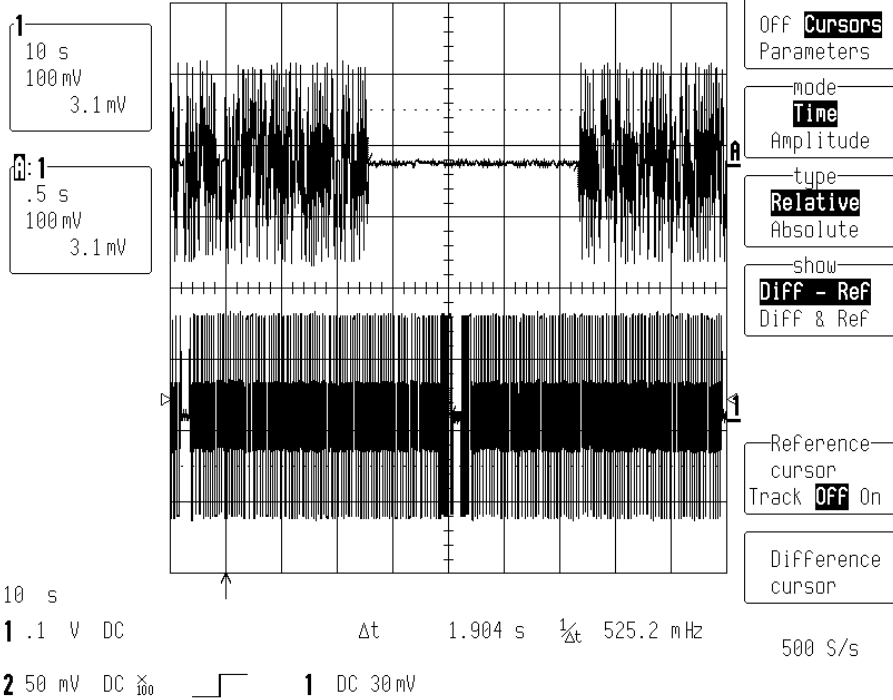
Plot showing 121.5MHz interruption duration (High Temperature, +55°C)



Plot showing 121.5MHz interruption interval (High Temperature, +55°C)

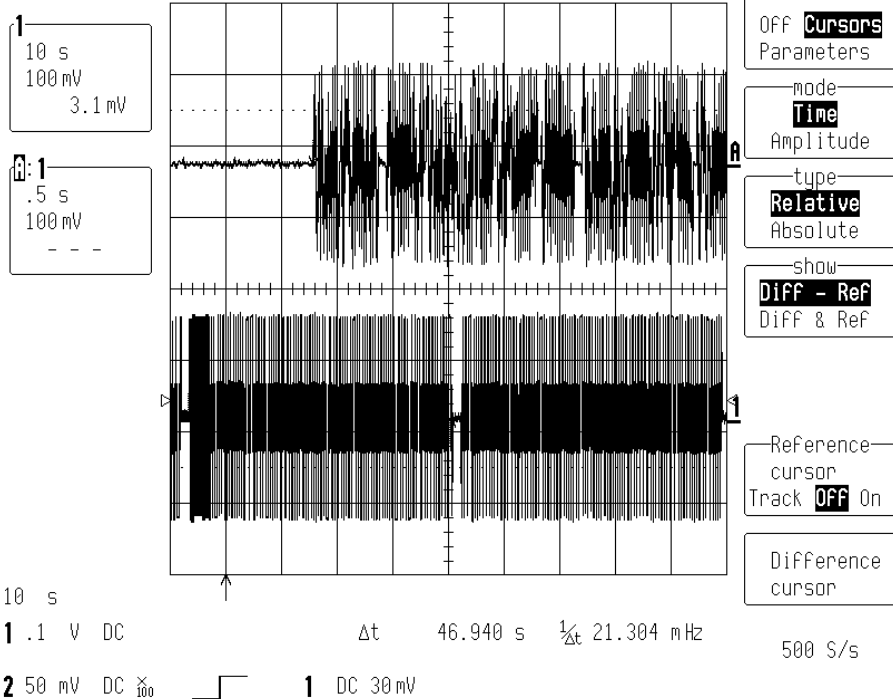


1-Feb-08  
15:29:22



Plot showing 121.5MHz interruption duration (Low Temperature, -20°C)

1-Feb-08  
15:28:06



Plot showing 121.5MHz interruption interval (Low Temperature, -20°C)



Product Service

**2.21 MODULATION CHARACTERISTICS (MODULATION FREQUENCY AND SWEEP REPETITION RATE, MODULATION DUTY CYCLE)****2.21.1 Specification Reference**

RTCM Paper 77-2002/SC110-STD, Clause A17.2

**2.21.2 Equipment Under Test**

MT403G EPIRB, Serial Number 33790

**2.21.3 Date of Test and Modification State**

01 February 2008 - Modification State 1

**2.21.4 Test Equipment Used**

The major items of test equipment used for the above tests are identified in Section 3.1.

**2.21.5 Test Set-up and Operating Modes**

The test was performed with the EUT in the following mode(s): Operating

**2.21.6 Environmental Conditions**

Ambient Temperature	23.8°C
Atmospheric Pressure	1004mbar



Product Service

**2.21.7 Test Results**

The EUT was connected to the automated test rack, the following results were obtained.

Parameter	Units	Test Results	
		T <sub>min</sub> (-20°C)	T <sub>max</sub> (+55°C)
Frequency Range	Hz	723.04	710.93
Minimum Frequency	Hz	439.12	437.79
Maximum Frequency	Hz	1162.16	1148.71
Sweep Direction	Upward / Downward	Downward	Downward
Modulation Duty Cycle	%	46.51	46.98
Sweep repetition rate	sweeps per second	2.86	2.83



Product Service

## 2.22 MODULATION CHARACTERISTICS (MODULATION FACTOR)

### 2.22.1 Specification Reference

RTCM Paper 77-2002/SC110-STD, Clause A17.2

### 2.22.2 Equipment Under Test

MT403G EPIRB, Serial Number 33790

### 2.22.3 Date of Test and Modification State

01 February 2008 - Modification State 1

### 2.22.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

### 2.22.5 Test Set-up and Operating Modes

The test was performed with the EUT in the following mode(s): Operating

### 2.22.6 Environmental Conditions

Ambient Temperature 23.4°C  
Atmospheric Pressure 999mbar

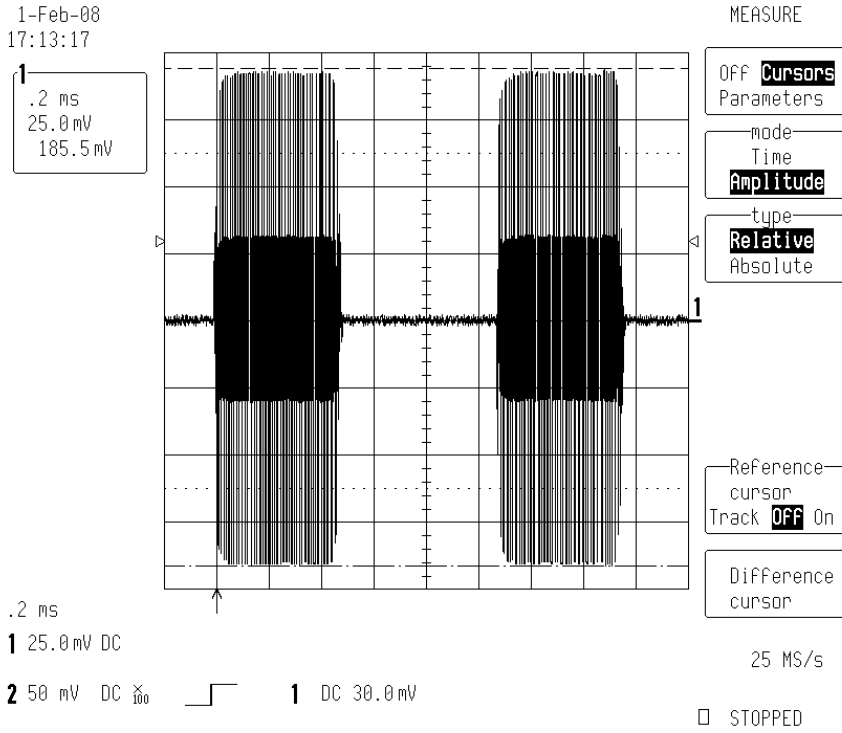
### 2.22.7 Test Results

Parameter	Units	Test Results	
		T <sub>min</sub> (-20°C)	T <sub>max</sub> (+55°C)
A	mv	292.20	185.50
B	mv	10.20	5.10
Modulation Duty Cycle		0.93	0.95

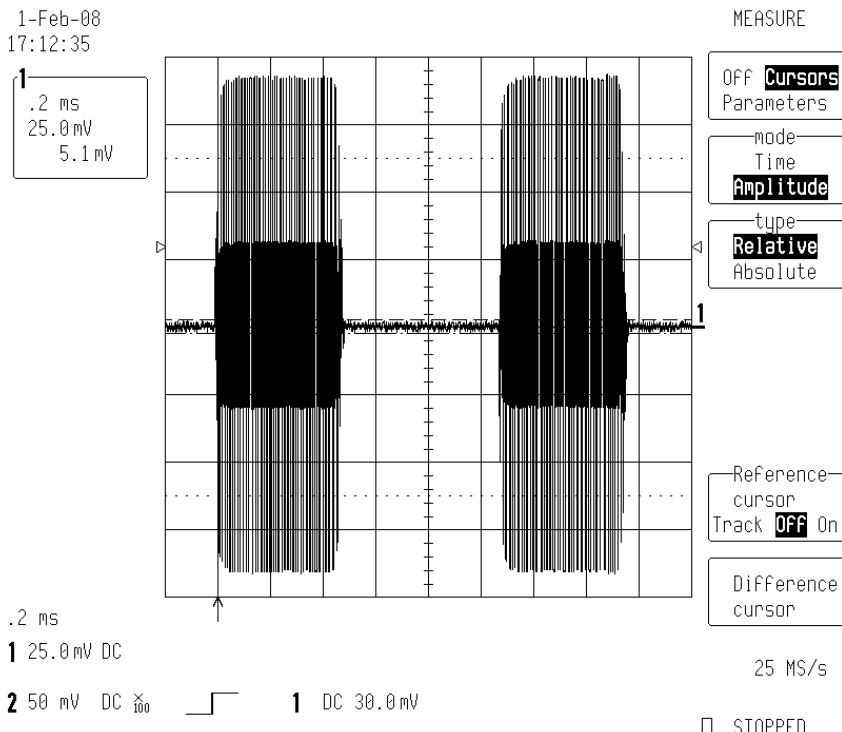




Product Service



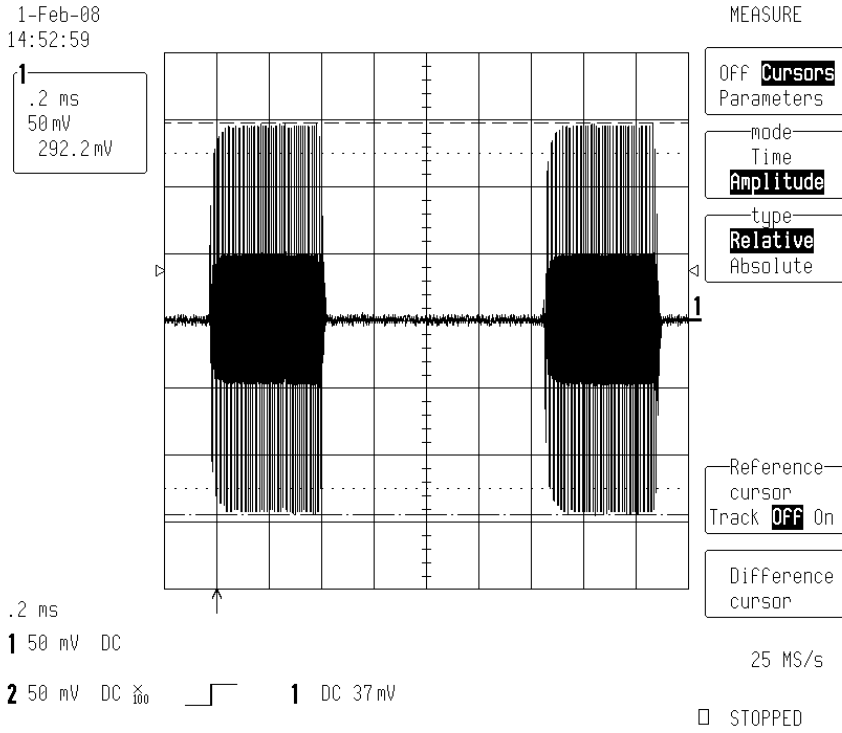
Plot showing "A" (Low Temperature, +55°C)



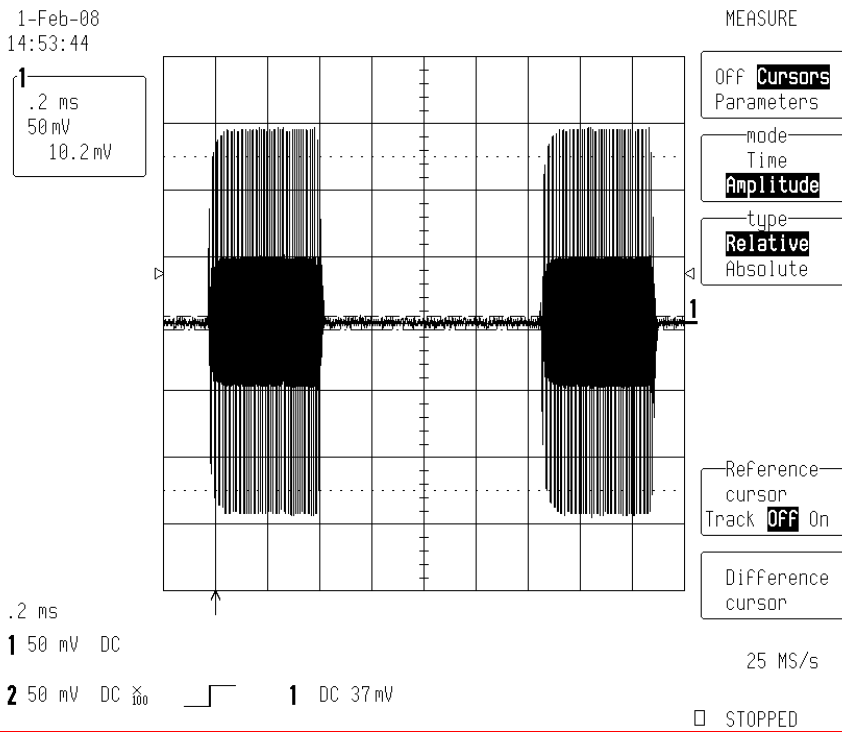
Plot Showing "B" (Low Temperature, +55°C)



Product Service



Plot showing "A" (Low Temperature, -20°C)



Plot Showing "B" (Low Temperature, -20°C)



Product Service

**2.23 MODULATION CHARACTERISTICS (FREQUENCY COHERENCE)****2.23.1 Specification Reference**

RTCM Paper 77-2002/SC110-STD, Clause A17.2

**2.23.2 Equipment Under Test**

MT403G EPIRB, Serial Number 33790

**2.23.3 Date of Test and Modification State**

04 February 2008 - Modification State 2

**2.23.4 Test Equipment Used**

The major items of test equipment used for the above tests are identified in Section 3.1.

