**PUBLIC ENTERPRISE TESTING CENTER «OMEGA»**

**Approved by**
**acting director**
**PE TC "OMEGA"**
**Bogach S.V.**
**April 27, 2010**

# TEST REPORT No. 10/26
# Issue 1

**on type approval of COSPAS-SARSAT**
**Emergency Position Indicating Radio Beacon (EPIRB)**
**SafeSea model E100G class 2,**
**Manufacturer Coverise Ltd.,**
**Great Britain**

**Volume 1**

**Sevastopol**
**2010**

**PUBLIC ENTERPRISE TESTING CENTER «OMEGA»**

**COSPAS-SARSAT Ref.CS497/F530 21/09/1994**

**Certificate of Accreditation of Testing Laboratory No. АКР.0304-14 РМФ dated 06.02.2004 issued by Ministry of transport of the Russian Federation**

**Certificate of Accreditation РОСС UA.0001.21МО98 dated 08.08.2005 issued by Federal Agency on Technical Regulating and Metrology of the Russian Federation**

**Certificate of Accreditation of Testing Laboratory No.07.61177.184 dated 21.08.2007 issued by Russian Maritime Register of Shipping**

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| | | |
|---|---|---|
| **Basis** | Contract No. 10–512/20–697 | |
| **Equipment under test** | Emergency Position Indicating Radio Beacon (EPIRB) 406 MHz COSPAS–SARSAT | |
| **Manufacturer** | Coverise Ltd., Great Britain, registered office 27 New Dover Road, Canterbury, Kent, CTI 3DN | |
| **Applicant** | Coverise Ltd., Great Britain, registered office 27 New Dover Road, Canterbury, Kent, CTI 3DN | |
| **Test commencement date** | 18.01.10 | |
| **Test completion date** | 15.04.10 | |
| **Test reports shall be delivered to:** | Coverise Ltd.<br>(for submission to COSPAS-SARSAT Secretariat for consideration ) | copy 1 |
| | PE TC “Omega” | copy 2 |

## CONTENTS

| **Introduction** |
|---|
| The test report EPIRB model SAFESEA E100G class 2 consists of the two volumes and one Excel-file.<br>Volume 1 Test report 10-26 E100G class2 V2.pdf– Test report No.10/26 Issue 1 on type approval of COSPAS-SARSAT Emergency Position Indicating Radio beacon (EPIRB) SafeSea model E100G class 2, manufacturer Coverise Ltd., Great Britain Volume 1;<br>Volume 2 - Test report No.10/26 Issue 1 of EPIRB model SafeSea E100G class 2. Volume 2 The technical documentation submitted by the Manufacturer for testing;<br>Excel-file with Excel datasheet of RECON TCXO and EPIRB frequency stability tests |

| **Report Issue History** | | |
|---|---|---|
| **No** | **Data of issue** | **Report reissue reason** |
| 1 | 27.04.2010 | The initial issue. |

## 1. EQUIPMENT UNDER TEST

| | | |
|---|---|---|
| **1.1** Equipment category | | Emergency Position Indicating Radio Beacon (EPIRB)<br>406 MHz COSPAS–SARSAT<br>Category 1 and Category 2 (for RTCM) |
| **1.2** Equipment trade mark | | SafeSea E100G CLASS 2 |
| **1.3** Equipment type | | EPIRB Float-free |
| **1.4** Equipment model | | E100G class 2 |
| **1.5** Equipment class | | Class 2 (operating temperature range minus 20 ºC to +55 ºC) |
| **1.6** Equipment serial numbers | | No.0001200014I, No. 0001200013I |
| **1.7** Equipment destination | | Alarm message transmission of distressed accident vessels, aircrafts and other objects via COSPAS-SARSAT satellites system |