**2.23.5 Test Set-up and Operating Modes**

The test was performed with the EUT in the following mode(s): Operating

**2.23.6 Environmental Conditions**

Ambient Temperature	24.6°C
Atmospheric Pressure	1005mbar

**2.23.7 Test Results**

The following plots show that 30% of the output power of the EUT does lie within  $\pm 30$ Hz of the carrier.

The frequency drift plots (with two traces) show the outline of the transmitted RF (121.5 MHz) before and after the interruption for the 406 MHz RF burst. It can be seen that the peaks are less than  $\pm 30$ Hz from one another. I.e. carrier did not shift by more than  $\pm 30$ Hz.



Product Service

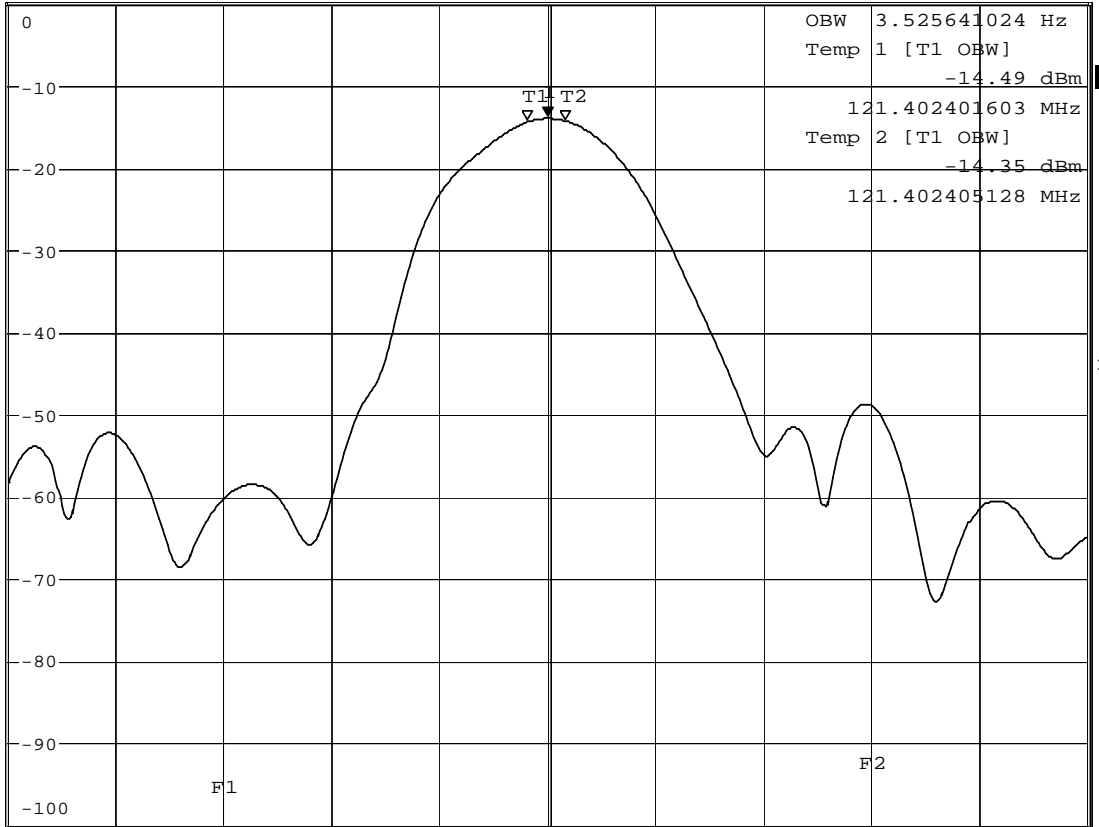


RBW 10 Hz      Marker 1 [T1 ]  
VBW 30 Hz      -14.05 dBm  
SWT 1 s      121.402403526 MHz

Ref 0 dBm

Att 5 dB

1 AP  
VIEW



Center 121.4024035 MHz      10 Hz/      Span 100 Hz

Date: 4.FEB.2008 13:16:33

Frequency Coherence – High (+55°C)



Product Service



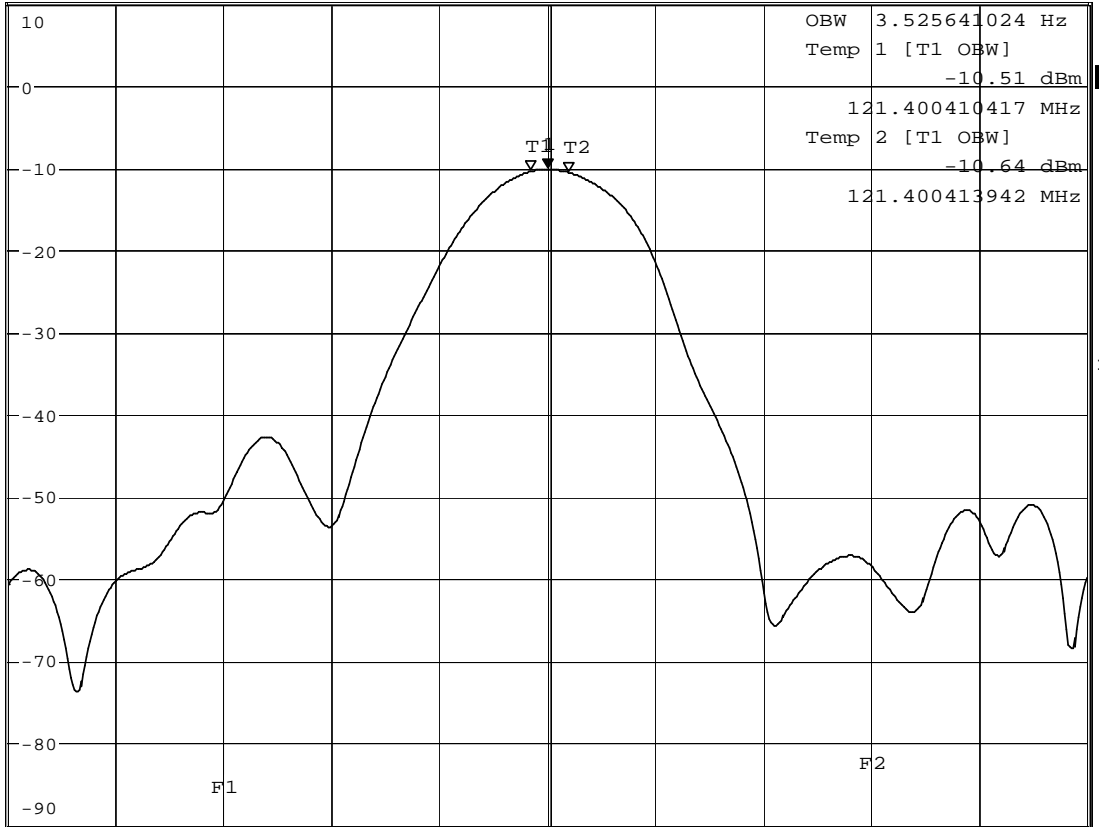
RBW 10 Hz  
 VBW 30 Hz  
 SWT 1 s

Marker 1 [T1 ]  
 -10.24 dBm  
 121.400412019 MHz

Ref 10 dBm

Att 15 dB

1 AP  
 VIEW



Center 121.400412 MHz      10 Hz/      Span 100 Hz

Date: 4.FEB.2008 16:47:05

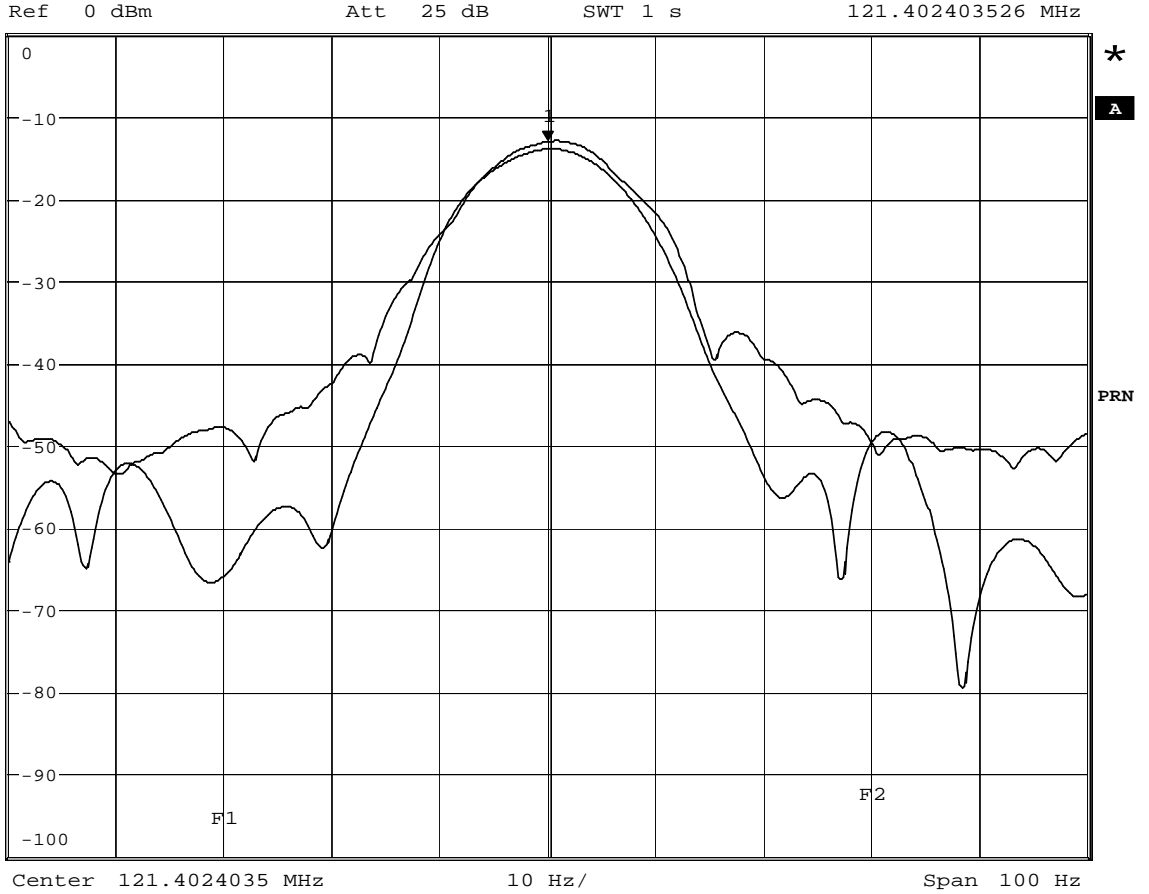
Frequency Coherence – Low (-20°C)



Product Service



RBW 10 Hz      Marker 1 [T1 ]  
VBW 30 Hz      -13.09 dBm  
SWT 1 s      121.402403526 MHz



Date: 4.FEB.2008 13:21:10

Frequency Drift – High (+55°C)



Product Service

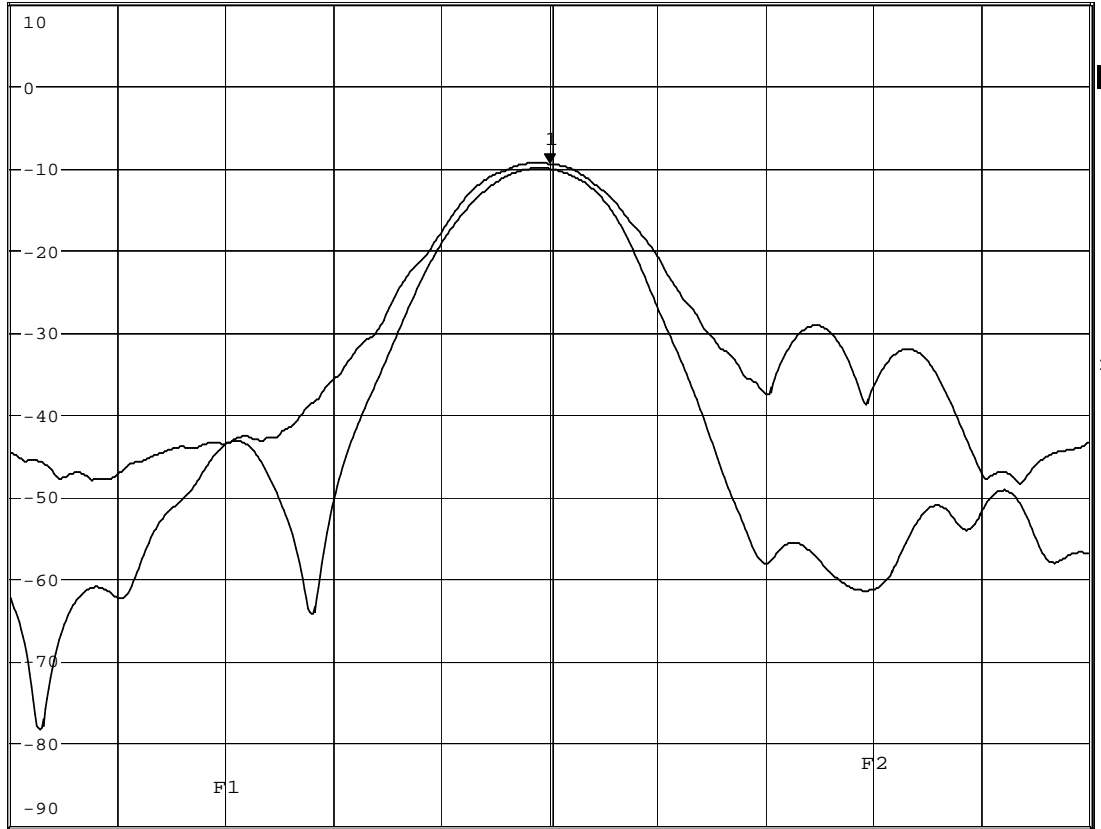


RBW 10 Hz  
VBW 30 Hz  
SWT 1 s  
Marker 1 [T1 ]  
-9.58 dBm  
121.400412019 MHz

Ref 10 dBm

Att 35 dB

1 PK  
MAXH  
2 AP  
VIEW



Center 121.400412 MHz 10 Hz/ Span 100 Hz

Date: 4.FEB.2008 16:49:00

Frequency Drift – Low (-20°C)



Product Service

## 2.24 PEAK EFFECTIVE RADIATED POWER

### 2.24.1 Specification Reference

RTCM Paper 77-2002/SC110-STD, Clause A17.3

### 2.24.2 Equipment Under Test

MT403G EPIRB, Serial Number 33790

### 2.24.3 Date of Test and Modification State

02 November 2007 - Modification State 1

### 2.24.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

### 2.24.5 Test Set-up and Operating Modes

The test was performed with the EUT in the following mode(s): Operating

### 2.24.6 Test Results

Note: EUT battery used for test had been operational in the same beacon for a duration of >44hours.