| **1.8** Firmware | | Test date |
|---|---|---|
| Issue 00.00.25 | | CSConfig |

## 1.9 Submitted Documentation

| item | Documentation |
|---|---|
| 1. | APPLICATION FOR A COSPAS-SARSAT 406 MHZ BEACON TYPE APPROVAL CERTIFICATE SIGNED BY THE MANUFACTURER TO CONFIRM THE TECHNICAL DETAILS OF THE BEACON |
| 2. | Analysis and calculations the pre-test battery discharge at ambient temperature before the operating lifetime at minimum temperature test |
| 3. | THE MANUFACTURER'S DECLARATION ABOUT OPERATOR SELECTABLE MODE OF OPERATION (THAT DRAWS THE MAXIMUM BATTERY ENERGY AND THE MAXIMUM PULSE CURRENT) |
| 4. | Beacon operating instructions and a technical data sheet |
| 5. | THE MANUFACTURER'S DECLARATION ABOUT ALL OPERATION CONFIGURATIONS |
| 6. | The technical data sheet for the battery cells used in the beacon and the electric diagram of the beacon's battery pack |
| 7. | Copy the of EPIRB's labels |
| 8. | Technical data sheet of the reference oscillator |
| 9. | Descriptionsto demonstrate that the design protection against continuous transmission |
| 10. | DESCRIPTIONS TO DEMONSTRATE THAT THE DESIGN MEETS THE FREQUENCY STABILITY REQUIREMENTS OVER 5 YEARS |
| 11. | DESCRIPTIONS TO DEMONSTRATE THAT THE DESIGN PROVIDES PROTECTION FROM REPETITIVE SELF-TEST MODE TRANSMISSIONS |
| 12. | A TECHNICAL DESCRIPTION THAT CONFIRMS THE NOMINAL OUTPUT IMPEDANCE OF THE BEACON POWER AMPLIFIER IS 50 OHMS AND THE BEACON ANTENNA INPUT IMPEDANCE IS 50 OHMS |
| 13. | The Beacon quality assurance plan |
| 14. | DESCRIPTION OF THE GNSS RECEIVER OPERATION CYCLE AND ITS PHASES, INCLUDING DURATION AND AVERAGE BATTERY CURRENT MEASURED FOR EACH PHASE |
| 15. | DECLARATION OF ALL MANUALLY SELECTABLE OPERATION MODES |
| 16. | NAVIGATION SYSTEM TEST RESULTS WITH TEST SCRIPTS WHICH REPLICATE THE LOCATION INFORMATION CONDUCTED BY MANUFACTURER |

See these documents in Report No.10/26 Volume 2.

## 2. TEST CONDITIONS AND METODS

Procedure, conditions and methods of testing correspond to requirements and methods of C/S T.001 (Issue 3 – Revision 10 October 2009) and C/S T.007 (Issue 4 – Revision 4 October 2009) standards.

## 3. TEST PROGRAM

| item | Test name | Requirements item of standard C/S T.001 | Methods item of standard C/S T.007 |
|---|---|---|---|
| 1. | Performance measurements at normal temperature +20 °C | 4.2.1, 2.2, 2.3 | Annex A section A.2.1 |
| 2. | Performance measurements at maximum declared temperature +55 °C | 4.2.1, 2.2, 2.3 | Annex A section A.2.1 |
| 3. | Performance measurements at minimum declared temperature minus 20 °C | 4.2.1, 2.2, 2.3 | Annex A section A.2.1 |
| 4. | Self-test mode | 4.5.4 | Annex A section A.3.6 |
| 5. | Thermal shock test | 4.2.3 | Annex A section A.2.2, A.3.1.4, A.3.2.1, A.3.2.2.1 |
| 6. | Temperature gradient | 4.2.2 | Annex A section A.2.4, A.3.1.4, A.3.2.1, A.3.2.2.1 |
| 7. | Operating lifetime at minimum temperature | 4.5.1 | Annex A section A.2.3 |
| 8. | Beacon antenna test | 2.3.3 | Annex A section A.2.6 |
| 9. | Beacon coding software | 3.2, Annex A | Annex A section A.2.8, A.3.1.4 |
| 10. | Navigation system test | 3.2, 4.5.5.3, (Annex A section A.3.3) | Annex A section, A.2.7, A.3.8 (excluding A.3.8.7 test which conducted manufacturer) , A.3.1.4 |
| 11. | Satellite qualitative test | 2.1.3, Annex A section A.2.5 | Annex A section A.2.5 |

| item | Test name | C/S IP (TCXO) – Rev. 1 October 2009 |
|---|---|---|
| 12. | Frequency stability test (interim procedure for the determination of compliance of 406 MHz beacons equipped with a TCXO) | sections 1, 2 |