Measurements were made (in dBm) at an arbitrarily chosen azimuth angle across a range of elevation angles. Upon finding the maximum, the elevation was fixed and 12 measurements made at 30° azimuth increments.

These results (from the vertically polarised dipole) were converted to PERP in mW. See the following table.

Elevation (°)	Azimuth (°)											
	0	30	60	90	120	150	180	210	240	270	300	330
5	65.84	-	-	-	-	-	-	-	-	-	-	-
10	70.546	64.339	62.874	64.339	65.838	64.339	67.371	65.838	65.838	64.339	64.339	65.838
15	53.124	-	-	-	-	-	-	-	-	-	-	-
20	41.611	-	-	-	-	-	-	-	-	-	-	-

The median result was calculated to be 65.1mW, or 18.13dBm.

The ratio between the maximum and minimum values was calculated to be 1.1 (showing the antenna to be Omnidirectional)





Product Service

**2.25 VSWR MEASUREMENT**

**2.25.1 Specification Reference**

RTCM Paper 77-2002/SC110-STD, Clause A17.1

**2.25.2 Test Results**

Antenna is not removable, hence test is not applicable.



Product Service

**2.26 HUMIDITY TEST**

**2.26.1 Specification Reference**

RTCM Paper 77-2002/SC110-STD, Clause A18

**2.26.2 Equipment Under Test**

MT403G EPIRB, Serial Number 33790

**2.26.3 Date of Test and Modification State**

06 November 2007 - Modification State 1

**2.26.4 Test Equipment Used**

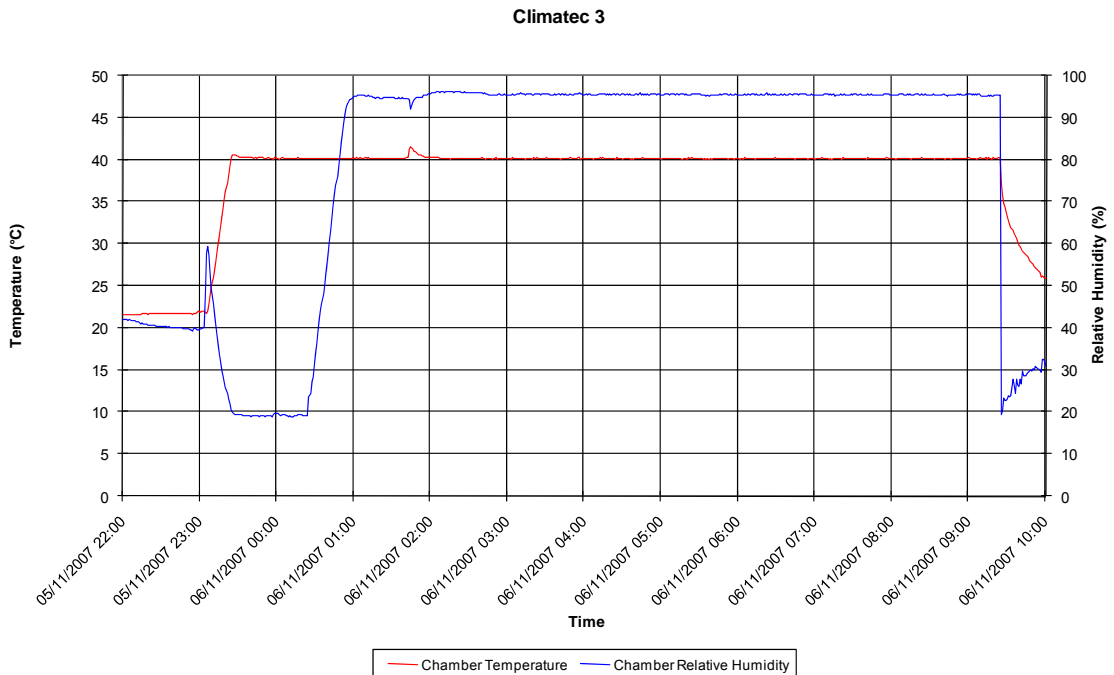
The major items of test equipment used for the above tests are identified in Section 3.1.

**2.26.5 Test Set-up and Operating Modes**

The test was performed with the EUT in the following mode(s): Idle

**2.26.6 Environmental Conditions**

Humidity Test Conditions Plot





Product Service

**2.26.7 Test Results**

The EUT was subjected to an Aliveness Test before the commencement of testing, see Beacon Test Report below.

05 November 2007

The EUT was dismantled, exposing the internal electrical components to the humid test environment.

The EUT was positioned in the climatic chamber. The chamber conditions were adjusted to +40°C, 97% RH. The chamber conditions were maintained for a period of 10 hours 20 minutes.

06 November 2007

The EUT was removed from the chamber into laboratory ambient conditions. The EUT was powered on immediately after being removed from the chamber. An Aliveness Test was performed 15 minutes after the EUT was removed from the chamber, see Beacon Test Report below.



Product Service

Beacon Test Report (Pre-test)

**Beacon Test Report**  
1D1E41FF3F81FE0

Organization:  
Tested By:  
Date: 05-Nov-07 5:58:15 PM  
Tester Model/Serial No./File Name: BT100S/1025/01666-Pre-HumFC-10  
Tester Cal Due Date: Nov 10, 2006  
Tester Temperature: 27°C

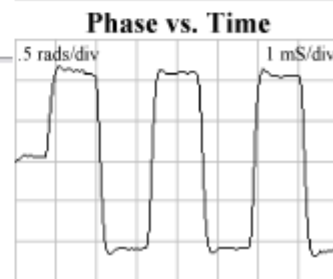
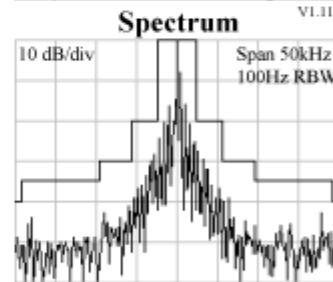
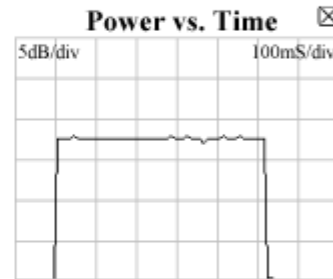
PASS       FAIL      INITIALS: \_\_\_\_\_

Notes: Add text comments here.

15 Hex ID: 1D1E41FF3F81FE0  
Full Hex: FFFE2F8E8F20FF9FC0FF01E585379F3C0010  
Burst Mode: Normal Mode (Long)  
Protocol: National Test Protocol  
Country 232: United Kingdom  
National ID #: 33790  
Position Source: Internal GPS  
Auxiliary Radio: 121.5 MHz  
Bits 107-109: Default  
National Use: Default  
Latitude: \* \* \* \* \*  
Longitude: \* \* \* \* \*

406 MHz Measurements  
406 Frequency (INT REF): 406.0373 MHz  
406 Power (INT ANT): 95%  
Power Rise Time: < 5 ms  
Phase Deviation: -1.09 +1.08 radians  
Modulation Rise Time: 177 uS  
Modulation Fall Time: 177 uS  
Modulation Symmetry: 1.2%  
Modulation Bit Rate: 399.5 bps  
CW Preamble: 159.7 ms

DISCLAIMER: IN NO EVENT SHALL WS TECHNOLOGIES INC. OR ITS DISTRIBUTORS OR AGENTS BE LIABLE FOR ANY DAMAGES OR LOSSES INCURRED AS A RESULT OF THE USE OR FAILURE OF THIS MEASUREMENT EQUIPMENT.



Beacon tester calibration status is TU (traceability unscheduled) therefore calibration due date should be ignored.



Product Service

Beacon Test Report (Pre-test)

**Beacon Test Report**  
1D1E41FF3F81FE0

Organization:  
Tested By:  
Date: 05-Nov-07 5:30:03 PM  
Tester Model/Serial No./File Name: BT100S/1025/01666-Pre-HumFC-1  
Tester Cal Due Date: Nov 10, 2006  
Tester Temperature: 21°C

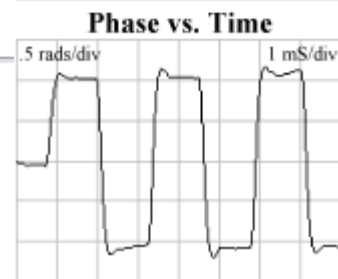
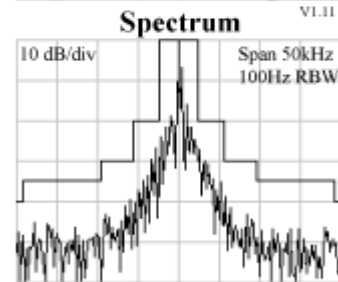
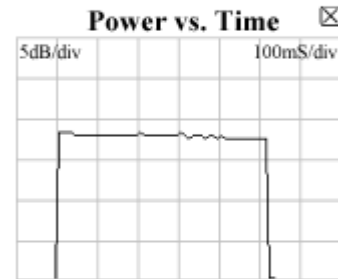
PASS       FAIL      INITIALS: \_\_\_\_\_

Notes: Add text comments here.

15 Hex ID: 1D1E41FF3F81FE0  
Full Hex: FFFED08E8F20FF9FC0FF01E585379F3C0010  
Burst Mode: Self Test Mode (Long)  
Protocol: National Test Protocol  
Country 232: United Kingdom  
National ID #: 33790  
Position Source: Internal GPS  
Auxiliary Radio: 121.5 MHz  
Bits 107-109: Default  
National Use: Default  
Latitude: \* \* \* \* \*  
Longitude: \* \* \* \* \*

406 MHz Measurements  
406 Frequency (INT REF): 406.0373 MHz  
406 Power (INT ANT): 60%  
Power Rise Time: < 5 ms  
Phase Deviation: -1.08 +1.03 radians  
Modulation Rise Time: 153 uS  
Modulation Fall Time: 165 uS  
Modulation Symmetry: 0.8%  
Modulation Bit Rate: 399.5 bps  
CW Preamble: 160 ms

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Beacon tester calibration status is TU (traceability unscheduled) therefore calibration due date should be ignored.



Product Service

Beacon Test Report (Post-Test)

**Beacon Test Report**  
**ID1E41FF3F81FE0**

Organization:  
 Tested By:  
 Date: 06-Nov-07 9:44:04 AM  
 Tester Model/Serial No./File Name: BT100S/1025/01666-Post-HumFC-8  
 Tester Cal Due Date: Nov 10, 2006  
 Tester Temperature: 24°C

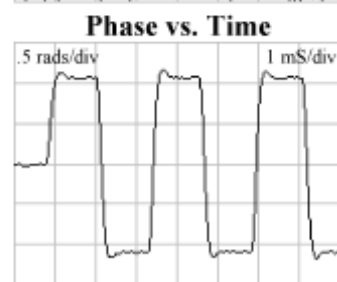
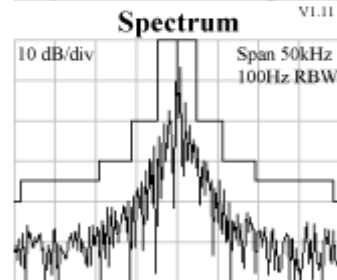
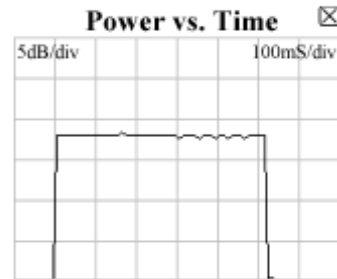
**PASS**       **FAIL**      **INITIALS:** \_\_\_\_\_

Notes: Add text comments here.