## 4. TEST SHEDULE

| item | Test name | Date |
|---|---|---|
| 1. | Performance measurements at normal temperature +20 °C | 18.01.2010 |
| 2. | Performance measurements at maximum declared temperature +55 ºC | 19.01.2010 |
| 3. | Performance measurements at minimum declared temperature minus 20 ºC | 20.01.2010 |
| 4. | Self-test mode including GNSS selftests | 18.01.2010-20.01.2010, 15.04.2010 |
| 5. | Thermal shock test | 19.01.2010 |
| 6. | Temperature gradient | 22.01.2010-24.01.2010 |
| 7. | Operating lifetime at minimum temperature | 04.02.2010-06.02.2010 |
| 8. | Beacon antenna test | 24.02.2010-25.02.2010 |
| 9. | Beacon coding software | 16.02.2010-17.02.2010 |
| 10. | Navigation system test | 16.02.2010-18.02.2010 |
| 11. | Satellite qualitative test | 18.02.2010-20.02.2010 |
| 12. | Frequency stability test IP (TCXO) | 08.02.2010 |

## 5. TEST RESULT

| item | Test name | Pass/No |
|---|---|---|
| 1. | Performance measurements at normal temperature +20 °C | Pass |
| 2. | Performance measurements at maximum declared temperature +55 ºC | Pass |
| 3. | Performance measurements at minimum declared temperature minus 20 ºC | Pass |
| 4. | Self-test mode and GNSS self-tets mode | Pass |
| 5. | Thermal shock test | Pass |
| 6. | Temperature gradient | Pass |
| 7. | Operating lifetime at minimum temperature | Pass |
| 8. | Beacon antenna test | Pass |
| 9. | Beacon coding software | Pass |
| 10. | Navigation system test | Pass |
| 11. | Satellite qualitative test | Pass |
| 12. | Frequency stability test IP (TCXO) | Pass |

## 6. CONCLUSION

**Name and Location of Beacon Test Facility:** **PUBLIC ENTERPRISE TESTING CENTER «OMEGA», 99053, Sevastopol, ul. Vakulenchuka, 29, Ukraine**

**Date of Submission for Testing:** **18 January 2010**

**Applicable C/S Standards:**

| Document | Issue | Revision |
|---|---|---|
| C/S T.001 | 3 | 10 |
| C/S T.007 | 4 | 4 |

I hereby confirm that the 406 MHz beacon described above has been successfully tested in accordance with the Cospas-Sarsat 406 MHz Beacon Type Approval Standard (C/S T.007) and complies with the Specification for Cospas-Sarsat 406 MHz Distress Beacons (C/S T.001) as demonstrated in the attached report.
Note: Navigation system of beacon has been successfully tested in accordance with the Cospas-Sarsat 406 MHz Beacon Type Approval Standard C/S T.007 Issue 4 Rev.2 and complies with the Specification C/S T.001 Issue 3 Rev.8 (November 2007) according with footnote 1 to section A.3.8.7 standard T.007-2009.

Deputy Head of test department  A.V. Spector

(Name, Position and Signature of Cospas-Sarsat Accepted Test Facility Representative)

**TABLE F.1: OVERALL SUMMARY OF 406 MHZ "SAFESEA E100G CLASS 2" BEACON TEST RESULTS**

| Parameters to be Measured | | Range of Specification | Units | Test Results | | | Com-ments |
|---|---|---|---|---|---|---|---|
| | | | | $T_{min}$ (minus 20 °C) | $T_{amb}$ (+20 °C) | $T_{max}$ (+55 °C) | |
| 1. Power Output | | | | | | | Annex 1 |
| – transmitter power output | | 35-39 | dBm | 37.73-38.04 | 37.93-38.04 | 37.89-37.90 | |
| – power output rise time | | <5 | ms | 0.82 | 0.60 | 0.55 | |
| – power output 1 ms before burst | | <-10 dBm | √[1] | √ | √ | √ | |
| 2. Digital Message | Bits number | | | | | | Annex 1 |
| – bit sync | 1-15 | 15 bits "1" | √ | √ | √ | √ | |
| – frame sync | 16-24 | "000101111" | √ | √ | √ | √ | |
| – format flag | 25 | 1 bit | bit value | 1 | 1 | 1 | |
| – protocol flag | 26 | 1 bit | bit value | 0 | 0 | 0 | |
| – identification / position data | 27-85 | 59 bit | √ | √ | √ | √ | |
| – BCH code | 86-106 | 21 bits | √ | √ | √ | √ | |
| – emerg. code / nat. use / supplem. data | 107-112 | 6 bits | bit value | 110111 | 110111 | 110111 | |
| – additional data / BCH (if applicable) | 113-144 | 32 bits | √ | √ | √ | √ | |
| – position error (if applicable) | | <5 | km | — | — | — | |
| 3. Digital Message Generator | | | | | | | Annex 1 |
| – repetition rate $T_R$: | | | | | | | |
| • average $T_R$ | | 48.5-51.5 | sec | 49.45 | 49.45 | 49.45 | |
| • min $T_R$ | | 47.5≤$T_R$≤48.0 | sec | 47.50 | 47.50 | 47.51 | |
| • max $T_R$ | | 52.0≤$T_R$≤52.5 | sec | 52.51 | 52.51 | 52.51 | Cornform to a slight extra margin ±0.01sec (T.008) |
| • standard deviation | | 0.5-2.0 | sec | 1.71 | 1.71 | 1.71 | |
| – bit rate: | | | | | | | |
| • min $f_b$ | | ≥396 | bit/sec | 399.86 | 399.89 | 399.87 | |
| • max $f_b$ | | ≤404 | bit/sec | 400.00 | 400.06 | 400.01 | |
| – total transmission time: | | | | | | | |
| • short message | | 435.6-444.4 | ms | — | — | — | |
| • long message | | 514.8-525.2 | ms | 518.55-519.00 | 519.00-519.15 | 519.10-519.15 | |
| – unmodulated carrier: | | | | | | | |
| • min $T_1$ | | ≥158.4 | ms | 160.10 | 160.10 | 160.10 | |
| • max $T_1$ | | ≤161.6 | ms | 160.12 | 160.12 | 160.13 | |
| – first burst delay | | ≥47.5 | sec | 49.06-49.48 | 49.31-50.13 | 49.38-50.05 | |

[1] Indicate that testing demonstrated conformance to requirements by placing the √ symbol in Table F.1.

| Parameters to be Measured | Range of Specification | Units | Test Results | | | Comments |
|---|---|---|---|---|---|---|
| | | | $T_{min}$ (minus 20 °C) | $T_{amb}$ (+20 °C) | $T_{max}$ (+55 °C) | |
| 4. Modulation | | | | | | Annex 1 |
| – biphase-L | | √ | √ | √ | √ | |
| – rise time | 50-250 | μsec | 143.64-150.02 | 140.97-146.07 | 137.06-145.10 | |
| – fall time | 50-250 | μsec | 159.18-166.58 | 156.46-159.87 | 150.05-158.20 | |
| – phase deviation: positive | +(1.0 to 1.2) | radians | 1.08 to 1.13 | 1.06 to 1.12 | 1.06 to 1.12 | |
| – phase deviation: negative | -(1.0 to 1.2) | radians | -1.06 to -1.13 | -1.04 to -1.11 | -1.07 to -1.13 | |
| – symmetry measurement | ⩽0.05 | √ | √ | √ | √ | |
| 5. 406 MHz Transmitted Frequency | | | | | | Annex 1 |
| – nominal value | C/S T.001 | MHz | 406036.942-406036.946 | 406036.930-406036.938 | 406036.913-406036.915 | |
| – short-term stability | $\leqslant 2\times10^{-9}$ | MHz | (0.038 to 0.063)$\times10^{-9}$ | (0.036 to 0.083)$\times10^{-9}$ | (0.042 to 0.069)$\times10^{-9}$ | |
| – medium-term stability slope | (-1 to +1) $\times10^{-9}$ | /100 ms | (-0.551 to 0.517)$\times10^{-9}$ | (-0.541 to 0.020)$\times10^{-9}$ | (-0.255 to 0.039)$\times10^{-9}$ | |
| – medium-term stability residual frequency variation | $\leqslant 3\times10^{-9}$ | /min | (0.072 to 2.575)$\times10^{-9}$ | (0.058 to 1.227)$\times10^{-9}$ | (0.043 to 0.476)$\times10^{-9}$ | |
| 6. Spurious Emissions into 50 Ohms (406.0 – 406.1 MHz)[1] | C/S T.001 mask | √ | Annex 1.3 | Annex 1.1 | Annex 1.2 | |
| 7. 406 MHz VSWR Check | | | | | | Annex 1 |
| – nominal transmitted frequency | C/S T.001 | MHz | 406036.943-406036.944 | 406036.929 | 406036.913-406036.914 | |
| – modulation rise time | 50-250 | μsec | 146.09-148.08 | 142.33-143.87 | 139.90-148.64 | |
| – modulation fall time | 50-250 | μsec | 161.29-163.14 | 157.32-158.41 | 153.45-155.18 | |
| – modulation phase deviation +φ | +(1.0 to 1.2) | radians | 1.09 to 1.10 | 1.08 to 1.09 | 1.09 to 1.09 | |
| – modulation phase deviation -φ | -(1.0 to 1.2) | radians | -1.12 to -1.13 | -1.08 to -1.09 | -1.09 to -1.10 | |
| – modulation symmetry measurement | ⩽0.05 | √ | √ | √ | √ | |
| – digital message | correct | √ | √ | √ | √ | |