15 Hex ID: 1D1E41FF3F81FE0  
 Full Hex: FFFE2F8E8F20FF9FC0FF01E585379F3C0010  
 Burst Mode: Normal Mode (Long)  
 Protocol: National Test Protocol  
 Country 232: United Kingdom  
 National ID #: 33790  
 Position Source: Internal GPS  
 Auxiliary Radio: 121.5 MHz  
 Bits 107-109: Default  
 National Use: Default  
 Latitude: \* \* \* \* \*  
 Longitude: \* \* \* \* \*

406 MHz Measurements  
 406 Frequency (INT REF): 406.0372 MHz  
 406 Power (INT ANT): 70%  
 Power Rise Time: < 5 ms  
 Phase Deviation: -1.1 +1.07 radians  
 Modulation Rise Time: 153 uS  
 Modulation Fall Time: 165 uS  
 Modulation Symmetry: 1.2%  
 Modulation Bit Rate: 399.5 bps  
 CW Preamble: 158.8 ms

121.5 MHz Measurements  
 121 Frequency (INT REF): 121.5072 MHz  
 121 Power (INT ANT): 17%  
 Sweep Direction: Downwards  
 Audio Frequency: 437 Hz to 1375 Hz  
 Sweep Range: 938 Hz  
 Sweep Rep Rate: 2.8 Hz  
 Modulation Factor: N/A  
 Duty Cycle: 37 %



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Beacon tester calibration status is TU (traceability unscheduled) therefore calibration due date should be ignored.



Product Service

Beacon Test Report (Post-Test)

**Beacon Test Report**  
**ID1E41FF3F81FE0**

**Organization:**  
**Tested By:**  
**Date:** 06-Nov-07 9:28:40 AM  
**Tester Model/Serial No./File Name:** BT100S/1025/01666-Post-HumFC-2  
**Tester Cal Due Date:** Nov 10, 2006  
**Tester Temperature:** 24°C

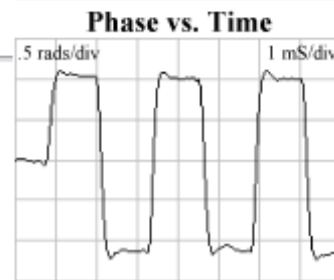
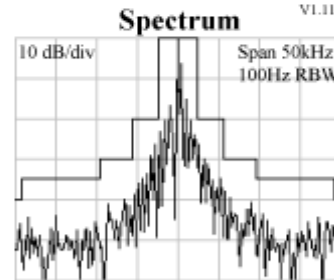
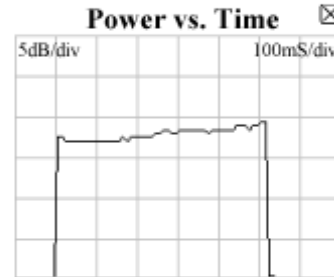
**PASS**       **FAIL**      **INITIALS:** \_\_\_\_\_

Notes: Add text comments here.

**15 Hex ID:** 1D1E41FF3F81FE0  
**Full Hex:** FFFED08E8F20FF9FC0FF01E585379F3C0010  
**Burst Mode:** Self Test Mode (Long)  
**Protocol:** National Test Protocol  
**Country 232:** United Kingdom  
**National ID #:** 33790  
**Position Source:** Internal GPS  
**Auxiliary Radio:** 121.5 MHz  
**Bits 107-109:** Default  
**National Use:** Default  
**Latitude:** \* \*\*\*\* \*  
**Longitude:** \* \*\*\*\* \*

**406 MHz Measurements**  
**406 Frequency (INT REF):** 406.0372 MHz  
**406 Power (INT ANT):** 53%  
**Power Rise Time:** < 5 ms  
**Phase Deviation:** -1.13 +1.02 radians  
**Modulation Rise Time:** 165 uS  
**Modulation Fall Time:** 165 uS  
**Modulation Symmetry:** 1.2%  
**Modulation Bit Rate:** 399.5 bps  
**CW Preamble:** 159.1 ms

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Beacon tester calibration status is TU (traceability unscheduled) therefore calibration due date should be ignored.



Product Service

**2.27 ORIENTATION TEST****2.27.1 Specification Reference**

RTCM Paper 77-2002/SC110-STD, Clause A17.1

**2.27.2 Equipment Under Test**

MT403G EPIRB, Serial Number 33790

**2.27.3 Date of Test and Modification State**

28 February 2008 - Modification State 2

**2.27.4 Test Equipment Used**

The major items of test equipment used for the above tests are identified in Section 3.1.

**2.27.5 Test Set-up and Operating Modes**

The test was performed with the EUT in the following mode(s): Operating

**2.27.6 Environmental Conditions**

Ambient Temperature	23.1°C
Relative Humidity	58.5%
Atmospheric Pressure	1013mbar





Product Service

2.27.7 Test Results

Beacon Orientation – Vertical (Initial)

**Beacon Test Report**

1925E847E2FFBFF

Organization: TÜV Product Service Ltd  
 Tested By: Emergency Beacons Dept.  
 Date: 2/28/08 2:45:13 PM  
 Tester Model/Serial No./File Name: BT100S/1025/1666orientap1-1  
 Tester Cal Due Date: Nov 10, 2006  
 Tester Temperature: 24°C

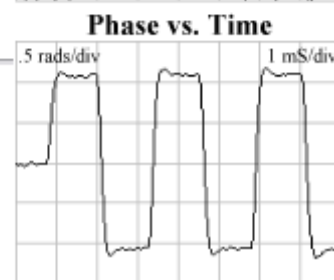
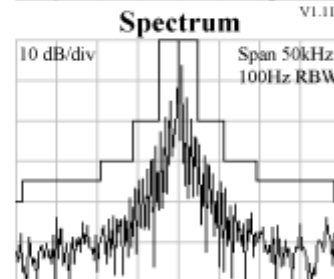
PASS       FAIL      INITIALS: \_\_\_\_\_

Notes: Add text comments here.

15 Hex ID: 1925E847E2FFBFF  
 Full Hex: FFFE2F8C92F423F17FDF90DB83783E0F66C  
 Burst Mode: Normal Mode (Long)  
 Protocol: EPIRB MMSI SLP Protocol  
 Country 201: Albania  
 MMSI: 999999  
 Beacon Number: 1  
 Position Source: Internal GPS  
 Auxiliary Radio: 121.5 MHz  
 Bits 107-110: Default  
 Latitude: \* \* \* \* \*  
 Longitude: \* \* \* \* \*

406 MHz Measurements  
 406 Frequency (INT REF): 406.0373 MHz  
 406 Power (5 Watt): 29.2 dBm  
 Power Rise Time: < 5 ms  
 Phase Deviation: -1.07 +1.09 radians  
 Modulation Rise Time: 165 uS  
 Modulation Fall Time: 165 uS  
 Modulation Symmetry: 1.2%  
 Modulation Bit Rate: 399.7 bps  
 CW Preamble: 159.6 ms

DISCLAIMER: IN NO EVENT SHALL WS TECHNOLOGIES INC. OR ITS DISTRIBUTORS OR AGENTS BE LIABLE FOR ANY DAMAGES OR LOSSES INCURRED AS A RESULT OF THE USE OR FAILURE OF THIS MEASUREMENT EQUIPMENT.



Beacon tester calibration status is TU (traceability unscheduled) therefore calibration due date should be ignored.



Product Service

Beacon Orientation – Vertical (Initial)

**Beacon Test Report**  
1925E847E2FFBFF

Organization: TÜV Product Service Ltd  
 Tested By: Emergency Beacons Dept.  
 Date: 2/28/08 2:45:29 PM  
 Tester Model/Serial No./File Name: BT100S/1025/1666orientup1-2  
 Tester Cal Due Date: Nov 10, 2006  
 Tester Temperature: 24°C

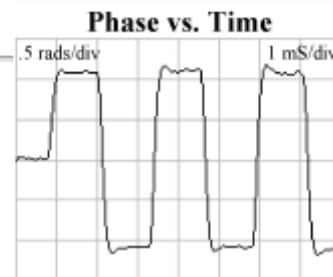
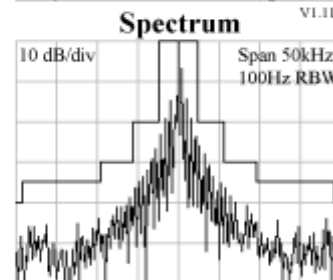
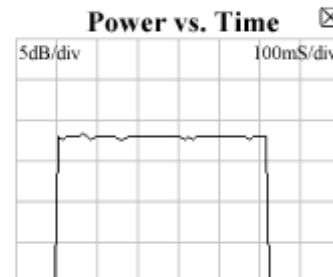
PASS       FAIL      INITIALS: \_\_\_\_\_

Notes: Add text comments here.

15 Hex ID: 1925E847E2FFBFF  
 Full Hex: FFFED08C92F423F17FDFF90DB83783E0F66C  
 Burst Mode: Self Test Mode (Long)  
 Protocol: EPIRB MMSI SLP Protocol  
 Country 201: Albania  
 MMSI: 9999999  
 Beacon Number: 1  
 Position Source: Internal GPS  
 Auxiliary Radio: 121.5 MHz  
 Bits 107-110: Default  
 Latitude: \* \* \* \* \*  
 Longitude: \* \* \* \* \*

406 MHz Measurements  
 406 Frequency (INT REF): 406.0373 MHz  
 406 Power (5 Watt): 29.2 dBm  
 Power Rise Time: < 5 ms  
 Phase Deviation: -1.09 +1.1 radians  
 Modulation Rise Time: 177 uS  
 Modulation Fall Time: 165 uS  
 Modulation Symmetry: 1.2%  
 Modulation Bit Rate: 399.5 bps  
 CW Preamble: 159.5 ms

DISCLAIMER: IN NO EVENT SHALL WS TECHNOLOGIES INC. OR ITS DISTRIBUTORS OR AGENTS BE LIABLE FOR ANY DAMAGES OR LOSSES INCURRED AS A RESULT OF THE USE OR FAILURE OF THIS MEASUREMENT EQUIPMENT.



Beacon tester calibration status is TU (traceability unscheduled) therefore calibration due date should be ignored.



Product Service

Beacon Orientation – Horizontal

**Beacon Test Report**

1925E847E2FFBFF

Organization: TÜV Product Service Ltd  
 Tested By: Emergency Beacons Dept.  
 Date: 2/28/08 2:48:42 PM  
 Tester Model/Serial No./File Name: BT100S/1025/1666orientside—1  
 Tester Cal Due Date: Nov 10, 2006  
 Tester Temperature: 24°C

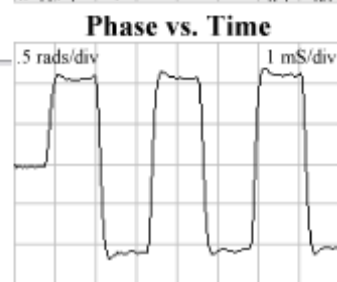
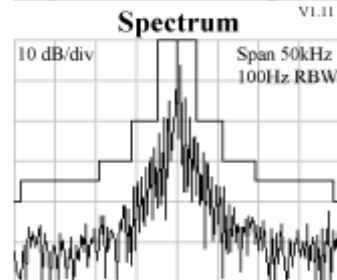
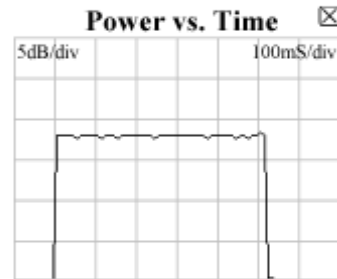
PASS       FAIL      INITIALS: \_\_\_\_\_

Notes: Add text comments here.

15 Hex ID: 1925E847E2FFBFF  
 Full Hex: FFFE2F8C92F423F17FDFF90DB83783E0F66C  
 Burst Mode: Normal Mode (Long)  
 Protocol: EPIRB MMSI SLP Protocol  
 Country 201: Albania  
 MMSI: 999999  
 Beacon Number: 1  
 Position Source: Internal GPS  
 Auxiliary Radio: 121.5 MHz  
 Bits 107-110: Default  
 Latitude: \* \* \* \* \*  
 Longitude: \* \* \* \* \*

406 MHz Measurements  
 406 Frequency (INT REF): 406.0373 MHz  
 406 Power (5 Watt): 29.2 dBm  
 Power Rise Time: < 5 ms  
 Phase Deviation: -1.1 +1.07 radians  
 Modulation Rise Time: 177 uS  
 Modulation Fall Time: 177 uS  
 Modulation Symmetry: 1.2%  
 Modulation Bit Rate: 399.7 bps  
 CW Preamble: 159.5 ms

DISCLAIMER: IN NO EVENT SHALL WS TECHNOLOGIES INC. OR ITS DISTRIBUTORS OR AGENTS BE LIABLE FOR ANY DAMAGES OR LOSSES INCURRED AS A RESULT OF THE USE OR FAILURE OF THIS MEASUREMENT EQUIPMENT.



Beacon tester calibration status is TU (traceability unscheduled) therefore calibration due date should be ignored.



Product Service

Beacon Orientation – Horizontal

**Beacon Test Report**  
1925E847E2FFBFF

Organization: TÜV Product Service Ltd  
 Tested By: Emergency Beacons Dept.  
 Date: 2/28/08 2:48:59 PM  
 Tester Model/Serial No./File Name: BT100S/1025/1666orientside—2  
 Tester Cal Due Date: Nov 10, 2006  
 Tester Temperature: 24°C

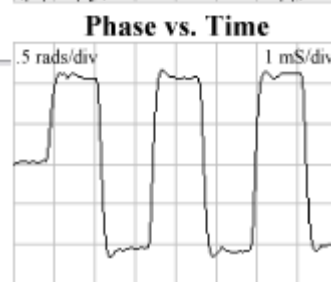
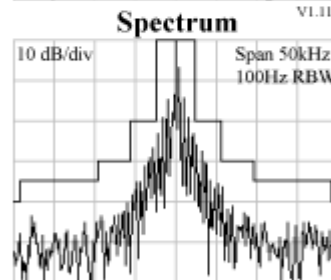
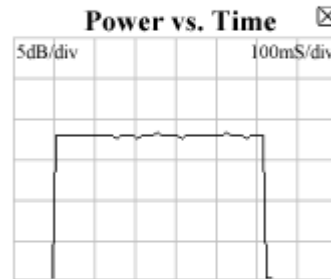
PASS       FAIL      INITIALS: \_\_\_\_\_

Notes: Add text comments here.