[1] Include spectral plots of the 406.0-406.1 MHz band showing the transmit signal and the emission mask as defined in document C/S T.001.

| Parameters to be Measured | Range of Specification | Units | Test Results | Comments |
|---|---|---|---|---|
| 8. Self-test Mode | | | | Annex 1 |
| – frame sync | "011010000" | √ | √ | |
| – format flag | 1/0 | bit value | 1 | |
| – single radiated burst | ≤440/520 (±1%) | ms | 519.05 | |
| – default position data (if applicable) | must be correct | √ | √ | |
| – description provided | | √ | description provided | Volume 2 section 4 page 40 |
| – design data provided on protection against repetitive self-test mode transmissions | | √ | √ | |
| – single burst verification | one burst | √ | √ | |
| – provides for 15 Hex ID | correct | √ | √ | |
| – 121.5 MHz RF power (if applicable) | self-test checks that RF power emitted | √ | √ | |
| – 406 MHz RF power | self-test checks that RF power emitted | √ | √ | |
| 9. Thermal Shock [1] | | | | Annex 2 |
| – soak temperature | | °C | $T_{soak}$= +55 °C | |
| – measurement temperature | | °C | $T_{meas}$= +25 °C | |
| the following parameters are to be met within 15 minutes of beacon activation and maintained for 2 hours: | | | | |
| – transmit frequency nominal value | C/S T.001 | MHz | 406036.936-406036.943 | |
| – transmit frequency short-term stability | $\leq 2\times10^{-9}$ | /100 ms | $(0.038 \text{ to } 0.086)\times10^{-9}$ | |
| – transmit frequency medium-term stability slope | $(-2 \text{ to } +2)\times10^{-9}$ | /min | $(-0.467 \text{ to } 0.202)\times10^{-9}$ | |
| – transmit frequency medium-term stability residual frequency variation | $\leq 3\times10^{-9}$ | | $(0.059 \text{ to } 1.212)\times10^{-9}$ | |
| – transmitter power output | 35-39 | dBm | 38.19-38.22 | |
| – digital message | correct | √ | √ | |

[1] Attach graphs depicting the test results.

| Parameters to be Measured | Range of Specification | Units | Test Results | Comments |
|---|---|---|---|---|
| 10. Operating Lifetime at Minimum Temperature[1] | | | | Annex 4 |
| – duration | >24 | | 48 hours | Real test duration was 49 hours |
| – transmit frequency nominal value | C/S T.001 | MHz | 406036.942 - 406036.954 | |
| – transmit frequency short-term stability | $\leq 2\times10^{-9}$ | /100 ms | $(0.030 \text{ to } 0.083)\times10^{-9}$ | |
| – transmit frequency medium-term stability slope | (-1 to +1) $\times10^{-9}$ | /min | $(-0.815 \text{ to } 0.799)\times10^{-9}$ | |
| – transmit frequency medium-term stability residual frequency variation | $\leq 3\times10^{-9}$ | | $(0.151 \text{ to } 2.957)\times10^{-9}$ | |
| – $Pt_{EOL}$ = minimum transmitter power output observed during lifetime at minimum temperature | 35-39 | dBm | 37.92-36.95 | |
| – Digital message | correct | √ | √ | |
| 11. Temperature Gradient (5 °C/hr)[1] | | | | Annex 3 |
| – transmit frequency nominal value | C/S T.001 | MHz | 406036.908-406036.950 | |
| – transmit frequency short-term stability | $\leq 2\times10^{-9}$ | /100 ms | $(0.024 \text{ to } 0.080)\times10^{-9}$ | |
| – transmit frequency medium-term stability: | | | | |
| • slope (A to B, C+15 to D and E+15 to F) | (-1 to +1) $\times10^{-9}$ | /min | $(-0.637 \text{ to } 0.437)\times10^{-9}$ | |
| • slope (B to C+15 and D to E+15) | (-2 to +2) $\times10^{-9}$ | /min | $(-0.259 \text{ to } -0.100)\times10^{-9}$<br>$(0.034 \text{ to } -0.060)\times10^{-9}$ | |
| • residual frequency variation | $\leq 3\times10^{-9}$ | | $(0.038 \text{ to } 2.118)\times10^{-9}$ | |
| – transmitter power output | 35-39 | dBm | 37.57-37.89 | |
| – digital message | correct | √ | √ | |
| 12. Oscillator Aging (data provided) | C/S T.001 | Hz | (0,22 ppm by 5years)<br>(89Hz by 5years) | Page 71 volume 2 Section 10 |
| 13. Protection Against Continuous Transmission description provided | <45 | sec | √ | Page 64 volume 2 Section 9 |
| 14. Satellite Qualitative Test (results provided)[2] | 15 Hex ID provided by LUT and position within 5 km 80% of time | √ | The received digital message corresponds to the encoded radio beacon ID The message is accepted by a satellite, is coordinates are determined (successfully located by satellites) At 38 satellite pass 18.02.10 distances between the position of EPIRB and coordinates calculated by COSPAS-SARSAT system were in the range from 0.24 km to 2.43 km. At 40 satellite pass 20.02.10 distances between the position of EPIRB and coordinates calculated by COSPAS-SARSAT system were in the range from 0.18 km to 3.18 km. At 38 satellite pass 19.02.10 distances between the position of EPIRB and coordinates calculated by COSPAS-SARSAT system were in the range from 0.15 km to 1,39 km | Annex 8 |

[1] Attach graphs depicting the test results.
[2] Attach a satellite qualitative test summary report (Appendix A to Annex F) for each test configuration.

| | | | | |
|---|---|---|---|---|
| Test report 10 | 26 E100G class2 V2.pdf | Test report 10 | 26 E100G class2 V2.pdf | Test report 10 |
| Test report 10<br>15.1 Test configuration 1. (Fig: B.2) “Water” ground plane. | 26 E100G class2 V2.pdf | Test report 10 | 26 E100G class2 V2.pdf | Test report 10 |
| polarization | linear or RHCP | | linear | Annex 5.1 |
| VSWR | ≤1.5 | | Not applicable to beacon with integral antennas | |
| $EIRP_{LOSS}$ | | dB | 0.9 | |
| $EIRP_{maxEOL}$ | ≤43 | dBm | 42.8 | |
| $EIRP_{minEOL}$ | ≥32 | dBm | 32.6 | |
| azimuth gain variation at 40° elevation angle | ≤3 | dB | 1.0 | |
| 15.2 Test configuration 4. (Fig: B.5) Beacon above ground plane. | | | | |
| polarization | linear or RHCP | | linear | Annex 5.2 |
| VSWR | ≤1.5 | | Not applicable to beacon with integral antennas | |
| $EIRP_{LOSS}$ | | dB | 0.91 | |
| $EIRP_{maxEOL}$ | ≤43 | dBm | 42.3 | |
| $EIRP_{minEOL}$ | ≥30 | dBm | 34.5 | |
| azimuth gain variation at 40° elevation angle | ≤3 | dB | 0.2 | |
| 16. Beacon Coding Software[1] | | | | Annex 6 |
| sample message provided for each coding option of the applicable coding types | correct | √ | √ | Per Table F-D.2 |
| sample self-test message provided for each coding option of the applicable coding types | correct | √ | √ | Per Table F-D.2 |