15 Hex ID: 1925E847E2FFBFF  
 Full Hex: FFFED08C92F423F17FDFF90DB83783E0F66C  
 Burst Mode: Self Test Mode (Long)  
 Protocol: EPIRB MMSI SLP Protocol  
 Country 201: Albania  
 MMSI: 999999  
 Beacon Number: 1  
 Position Source: Internal GPS  
 Auxiliary Radio: 121.5 MHz  
 Bits 107-110: Default  
 Latitude: \* \* \* \* \*  
 Longitude: \* \* \* \* \*

406 MHz Measurements  
 406 Frequency (INT REF): 406.0373 MHz  
 406 Power (5 Watt): 29.3 dBm  
 Power Rise Time: < 5 ms  
 Phase Deviation: -1.07 +1.07 radians  
 Modulation Rise Time: 177 uS  
 Modulation Fall Time: 177 uS  
 Modulation Symmetry: 1.2%  
 Modulation Bit Rate: 399.5 bps  
 CW Preamble: 159.5 ms

DISCLAIMER: IN NO EVENT SHALL WS TECHNOLOGIES INC. OR ITS DISTRIBUTORS OR AGENTS BE LIABLE FOR ANY DAMAGES OR LOSSES INCURRED AS A RESULT OF THE USE OR FAILURE OF THIS MEASUREMENT EQUIPMENT.



Beacon tester calibration status is TU (traceability unscheduled) therefore calibration due date should be ignored.



Product Service

Beacon Orientation – Inverted

**Beacon Test Report**

1925E847E2FFBFF

Organization: TÜV Product Service Ltd  
 Tested By: Emergency Beacons Dept.  
 Date: 2/28/08 2:52:41 PM  
 Tester Model/Serial No./File Name: BT100S/1025/1666orientinvert—1  
 Tester Cal Due Date: Nov 10, 2006  
 Tester Temperature: 25°C

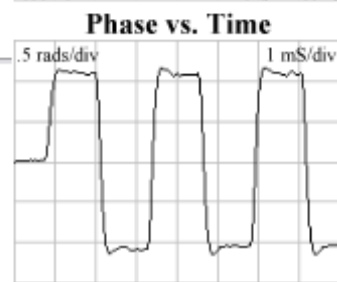
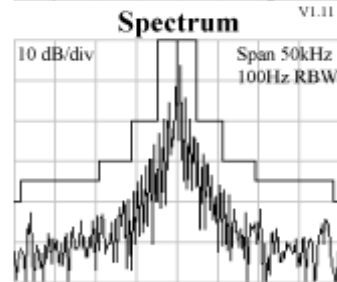
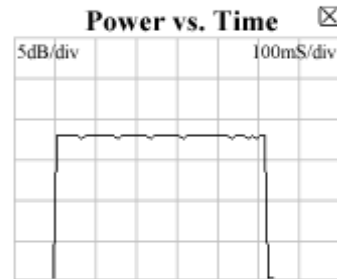
PASS       FAIL      INITIALS: \_\_\_\_\_

Notes: Add text comments here.

15 Hex ID: 1925E847E2FFBFF  
 Full Hex: FFFE2F8C92F423F17FDFF90DB83783E0F66C  
 Burst Mode: Normal Mode (Long)  
 Protocol: EPIRB MMSI SLP Protocol  
 Country 201: Albania  
 MMSI: 999999  
 Beacon Number: 1  
 Position Source: Internal GPS  
 Auxiliary Radio: 121.5 MHz  
 Bits 107-110: Default  
 Latitude: \* \* \* \* \*  
 Longitude: \* \* \* \* \*

406 MHz Measurements  
 406 Frequency (INT REF): 406.0373 MHz  
 406 Power (5 Watt): 29.4 dBm  
 Power Rise Time: < 5 ms  
 Phase Deviation: -1.08 +1.09 radians  
 Modulation Rise Time: 165 uS  
 Modulation Fall Time: 177 uS  
 Modulation Symmetry: 1.2%  
 Modulation Bit Rate: 399.7 bps  
 CW Preamble: 158.6 ms

DISCLAIMER: IN NO EVENT SHALL WS TECHNOLOGIES INC. OR ITS DISTRIBUTORS OR AGENTS BE LIABLE FOR ANY DAMAGES OR LOSSES INCURRED AS A RESULT OF THE USE OR FAILURE OF THIS MEASUREMENT EQUIPMENT.



Beacon tester calibration status is TU (traceability unscheduled) therefore calibration due date should be ignored.



Product Service

Beacon Orientation – Inverted

**Beacon Test Report**  
1925E847E2FFBFF

Organization: TÜV Product Service Ltd  
 Tested By: Emergency Beacons Dept.  
 Date: 2/28/08 2:53:05 PM  
 Tester Model/Serial No./File Name: BT100S/1025/1666orientinvert—2  
 Tester Cal Due Date: Nov 10, 2006  
 Tester Temperature: 25°C

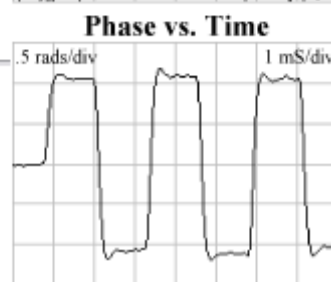
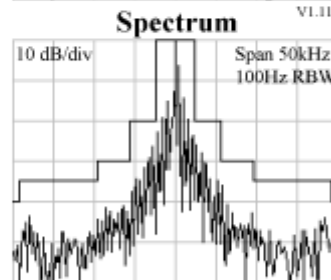
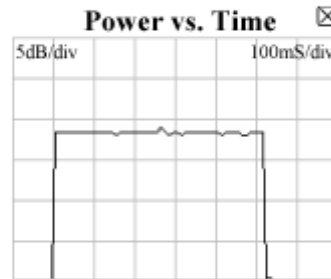
PASS       FAIL      INITIALS: \_\_\_\_\_

Notes: Add text comments here.

15 Hex ID: 1925E847E2FFBFF  
 Full Hex: FFFED08C92F423F17FDFF90DB83783E0F66C  
 Burst Mode: Self Test Mode (Long)  
 Protocol: EPIRB MMSI SLP Protocol  
 Country 201: Albania  
 MMSI: 999999  
 Beacon Number: 1  
 Position Source: Internal GPS  
 Auxiliary Radio: 121.5 MHz  
 Bits 107-110: Default  
 Latitude: \* \* \* \* \*  
 Longitude: \* \* \* \* \*

406 MHz Measurements  
 406 Frequency (INT REF): 406.0373 MHz  
 406 Power (5 Watt): 29.2 dBm  
 Power Rise Time: < 5 ms  
 Phase Deviation: -1.08 +1.09 radians  
 Modulation Rise Time: 177 uS  
 Modulation Fall Time: 165 uS  
 Modulation Symmetry: 1.2%  
 Modulation Bit Rate: 399.7 bps  
 CW Preamble: 159.8 ms

DISCLAIMER: IN NO EVENT SHALL WS TECHNOLOGIES INC. OR ITS DISTRIBUTORS OR AGENTS BE LIABLE FOR ANY DAMAGES OR LOSSES INCURRED AS A RESULT OF THE USE OR FAILURE OF THIS MEASUREMENT EQUIPMENT.



Beacon tester calibration status is TU (traceability unscheduled) therefore calibration due date should be ignored.



Product Service

Beacon Orientation – Vertical

**Beacon Test Report**  
1925E847E2FFBFF

Organization: TÜV Product Service Ltd  
 Tested By: Emergency Beacons Dept.  
 Date: 2/28/08 3:01:53 PM  
 Tester Model/Serial No./File Name: BT100S/1025/1666orientup2--1  
 Tester Cal Due Date: Nov 10, 2006  
 Tester Temperature: 26°C

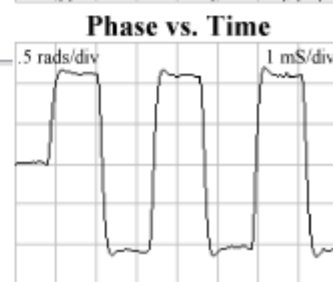
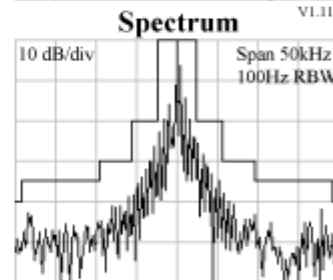
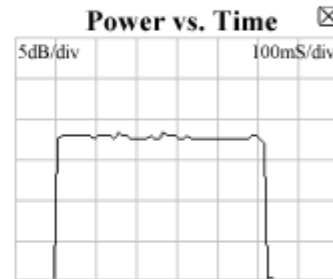
PASS       FAIL      INITIALS: \_\_\_\_\_

Notes: Add text comments here.

15 Hex ID: 1925E847E2FFBFF  
 Full Hex: FFFE2F8C92F423F17FDFF90DB83783E0F66C  
 Burst Mode: Normal Mode (Long)  
 Protocol: EPIRB MMSI SLP Protocol  
 Country 201: Albania  
 MMSI: 999999  
 Beacon Number: 1  
 Position Source: Internal GPS  
 Auxiliary Radio: 121.5 MHz  
 Bits 107-110: Default  
 Latitude: \* \* \* \* \*  
 Longitude: \* \* \* \* \*

406 MHz Measurements  
 406 Frequency (INT REF): 406.0373 MHz  
 406 Power (5 Watt): 29.2 dBm  
 Power Rise Time: < 5 ms  
 Phase Deviation: -1.08 +1.1 radians  
 Modulation Rise Time: 177 uS  
 Modulation Fall Time: 188 uS  
 Modulation Symmetry: 1.6%  
 Modulation Bit Rate: 399.5 bps  
 CW Preamble: 159.2 ms

DISCLAIMER: IN NO EVENT SHALL WS TECHNOLOGIES INC. OR ITS DISTRIBUTORS OR AGENTS BE LIABLE FOR ANY DAMAGES OR LOSSES INCURRED AS A RESULT OF THE USE OR FAILURE OF THIS MEASUREMENT EQUIPMENT.



Beacon tester calibration status is TU (traceability unscheduled) therefore calibration due date should be ignored.



Product Service

Beacon Orientation – Vertical

**Beacon Test Report**  
1925E847E2FFBFF

Organization: TÜV Product Service Ltd  
 Tested By: Emergency Beacons Dept.  
 Date: 2/28/08 3:02:19 PM  
 Tester Model/Serial No./File Name: BT100S/1025/1666orientup2--2  
 Tester Cal Due Date: Nov 10, 2006  
 Tester Temperature: 26°C

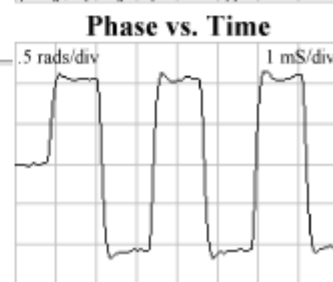
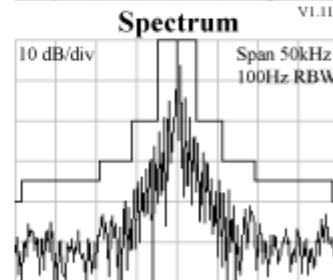
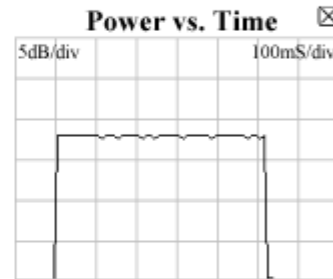
PASS       FAIL      INITIALS: \_\_\_\_\_

Notes: Add text comments here.

15 Hex ID: 1925E847E2FFBFF  
 Full Hex: FFFED08C92F423F17FDFF90DB83783E0F66C  
 Burst Mode: Self Test Mode (Long)  
 Protocol: EPIRB MMSI SLP Protocol  
 Country 201: Albania  
 MMSI: 999999  
 Beacon Number: 1  
 Position Source: Internal GPS  
 Auxiliary Radio: 121.5 MHz  
 Bits 107-110: Default  
 Latitude: \* \* \* \* \*  
 Longitude: \* \* \* \* \*

406 MHz Measurements  
 406 Frequency (INT REF): 406.0373 MHz  
 406 Power (5 Watt): 29.1 dBm  
 Power Rise Time: < 5 ms  
 Phase Deviation: -1.09 +1.05 radians  
 Modulation Rise Time: 177 uS  
 Modulation Fall Time: 177 uS  
 Modulation Symmetry: 0.8%  
 Modulation Bit Rate: 399.5 bps  
 CW Preamble: 159.6 ms

DISCLAIMER: IN NO EVENT SHALL WS TECHNOLOGIES INC. OR ITS DISTRIBUTORS OR AGENTS BE LIABLE FOR ANY DAMAGES OR LOSSES INCURRED AS A RESULT OF THE USE OR FAILURE OF THIS MEASUREMENT EQUIPMENT.



Beacon tester calibration status is TU (traceability unscheduled) therefore calibration due date should be ignored.