[1] Attach navigation system test results as per Appendix C to Annex F.

| Parameters to be Measured | Range of Specification | Units | Test Results | Comments |
|---|---|---|---|---|
| 17. Navigation System[1] | | | | |
| – position data default values | correct | √ | √ | Annex 7 Test per A.3.8.1 |
| – position acquisition time | <10/1 | min | From 0 min 49 sec to 1 min 41 sec | Annex 7 Test per A.3.8.2 |
| – position accuracy | C/S T.001 | | √ | Test per A.3.8.2 |
| – encoded position data update interval | >5 | min | 20 min 09 sec - SLP<br>20 min 38 sec - ULP<br>20 min 37 sec - NLP | Test per A.3.8.3 |
| – position clearance after deactivation | cleared | √ | √ | Annex 7 Test per A.3.8.4 |
| – position data encoding | correct | √ | √ | Volume 2 page 84, 85 section 16 (Data submitted by manufacturer) |
| – retained last valid position after navigation input lost | 240(±5) | min | 239 min 22 sec – SLP<br>239 min 30 sec – ULP<br>239 min 57 sec – NLP | Annex 7 Test per A.3.8.6 |
| – default position data transmitted after 240(±5) minutes without valid position data | cleared | √ | √ | Annex 7 Test per A.3.8.6 |
| – information provided on protection against beacon degradation due to navigation device, interface or signal failure or malfunction | provided | √ | √ | Volume 2 |

[1] Attach examples of each requested coding option as per Appendix D to Annex F.

Senior Engineer  A.V.Baydachniy

# ANNEX 1

# ELECTRICAL AND FUNCTIONAL PERFORMANCE MEASUREMENTS AT CONSTANT TEMPERATURE

## (ANNEX A.2.1 C/S T.007)

## Electrical and Functional Tests at Constant Temperature

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**

**Test conditions:**

- laboratory ambient temperature +19 °C;
- normal operating temperature +20 °C;
- maximum operating temperature +55 °C;
- minimum operating temperature minus 20 °C;
- the repetition period duration for Spurious output test is 50 seconds;
- the duration of Spurious output test is 2 hour (150-155 burst);
- active load value for VSWR test is 17 Ohm;
- matching network was not used.

**The list of protocols**

| Parameter tested | Operating temperature | | |
|---|---|---|---|
| | +20 °C | +55 °C | minus 20 °C |
| | Protocol No (page No) | | |
| **Transmitter power output** | | | |
| Transmitter power output | 1 (19) | 8 (31) | 15 (43) |
| Maximum and minimum value of output power during operating | 5 (21) | 12 (33) | 19 (45) |
| Output power rise time | 23 | 35 | 47 |
| Power output 1 ms before burst | 23 | 35 | 47 |
| **Messages** | | | |
| Message contents | 22 | 34 | 46 |
| **Digital message generator** | | | |
| First burst delay | 24 | 36 | 48 |
| Average repetition rate and standard deviation | 24 | 36 | 48 |
| Minimal and maximal value of digital message generator parameters | 5 (21) | 12 (33) | 19 (45) |
| **Modulation** | | | |
| Modulation index | 3 (20) | 10 (32) | 17 (44) |
| Modulation rise and fall times | 3 (20) | 10 (32) | 17 (44) |
| View of modulation 3 first bit message | 4 (20) | 11 (32) | 18 (44) |
| Maximum and minimum value during operating | 5 (21) | 12 (33) | 19 (45) |
| **Transmitted frequency** | | | |
| Nominal value | 1 (19) | 8 (31) | 15 (43) |
| Medium /short term frequency stability | 2 (19) | 9 (31) | 16 (43) |
| Maximum and minimum value during operating | 5 (21) | 12 (33) | 19 (45) |
| **Spurious emissions** | | | |
| Spurious emissions | 25 | 37 | 49 |
| **VSWR test** | | | |
| Transmitter nominal frequency | 6 (26) | 13 (38) | 20 (50) |
| Digital message content | 27 | 39 | 51 |
| The modulation parameters | 6 (26) | 13 (38) | 20 (50) |
| **Self-test mode** | | | |
| Duration of the burst | 7 (28) | 14 (40) | 21 (52) |
| Digital message content (frame synchronization, format flag) | 29 | 41 | 53 |
| The Output power, frequency and modulation parameters of the self- test burst | 7 (28) | 14 (40) | 21 (52) |