Product Service

### **SECTION 3**

#### **TEST EQUIPMENT USED**



### 3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
<b>Section 2.23 Beacons - 121 Frequency Coherence</b>					
Climatic Chamber	Heraeus Votsch	VMT 04/30	40	-	O/P Mon
Signal Generator	Hewlett Packard	3336C	1189	12	19-Jul-2008
Spectrum Analyser	Rohde & Schwarz	FSU26	2747	12	24-Jul-2008
Hygrometer	Rotronic	I-1000	3068	12	25-Apr-2008
Thermocouple Thermometer	Fluke	51	3174	12	18-Jun-2008
Cable (1m, N Type)	Rhophase	NPS-1601-1000-NPS	3354	12	18-Apr-2008
Cable (2m, N Type)	Rhophase	NPS-1601-2000-NPS	3355	12	18-Apr-2008
Bandpass Filter	Trilithic	5BE121.55/35-3-BA	3410	12	28-Jul-2008
<b>Section 2.22 Beacons - 121 Modulation Factor</b>					
Climatic Chamber	Heraeus Votsch	VMT 04/30	40	-	O/P Mon
Attenuator 10dB/10W)	Trilithic	HFP-50N	454	12	19-Jul-2008
Attenuator (10dB)	Weinschel	47-10-34	481	12	26-Feb-2008
1GHz Digital Oscilloscope	Lecroy	9370M	612	12	24-Sep-2008
Attenuator (3dB, 20W)	Aeroflex / Weinschel	23-3-34	3161	12	30-May-2008
Thermocouple Thermometer	Fluke	51	3174	12	18-Jun-2008
Bandpass Filter	Trilithic	5BE406/35-1-AA	3205	12	28-Jul-2008
Power Divider (N) 1W	Weinschel	1506A	3344	12	10-Apr-2008
Cable (1m, N Type)	Rhophase	NPS-1601-1000-NPS	3353	12	18-Apr-2008
Cable (1m, N Type)	Rhophase	NPS-1601-1000-NPS	3354		18-Apr-2008



Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
<b>Section 2.22 Beacons - 121 Modulation Factor</b>					
Cable (2m, N Type)	Rhophase	NPS-1601-2000-NPS	3355	12	18-Apr-2008
Bandpass Filter	Trilithic	5BE121.55/35-3-BA	3410	12	28-Jul-2008
<b>Section 2.21 Beacons - 121 Modulation Characteristics</b>					
Climatic Chamber	Heraeus Votsch	VMT 04/30	40	-	O/P Mon
Beacon RF Unit	TUV	N/A	97	-	TU
Time Interval Analyser	Yokogawa	TA720	181	12	21-Feb-2008
Amplifier	Mini-Circuits	ZHL-1042J	474	12	4-Jun-2008
Attenuator (10dB)	Weinschel	47-10-34	481	12	26-Feb-2008
Signal Generator	Hewlett Packard	8664A	1183	12	3-Aug-2008
Multimeter	Iso-tech	Iso Tech IDM101	2421	12	13-Aug-2008
Termination (50ohm, 15W)	Radio Spares	612-192	2425	12	5-Sep-2008
Distress Beacon RF Unit	TUV		2445	-	TU
Power Supply Unit	Kingshill	36V-5C	2753	-	O/P Mon
Beacon RF Unit	TUV	N/A	3066	-	TU
Hygrometer	Rotronic	I-1000	3068	12	25-Apr-2008
Termination (50ohm, 1W)	Suhner		3080	12	24-Feb-2008
Termination (50ohm, 2W)	Omni-Spectra	3001-6100	3081	12	24-Feb-2008
Termination (50ohm, 15W)	Diamond Antenna	DL-30N	3096	12	16-Mar-2008
Termination (50ohm, 15W)	Diamond Antenna	DL-30N	3097	12	16-Mar-2008
Attenuator (20dB, 10W)	Aeroflex / Weinschel	23-20-34	3158	12	30-May-2008
Attenuator (20dB, 10W)	Aeroflex / Weinschel	23-20-34	3160	12	30-May-2008
Attenuator (3dB, 20W)	Aeroflex / Weinschel	23-3-34	3161	12	30-May-2008
Attenuator (3dB, 20W)	Aeroflex / Weinschel	23-3-34	3162	12	19-Jun-2008



Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
<b>Section 2.21 Beacons - 121 Modulation Characteristics</b>					
Attenuator (3dB, 20W)	Aeroflex / Weinschel	23-3-34	3163	12	30-May-2008
Thermocouple Thermometer	Fluke	51	3174	12	18-Jun-2008
Bandpass Filter	Trilithic	5BE406/35-1-AA	3205	12	28-Jul-2008
Bandpass filter	Trilithic	5BE406/35-1-AA	3206	12	28-Jul-2008
Time Interval Analyser	Yokogawa	TA720 704510	3253	12	6-Nov-2008
Scope Corder	Yokogawa	DL750 701210	3254	12	6-Nov-2008
Power Divider (N) 1W	Weinschel	1506A	3344	12	10-Apr-2008
Cable (1m, N Type)	Rhophase	NPS-1601-1000-NPS	3351	12	18-Apr-2008
Cable (1m, N Type)	Rhophase	NPS-1601-1000-NPS	3353	12	18-Apr-2008
Cable (1m, N Type)	Rhophase	NPS-1601-1000-NPS	3354	12	18-Apr-2008
Cable (2m, N Type)	Rhophase	NPS-1601-2000-NPS	3355	12	18-Apr-2008
Cable (2m, N Type)	Rhophase	NPS-1601-2000-NPS	3359	12	18-Apr-2008
Bandpass Filter	Trilithic	5BE121.55/35-3-BA	3410	12	28-Jul-2008
<b>Section 2.20 Beacons - 121 Transmitter Duty Cycle</b>					
Climatic Chamber	Heraeus Votsch	VMT 04/30	40	-	O/P Mon
Attenuator 10dB/10W)	Trilithic	HFP-50N	454	12	19-Jul-2008
Attenuator (10dB)	Weinschel	47-10-34	481	12	26-Feb-2008
1GHz Digital Oscilloscope	Lecroy	9370M	612	12	24-Sep-2008
Attenuator (3dB, 20W)	Aeroflex / Weinschel	23-3-34	3161	12	30-May-2008
Thermocouple Thermometer	Fluke	51	3174	12	18-Jun-2008



Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
<b>Section 2.20 Beacons - 121 Transmitter Duty Cycle</b>					
Bandpass Filter	Trilithic	5BE406/35-1-AA	3205	12	28-Jul-2008
Power Divider (N) 1W	Weinschel	1506A	3344	12	10-Apr-2008
Cable (1m, N Type)	Rhophase	NPS-1601-1000-NPS	3353	12	18-Apr-2008
Cable (1m, N Type)	Rhophase	NPS-1601-1000-NPS	3354		18-Apr-2008
Cable (2m, N Type)	Rhophase	NPS-1601-2000-NPS	3355	12	18-Apr-2008
Bandpass Filter	Trilithic	5BE121.55/35-3-BA	3410	12	28-Jul-2008
<b>Section 2.19 Beacons - 121 Carrier Frequency</b>					
Climatic Chamber	Heraeus Votsch	VMT 04/30	40	-	O/P Mon
Beacon RF Unit	TUV	N/A	97	-	TU
Time Interval Analyser	Yokogawa	TA720	181	12	21-Feb-2008
Amplifier	Mini-Circuits	ZHL-1042J	474	12	4-Jun-2008
Attenuator (10dB)	Weinschel	47-10-34	481	12	26-Feb-2008
Signal Generator	Hewlett Packard	8664A	1183	12	3-Aug-2008
Multimeter	Iso-tech	Iso Tech IDM101	2421	12	13-Aug-2008
Termination (50ohm, 15W)	Radio Spares	612-192	2425	12	5-Sep-2008
Distress Beacon RF Unit	TUV		2445	-	TU
Power Supply Unit	Kingshill	36V-5C	2753	-	O/P Mon
Beacon RF Unit	TUV	N/A	3066	-	TU
Hygrometer	Rotronic	I-1000	3068	12	25-Apr-2008
Termination (50ohm, 1W)	Suhner		3080	12	24-Feb-2008
Termination (50ohm, 2W)	Omni-Spectra	3001-6100	3081	12	24-Feb-2008
Termination (50ohm, 15W)	Diamond Antenna	DL-30N	3096	12	16-Mar-2008
Termination (50ohm, 15W)	Diamond Antenna	DL-30N	3097	12	16-Mar-2008



Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
<b>Section 2.19 Beacons - 121 Carrier Frequency</b>					
Attenuator (20dB, 10W)	Aeroflex / Weinschel	23-20-34	3158	12	30-May-2008
Attenuator (20dB, 10W)	Aeroflex / Weinschel	23-20-34	3160	12	30-May-2008
Attenuator (3dB, 20W)	Aeroflex / Weinschel	23-3-34	3161	12	30-May-2008
Attenuator (3dB, 20W)	Aeroflex / Weinschel	23-3-34	3162	12	19-Jun-2008
Attenuator (3dB, 20W)	Aeroflex / Weinschel	23-3-34	3163	12	30-May-2008
Thermocouple Thermometer	Fluke	51	3174	12	18-Jun-2008
Bandpass Filter	Trilithic	5BE406/35-1-AA	3205	12	28-Jul-2008
Bandpass filter	Trilithic	5BE406/35-1-AA	3206	12	28-Jul-2008
Time Interval Analyser	Yokogawa	TA720 704510	3253	12	6-Nov-2008
Scope Corder	Yokogawa	DL750 701210	3254	12	6-Nov-2008
Power Divider (N) 1W	Weinschel	1506A	3344	12	10-Apr-2008
Cable (1m, N Type)	Rhophase	NPS-1601-1000-NPS	3351	12	18-Apr-2008
Cable (1m, N Type)	Rhophase	NPS-1601-1000-NPS	3353	12	18-Apr-2008
Cable (1m, N Type)	Rhophase	NPS-1601-1000-NPS	3354	12	18-Apr-2008
Cable (2m, N Type)	Rhophase	NPS-1601-2000-NPS	3355	12	18-Apr-2008
Cable (2m, N Type)	Rhophase	NPS-1601-2000-NPS	3359	12	18-Apr-2008
Bandpass Filter	Trilithic	5BE121.55/35-3-BA	3410	12	28-Jul-2008



Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
<b>Section 2.24 Beacons - Antenna Characteristics</b>					
Spectrum Analyser	Hewlett Packard	8568B	571	12	4-Jan-2008
Signal Generator	Rohde & Schwarz	SMS-2/28	1431	12	2-May-2008
Antenna Mast	EMCO	1050	1707	-	TU
Turntable Controller	Various	RH253	1708	-	TU
Open Area Site 2	TUV	OATS2	1850	36	3-Oct-2008
Turntable Interface	Various	RH-253.6	1855	-	TU
Antenna Tower 6M	EMCO	1050	1859	-	TU
Roberts Antenna 406MHz	Compliance Design	-	1860	24	29-Jun-2009
<b>Section 2.1 Beacons - Initial Aliveness Test</b>					
Beacon Tester	WS Technologies	BT 100S	87	-	TU
Hygrometer	Rotronic	A1	465	12	5-Oct-2007
Spectrum Analyser	Rohde & Schwarz	FSU26	2747	12	24-Jul-2008
Hygrometer	Rotronic	I-1000	3068	12	25-Apr-2008
Thermocouple Thermometer	Fluke	51	3172	12	18-Jun-2008
Cable (1m, N Type)	Rhophase	NPS-1601-1000-NPS	3352	12	18-Apr-2008
<b>Section 2.13 Beacons - Operating Lifetime</b>					
Climatic Chamber	Heraeus Votsch	VMT 04/30	40	-	O/P Mon
Power Meter	Hewlett Packard	436A	47	12	9-Jul-2008
Power Meter	Hewlett Packard	436A	83	12	11-Aug-2008
Climatic Chamber	Heraeus Votsch	VM 04/100	85	-	O/P Mon
Rubidium Frequency Standard	Quartzlock	A10-B	92	12	22-Dec-2007
Signal Generator	Hewlett Packard	8644A	96	12	11-Jan-2008
Time Interval Analyser	Yokogawa	TA720	181	12	21-Feb-2008
High Resolution Oscilloscope	Gould	840	182	12	31-Jan-2008



Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
<b>Section 2.13 Beacons - Operating Lifetime</b>					
Load (50ohm, 15W)	Diamond Antenna	DL-30N	337	12	28-Aug-2008
Attenuator 10dB 25W	Weinschel	46-10-43	400	12	13-Apr-2008
Attenuator (10dB, 10W)	Weinschel	23-10-34	470	12	19-Jun-2008
Attenuator (10dB)	Weinschel	47-10-34	481	12	26-Feb-2008
Load (50ohm, 15W)	Diamond Antenna	DL-30N	822	12	5-Sep-2008
Signal Generator	Hewlett Packard	8663A	1063	12	6-Feb-2008
Termination (50ohm, 15W)	Radio Spares	612-192	2425	12	5-Sep-2008
Distress Beacon RF Unit	TUV		2445	-	TU
Stop Clock	R.S Components	RS328 061	2674	-	TU
Spectrum Analyser	Rohde & Schwarz	FSU26	2747	12	24-Jul-2008
Beacon RF Unit	TUV	N/A	3066	-	TU
Termination (50ohm, 6W)	Micronde	R404613	3074	12	24-Feb-2008
Attenuator (20dB, 75W)	Bird	8308-200	3076	12	26-Feb-2008
Termination (50ohm, 1W)	Suhner		3080	12	24-Feb-2008
Termination (50ohm, 15W)	Diamond Antenna	DL-30N	3096	12	16-Mar-2008
Attenuator (20dB, 10W)	Aeroflex / Weinschel	23-20-34	3160	12	30-May-2008
Attenuator (3dB, 20W)	Aeroflex / Weinschel	23-3-34	3161	12	30-May-2008
Attenuator (3dB, 20W)	Aeroflex / Weinschel	23-3-34	3163	12	30-May-2008
Thermocouple Thermometer	Fluke	51	3172	12	18-Jun-2008
Thermocouple Thermometer	Fluke	51	3174	12	18-Jun-2008
Bandpass Filter	Trilithic	5BE406/35-1-AA	3205	12	28-Jul-2008
Bandpass filter	Trilithic	5BE406/35-1-AA	3206	12	28-Jul-2008
Time Interval Analyser	Yokogawa	TA720 704510	3253	12	4-Nov-2007





Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
<b>Section 2.13 Beacons - Operating Lifetime</b>					
Scope Corder	Yokogawa	DL750 701210	3254	12	9-Nov-2007
Timer	Radio Spares	427-590	3281	-	TU
Timer	Radio Spares	427-590	3282	-	TU
8 Channel Datalogger + Terminal Board	Pico Technology Ltd	ADC-16	3287	12	13-Nov-2007
Power Sensor	Agilent	8482A	3289	12	15-Nov-2007
Power Sensor	Agilent	8482A	3290	12	14-Nov-2007
Resistor (Nominal 0.25ohm)	TUV	2x RS Components 188-071, R5/100W Resistors	3343	-	TU
Cable (1m, N Type)	Rhophase	NPS-1601-1000-NPS	3354		18-Apr-2008
Cable (2m, N Type)	Rhophase	NPS-1601-2000-NPS	3355	12	18-Apr-2008
Cable (2m, N Type)	Rhophase	NPS-1601-2000-NPS	3356	12	18-Apr-2008
Cable (2m, N Type)	Rhophase	NPS-1601-2000-NPS	3357	12	18-Apr-2008
Cable (2m, N Type)	Rhophase	NPS-1601-2000-NPS	3359	12	18-Apr-2008
Cable (3m, N-type)	Rhophase	NPS-1601-3000-NPS	3360	12	18-Apr-2008
<b>Section 2.27 Beacons - Orientation Test</b>					
Beacon Tester	WS Technologies	BT 100S	87	-	TU
Attenuator 10dB/10W)	Trilithic	HFP-50N	454	12	19-Jul-2008
1GHz Digital Oscilloscope	Lecroy	9370M	612	12	24-Sep-2008
Power Divider (N) 1W	Weinschel	1506A	3344	12	10-Apr-2008
Cable (1m, N type)	Rhophase	NPS-1601-1000-NPS	3350	12	18-Apr-2008
Cable (1m, N Type)	Rhophase	NPS-1601-1000-NPS	3353	12	18-Apr-2008



Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
<b>Section 2.15 Beacons - Self Test</b>					
Climatic Chamber	Heraeus Votsch	VMT 04/30	40	-	O/P Mon
Beacon Tester	WS Technologies	BT 100S	87	-	TU
High Resolution Oscilloscope	Gould	840	182	12	1-Mar-2008
1GHz Digital Oscilloscope	Lecroy	9370M	612	12	24-Sep-2008
Signal Generator	Hewlett Packard	8663A	1063	12	13-Feb-2009
Termination (50ohm, 15W)	Radio Spares	612-192	2425	12	5-Sep-2008
Distress Beacon RF Unit	TUV		2445	-	TU
Beacon RF Unit	TUV	N/A	3066	-	TU
Hygrometer	Rotronic	I-1000	3068	12	25-Apr-2008
Termination (50ohm, 15W)	Diamond Antenna	DL-30N	3097	12	16-Mar-2008
Attenuator (20dB, 10W)	Aeroflex / Weinschel	23-20-34	3159	12	30-May-2008
Attenuator (20dB, 10W)	Aeroflex / Weinschel	23-20-34	3160	12	30-May-2008
Attenuator (3dB, 20W)	Aeroflex / Weinschel	23-3-34	3161	12	30-May-2008
Attenuator (3dB, 20W)	Aeroflex / Weinschel	23-3-34	3163	12	30-May-2008
Thermocouple Thermometer	Fluke	51	3174	12	18-Jun-2008
Bandpass Filter	Trilithic	5BE406/35-1-AA	3205	12	28-Jul-2008
Time Interval Analyser	Yokogawa	TA720 704510	3253	12	6-Nov-2008
Cable (1m, N type)	Rhophase	NPS-1601-1000-NPS	3350	12	18-Apr-2008
Cable (1m, N Type)	Rhophase	NPS-1601-1000-NPS	3353	12	18-Apr-2008
Cable (1m, N Type)	Rhophase	NPS-1601-1000-NPS	3354	12	18-Apr-2008



Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
<b>Section 2.7 Beacons – Drop Test (Hard Surface)</b>					
Climatic Chamber	Heraeus Votsch	VM 04/100	85	-	O/P Mon
Thermocouple Thermometer	Fluke	51	3172	12	18-Jun-2008
Drop Test Equip	Lansmont	PDT 56E	2291	-	TU
Beacon Tester	WS Technologies	BT 100S	87	-	TU
<b>Section 2.7 Beacons – Drop Test (In Water)</b>					
Beacon Tester	WS Technologies	BT 100S	87	-	TU
<b>Section 2.10 Beacons - Spurious Emissions</b>					
Climatic Chamber	Heraeus Votsch	VM 04/100	85	-	O/P Mon
Rubidium Frequency Standard	Quartzlock	A10-B	92	12	22-Dec-2007
Hygrometer	Rotronic	I-1000	3068	12	25-Apr-2008
Attenuator (20dB, 10W)	Aeroflex / Weinschel	23-20-34	3160	12	30-May-2008
Thermocouple Thermometer	Fluke	51	3172	12	18-Jun-2008
ESA-E Series Spectrum Analyser	Agilent	E4402B	3348	12	16-Apr-2008
Cable (2m, N Type)	Rhophase	NPS-1601-2000-NPS	3356	12	18-Apr-2008
<b>Section 2.14 Beacons - Strobe Light Test</b>					
Climatic Chamber	Heraeus Votsch	VMT 04/30	40	-	O/P Mon
Load (50ohm)	Diamond	DL-30N	392	12	28-Aug-2008
1GHz Digital Oscilloscope	Lecroy	9370M	612	12	24-Sep-2008
Power Supply Unit	Kingshill	36V-5C	2753	-	O/P Mon
Hygrometer	Rotronic	I-1000	3068	12	25-Apr-2008
Thermocouple Thermometer	Fluke	51	3174	12	18-Jun-2008
Strobe Light Transducer	TUV	5 to 20 volts	3459	-	TU



Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
<b>Section 2.2 Climatic - High Temperature</b>					
Temperature Chamber	Instron	906	2128	12	7-Dec-2007
<b>Section 2.26 Climatic - Humidity</b>					
Beacon Tester	WS Technologies	BT 100S	87	-	TU
Hygromer	Rotronic	A1	2677	12	23-Oct-2008
Climatic Chamber	Climatec	CLIMATEC 2	2845	12	1-Nov-2007
Climatic Chamber	Climatec	CLIMATEC 3	2846	12	18-Apr-2008
<b>Sections 2.11, 2.12 and 2.17 Climatic - Wet Tests</b>					
Beacon Tester	WS Technologies	BT 100S	87	-	TU
Force Gauge	TWL	AFG 4	926	12	13-Jun-2008
Climatic Chamber	Climatec	Climatec 1	2124	12	9-Nov-2007
Temperature Chamber	Instron	906	2128	12	7-Dec-2007
Weiss Technik (T)	Weiss Technik	WEISS ALT	2133	12	24-Nov-2007
Balance	Geniweigher	GM-11K	2334	12	30-Mar-2008
Digital Pressure Indicator	Druck	RPT301	2345	12	27-Nov-2007
Thermometer	Digitron	2098T	2347	12	14-Sep-2008
Data Logging Thermometer	Digitron	2098T	2348	12	10-Oct-2008
Tape Measure	Stanley		2363	-	TU
Stopwatch	Farnell	SUPER LAB/SPLIT	2465	12	15-Jun-2008
Hygrometer	Rotronic	A1	2471	12	23-Oct-2008
Digital Thermometer	Digitron	T208	2831	12	13-Jun-2008
Climatic Chamber	Climatec	WALK-IN	2847	6	9-Oct-2007
ESA-E Series Spectrum Analyser	Agilent	E4402B	3348	12	16-Apr-2008
Thermocouple	Unknown	Type T	3415	24	8-Feb-2008



Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
<b>Sections 2.11, 2.12 and 2.17 Climatic - Wet Tests</b>					
Climatic Chamber	Climatec	WALK-In	2847	12	05-Apr-2008
Thermometer	Digitron	T208	2340	12	20-Jun-2008
Hygromer	Rotronic	A1	2677	12	23-Oct-2008
Digital Force Gauge (500N_	TWL	AFG4	2971	12	07-Nov-2008
<b>Sections 2.2 Dry Heat</b>					
Temperature Chamber	Instron	906	2128	12	07-Dec-2007
<b>Sections 2.3 Damp Heat</b>					
Beacon Tester	WS Technologies	BT 100S	87	-	TU
Hygromer	Rotronic	A1	2677	12	23- Oct-2008
Climatic Chamber	Climatec	Climatic 2	2845	12	01-Nov-2007
Climatic Chamber	Climatec	Climatic 3	2846	12	18-Apr-2008
<b>Sections 2.4 Vibration</b>					
Vibrator	Derritron	VP400	2286	6	24-Apr-2008
Vibration Controller	Hewlett Packard	E1434A	2507	12	04-Mar-2009
Accelerometer	Endevco	7254-A-10	2727	6	15-Jan-2008
Isotron Accelerometer	Endevco	256-10	3391	3	14-Mar-2008
Charge Amplifier	Endevco	133	3476	6	20-May-2008
<b>Sections 2.5 Bump</b>					
Vibrator	Derritron	VP400	2286	6	24-Apr-2008
Vibration Controller	Hewlett Packard	E1434A	2507	12	04-Mar-2009
Accelerometer	Endevco	7254-A-10	2727	6	15-jan-2008
Isotron Accelerometer	Endevco	256-10	3391	3	14-Mar-2008
Charge Amplifier	Endevco	133	3476	6	20-May-2008



Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
<b>Sections 2.6 Corrosion</b>					
Weiss Technik (T)	Weiss Technik	SALT MIST	2121	12	09-Nov-2008
FISONS 5	Fisons	FISONS 5	2123	12	26-Oct-2008
Balance	Geniwghter	GM-11K	2334	12	30-Mar-2008
pH Meter	Jenway	3310	2335	-	TU
Thermometer	Digitron	T208	2340	12	20-Jun-2008
Balance	Sartorius	HK160	2678	12	30-Mar-2008
Measuring cylinder	Unknown	50mL	3136	-	TU
Receptable (100mm dia Nominal)	Embee	100mm	3321	-	TU
Density Bottle	Technico	-	3322	-	TU
<b>Sections 2.9 Leakage and Immersion</b>					
Balance	Geniwghter	GM-11K	2334	12	30-Mar-2008
Pressure Indicator	Druck	DPI 700	2343	12	18-Jun-2008
Digital Pressure Indicator	Druck	RPT301	2345	12	08-Nov-2008
Stopwatch	Farnell	SUPER LAB/SPLIT	2465	12	15-Jun-2008
<b>Sections 2.11 Low Temp Shock</b>					
Balance	Geniwghter	GM-11K	2334	12	30-Mar-2008

TU – Traceability Unscheduled

OP MON – Output Monitored with Calibrated Equipment



Product Service

## **SECTION 4**

### **PHOTOGRAPHS**



Product Service

4.1 PHOTOGRAPHS OF EQUIPMENT UNDER TEST (EUT)



Front View of EUT





View of EUT in release mechanism



Product Service

## **SECTION 5**

### **DISCLAIMERS AND COPYRIGHT**



Product Service

**5.1 DISCLAIMERS AND COPYRIGHT**

This report relates only to the actual item/items tested.

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Product Service

**ANNEX A**

**CUSTOMER SUPPLIED INFORMATION**



Product Service

Strobe Light Test

**Australian Government**  
**National Measurement  
 Institute**

**MEASUREMENT REPORT ON**

**One EPIRB Unit  
 Serial No. STest01**

The National Measurement Institute is responsible for Australia's units and standards of measurement.  
 The measurement results presented in this report are traceable to Australia's primary standards.

Bradfield Road West Lindfield NSW 2070 Australia	PO Box 264 Lindfield NSW 2070 Australia	Telephone: +61 2 8467 3600 Facsimile: +61 2 8467 3610
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*For further information contact:*  
 Errol Atkinson

telephone +612 8467 3563  
 facsimile +612 8467 3610  
 email errol.atkinson@measurement.gov.au

Ref: **RN080126**

File: **CB/08/0025**

Checked: *EAT*

Date: **25 February 2008**

This report may not be published except in full unless permission for the publication of an approved extract has been obtained in writing from the Chief Metrologist, National Measurement Institute.

Continuation of Measurement Report on One EPIRB Unit

For: Standard Communications Pty Ltd, Project Engineering  
Gladesville NSW

Maker: GME  
Australia

Type and EPIRB Unit, model MT403G  
Identification no.: STest01

Date of calibration: 14 February 2008 - 22 February 2008

The EPIRB unit is housed in a plastic housing, predominantly yellow in colour, having approximate dimensions 180 × 95 × 75 mm. The top of the plastic housing locates a metal antenna projecting approximately 170 mm above the housing. A concealed sliding power switch and a window through which a flashing white LED emits light are also located on top of the housing. The serial number of the EPIRB is printed on a sticker affixed to the side of the housing. The unit is powered from internal batteries. A picture of the EPIRB unit is shown in Figure 1.

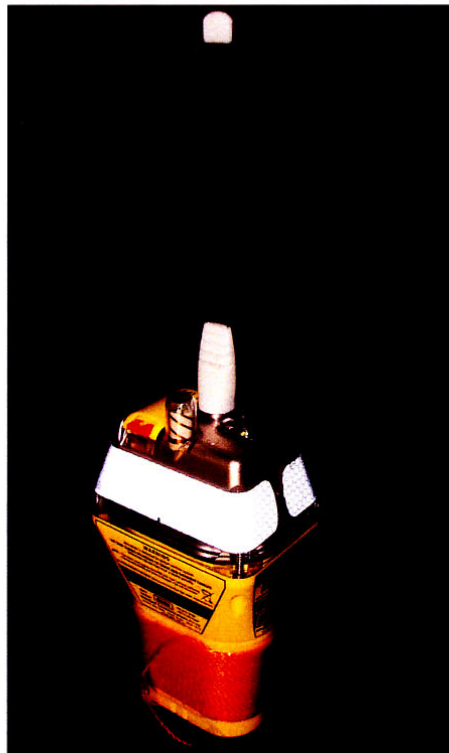


Figure 1. GME EPIRB Unit model MT403G s/n STest01

Ref: RN080126

File: CB/08/0025

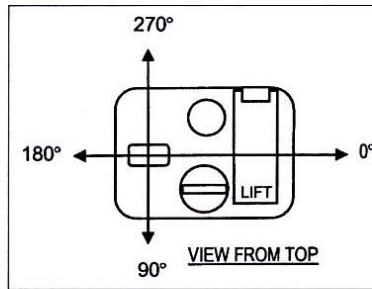
Checked: *EIS*

Date: 25 February 2008

Continuation of Measurement Report on One EPIRB Unit

The EPIRB unit was tested to determine the pulse width of each pulse of light emitted from the LED during operation. The mean pulse width of ten output pulses was determined to be  $9.747 \pm 0.0037$  ms ( $k=2.2$ ).

With the EPIRB LED located at the centre of rotation of a type A goniophotometer, the effective luminous intensities of the LED visible light output were measured at prescribed angles utilising a photometer having a sensitive area of 39.6 mm diameter at a distance of 1.000 m from the centre of the LED light emission. The reference for angular orientation can be seen in Figure 2.



**Figure 2. Angular orientations for EPIRB LED measurements of effective luminous intensity**

Each effective luminous intensity was calculated using the Blondel-Rey equation:

$$I_{eff} = \frac{\int_{t_1}^{t_2} I(t) dt}{0.2 + (t_2 - t_1)} \quad [1]$$

where  $I_{eff}$  is the effective intensity,  $I(t)$  is the instantaneous intensity as a function of time, 0.2 seconds is the Blondel-Rey constant and  $(t_2 - t_1)$  is the flash duration in seconds.

With the photometer viewing the EPIRB LED emission at elevation 90°/ azimuth 0° (vertical) orientation, the ratios of effective luminous intensity were measured at selected values of ambient temperature between -21.0°C and 60.5°C. Using the mean measured ratios the effective intensity at each prescribed temperature was calculated.

The calculated effective luminous intensities are presented for prescribed angles and ambient temperatures in Table 1.

**Table 1**  
**Effective Luminous Intensity Values (cd) for EPIRB Unit s/n STest01 for Indicated Prescribed Operating Temperatures and Viewing Directions.**

Operating Temperature (°C)	Mean Elevation (± 1°)/ Mean Azimuth (± 1°)				
	90°/0° (Vertical)	40°/0°	40°/90°	40°/180°	40°/270°
-20.6 ± 0.5	2.00 ± 0.07 (k=2.0)				
22.0 ± 0.5	2.01 ± 0.07 (k=2.0)	1.42 ± 0.44 (k=3.9)	1.99 ± 0.07 (k=2.0)	1.262 ± 0.046 (k=2.0)	1.01 ± 0.26 (k=3.8)
60.3 ± 0.5	1.96 ± 0.07 (k=2.0)				

Ref: RN080126

File: CB/08/0025

Checked: *PSM*

Date: 25 February 2008

Continuation of Measurement Report on One EPIRB Unit

**Notes:**

1. The measurements of LED output pulse width and directional effective luminous intensity were performed using equipment utilised for NMI test method PM-RAD-TM7 version 3.1 in conjunction with a calibrated LeCroy 9410 digital storage oscilloscope.
2. Measurements of effective luminous intensity ratios for the temperature range above 22°C were made using equipment utilised for NMI test method PM-RAD-TM28 version 2.5 in conjunction with a calibrated LeCroy 9410 digital storage oscilloscope.
3. Measurements of effective luminous intensity ratios for the temperature range below 22°C were made using an environmental test chamber operating under NMI Pattern Approval instructions 312-OPE-150 version 1.0 in conjunction with a calibrated LeCroy 9410 digital storage oscilloscope and calibrated photometer.
4. For each of the measurement results presented, the values represent average values for at least 3 independent measurements.
5. The uncertainties stated in this report have been calculated in accordance with principles in the ISO Guide to the Expression of Uncertainty in Measurement, and give intervals estimated to have a level of confidence of 95%.  
The uncertainties apply at the time of measurement only and take no account of any drift or other effects that may apply afterwards. When estimating the uncertainties at any later time, other relevant information should also be considered, including, where possible, the history of the performance of the instrument and the manufacturer's specifications.




Dr Peter Manson  
for Dr L M Besley  
Chief Metrologist

1. Blondel, A. and Rey, J., "Sur la perception des lumières brèves à la limite de leur portée", *Journal de Physique*, juillet et aout, 643 (1911)

Ref: RN080126

File: CB/08/0025

Checked: 

Date: 25 February 2008



Hose Stream Test – Waiver Request



**Standard Communications PTY. LTD.**  
ACN: 000 246 814 ABN: 93 000 246 814  
Head Office: Locked Bag 2086, North Ryde, NSW 1670, Australia.  
T: (02) 9644 6666, F: (02) 9644 6600 W: www.gtr.net.au



Sarah Jones  
Project Manager  
TUV Product Service Ltd  
Octagon House  
Concorde Way  
Segensworth North  
Fareham Hampshire

5<sup>th</sup> March, 2008

Dear Sarah,

Regarding our program of test on the MT403 (and variants) being carried out by yourselves on our behalf, we put forward that it is not necessary to again conduct the 'Hose Stream Test' on the auto-release housing.

The waiver of this test is appropriate as:

- Per the applicable standards it may be conducted at any time and out of sequence, and or on other test specimens to the main test stream;
- This is our standard current production auto-release housing and is presently used with models MT401FF and MT403FF, having already been tested by yourselves (TUV Test Certificate SX200495-01 Issue 1);
- No modifications to the auto-release housing have been made since your test;
- Changes to the MT403 under test are primarily electrical in nature and do not present a different test scenario to that previously verified; and
- The test has therefore previously been completed on representative samples, as applicable to this program of test.

In consideration of the above we believe the previous HoseStream Test Results can be incorporated into the assessment made during the current program.

Yours faithfully

Craig Duncan  
Project Engineering Manager  
Standard Communications Pty Ltd

Hose Stream Test – Previous Test Certificate (SX200495-01 Issue 1 THC)



Product Service

TUV Product Service Ltd, Octagon House, Concorde Way,  
Segensworth North, Fareham, Hampshire PO15 5RL, United Kingdom  
Tel: +44(0)1489 558100 Website: [www.tuvps.co.uk](http://www.tuvps.co.uk)



**TEST HOUSE CERTIFICATE**

**CLIENT:** Standard Communications Pty. Ltd.  
6 Frank Street  
Gladesville  
NSW 2111  
Australia

**CERTIFICATE NUMBER** SX200495/001 Issue 1

**PROJECT NUMBER** OS200495/KWA

**CLIENT'S ORDER NUMBER** 49004

**INCOMING RELEASE NOTE**

Delivery Note

**DATE OF RECEIPT**

27<sup>th</sup> September 2006

**TEST ITEM(S)**

EPIRB in Float-Free Enclosure

**NUMBER OF ITEMS TESTED**

One

**SERIAL NUMBER(S)**

60915484

**MODEL / PART NUMBER(S)**

MT401FFINT EPIRB

**TEST SPECIFICATION / ISSUE**

ETSI EN 300 066-1 V1.3.1 (2001-01)

**DATE OF TEST**

10<sup>th</sup> December 2006

**TEST(S) APPLIED**

Hose Stream Test (Clause 6.9)

The EPIRB fitted in a Float-Free enclosure was mounted on a board simulating the intended mounting when on board a ship.

A stream from a fire hose was directed at the EUT for a period of 5 minutes.

The hose had a nominal diameter of 63.5mm and was connected to a water pump capable of delivering 2800l/min, set to maximum output.

The end of the hose was maintained at a distance of 3.5m from the EUT, at a height of 1.5m.

The hose was moved during the test over an arc of 180° perpendicular to the normal mounting position of the EUT

Performance checks of the EPIRB were performed on completion of the test using a WS Technologies Beacon Tester. (See Page 2)

**RESULT(S) OF TEST**

During the test the EPIRB did not release from its bracket nor did it automatically activate.

On completion of the test the equipment showed no sign of damage or deterioration.

The results of the performance checks showed that the EPIRB was undamaged and capable of operation on completion of the test.

Approved by .....

Date 29<sup>th</sup> January 2007.....

R L Harris  
Authorised Signatory

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Page 1 of 2



TEST HOUSE CERTIFICATE SX200495/001 Issue 1

CONTINUATION PAGE



Photograph showing EUT during the test

**Beacon Test Report**  
BEFC0000003C7C

Organization: TUV Product Service  
 Tested By: BT100A S/N: 2383  
 Date: 10/12/06 9:46:21 AM  
 Tester Model/Serial No./File Name: BT100S/2383/std.com-45  
 Tester Cal Due Date: Sep 6, 2008  
 Tester Temperature: 19°C

**PASS**       **FAIL**      **INITIALS:** \_\_\_\_\_

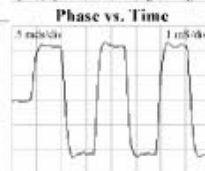
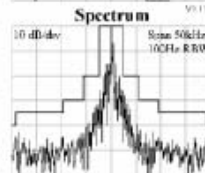
Notes: Add text comments here.

15 Hex ID: BEFC0000003C7C  
 Full Hex: FFFB2F8F7E0000001E3E57B1880  
 Burst Mode: Normal Mode (Short)  
 Protocol: Test User Protocol  
 Country 503: Australia  
 National Use: 15484

Emergency type: unspecified  
 Activation type: Man

406 MHz Measurements  
 406 Frequency (INT REF): 406.028 MHz  
 406 Power (INT ANT): 87%  
 Power Rise Time: <5 ms  
 Phase Deviation: -1.09 +1.11 radians  
 Modulation Rise Time: 273 uS  
 Modulation Fall Time: 273 uS  
 Modulation Symmetry: 1.2%  
 Modulation Bit Rate: 399.5 bps  
 CW Preamble: 160.6 ms

DISCLAIMER: IN NO EVENT SHALL WS TECHNOLOGIES INC. OR ITS DISTRIBUTORS OR AGENTS BE LIABLE FOR ANY DAMAGES OR LOSSES INCURRED AS A RESULT OF THE USE OR FAILURE OF THIS MEASUREMENT EQUIPMENT.



Beacon Test Report following the Test

**ANNEX B**

**QINETIQ TEST CERTIFICATE**

Hydrostatic Release Test (A14.0)

QINETIQ/EMEA/IX/TC0801587

QinetiQ Proprietary

**Certificate of Test  
EPIRB Hydrostatic Release**



Certificate number: QINETIQ/EMEA/IX/TC0801587  
Date of issue: 06/03/2008  
Issue: 2.0

EMES Facility  
QinetiQ Farnborough  
Ively Road, Farnborough  
Hampshire. GU14 0LX, UK  
Telephone : 01252 393282  
Facsimile : 01252 397058

**Administrative Information**

Customer: TUV Product Services  
Customer Representative: Miss S Jones  
Equipment under test: EPIRB in hydrostatic release housing  
Build Standard: Declared as Production units  
Test specifications: IEC 61097-2 : 2002, Clause 5.2.1  
RTCM EPIRB Standard, Test A14.0  
Test Limits: Float Free at between 1 & 4 metre depth – Temp Class 2  
Test dates: 7<sup>th</sup> – 11<sup>th</sup> January 2008  
Test house reference: EMES/1264  
Modes of operation: EPIRB in standby condition  
Test engineer: N Vickers  
Location of Testing: Building A23, QinetiQ Farnborough.  
Test equipment used: Acoustic Materials Test Tank  
EMC's Climatic chamber, Metal tape measure  
Uncertainty of measurement: Direct depth measurement ±5cm; Temperature ±2°C

**Test Item Details**

Item No	Item	Type	Notes
1	GME 406MHz EPIRB	MT403FG	Serial No 33700
2	Hammer Hydrostatic Release	H-20	8 x disposable release

**Test Summary**

Test	Pre-condition Temperature	Position/Attitude of release housing during test.	Clear release and EPIRB float free?	Depth of release	Result
1	-30°C (Min Stow)	Vertical – Normal Attitude	YES	3.5m	Pass
2	Ambient	Vertical - Normal Attitude	YES	3.4m	Pass
3	Ambient	Rolling 90° to Starboard	YES	3.1m	Pass
4	Ambient	Rolling 90° to Port	YES	3.0m	Pass
5	Ambient	Horizontal.- Pitching Cover Up	YES	3.2m	Pass
6	Ambient	Horizontal –Pitching Cover down	YES	3.5m	Pass
7	Ambient	Vertical -. Inverted (Upside down)	YES	2.8m	Pass
8	+70°C(Max Stow)	Vertical - Normal Attitude	YES	2.6m	Pass

Photographs of the EPIRB and test set-up can be found on the following pages.

IT IS CERTIFIED THAT THE TESTS DETAILED IN THIS CERTIFICATE HAVE BEEN CARRIED OUT AS SPECIFIED, WITH THE RESULTS AS SHOWN, TO THE REQUIREMENTS OF THE CONTRACT.

Signed (electronic)

Date 24-January 2008

N Vickers  
EMES Business Group,  
SES, Farnborough

*N Vickers*

QINETIQ/EMEA/IX/TC0801587

QinetiQ Proprietary

Page 1 of 3

Hydrostatic Release Test (A14.0) (Continued...)

QINETIQ/EMEA/IX/TC0801587

QinetiQ Proprietary

**Certificate of Test  
EPIRB Hydrostatic Release**

**QinetiQ**

Certificate number: QINETIQ/EMEA/IX/TC0801587  
Date of issue: 06/03/2008  
Issue: 2.0

EMES Facility  
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Hampshire. GU14 0LX, UK  
Telephone : 01252 393282  
Facsimile : 01252 397058

Photographs.



EPIRB mounted on the plunger pole ready test, Rolling 90° attitude.



The release mechanism primed ready for the cover to be put on, Hammar H20 release can be seen to the left of centre and when hydrostatically triggered will cut through the black nylon post that holds the cover on. The sprung metal hinged release plate will then push up and away the GME beacon. Second photo shows detail of the angle piece on the clear antenna cover that was included before the test sessions started to ensure clean separation from the release plate.

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Page 2 of 3

Hydrostatic Release Test (A14.0) (Continued...)

QINETIQ/EMEA/IX/TC0801587

QinetiQ Proprietary

**Certificate of Test  
EPIRB Hydrostatic Release**

**QinetiQ**

Certificate number: QINETIQ/EMEA/IX/TC0801587  
Date of issue: 06/03/2008  
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EMES Facility  
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Photographs (Continued).



Typical test set-up and overall view of plunge pool.

Method for conduct of tests is to fix the EPIRB release housing onto the plunge pole in the required attitude, the pole would then be gently lowered into the plunge pool until release mechanism actuates and the depth noted. A "Clean Release" is expected which is defined as the EPIRB beacon separating away from the housing and cover, and floating freely to the surface without undue delay.

QINETIQ/EMEA/IX/TC0801587

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Page 3 of 3