# ANNEX 1.1

## PERFORMANCE MEASUREMENTS AT NORMAL TEMPERATURE 20 °C

## TEST DURATION 2 HOURS

## (Annex A.2.1 C/S T.007)

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 18.01.2010

Protocol N 1
Date 18.01.2010 Conditions Normal temperature
Beacon Model E100G class 2 Beacon N 0001200014I
Message:FFFE2F 8C96F9C0637FDFF992EF3 783E0F66C

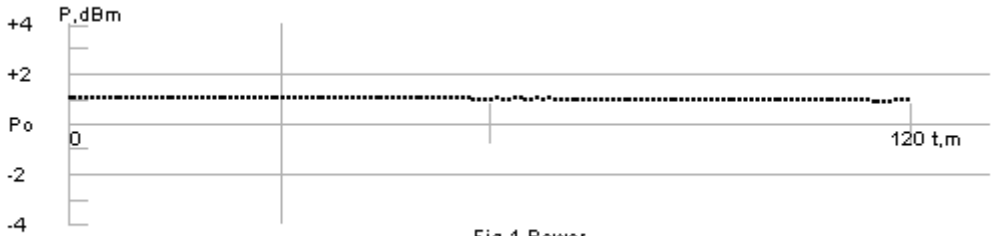


Fig.1 Power

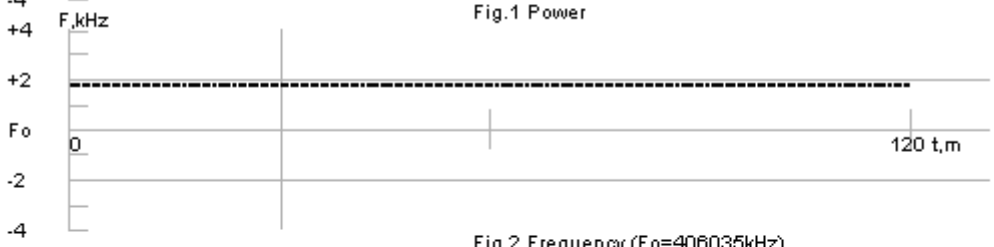


Fig.2 Frequency (Fo=406035kHz)


Protocol N 2
Date 18.01.2010 Conditions Normal temperature
Beacon Model E100G class 2 Beacon N 0001200014I
Message:FFFE2F 8C96F9C0637FDFF992EF3 783E0F66C

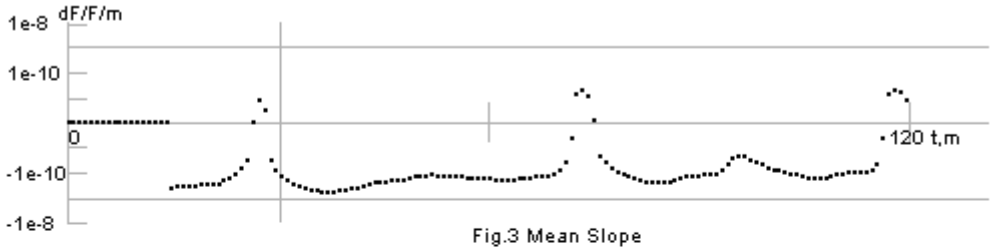


Fig.3 Mean Slope

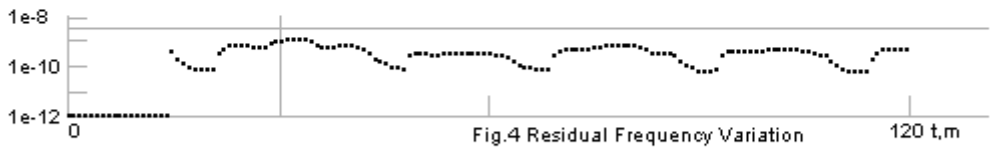


Fig.4 Residual Frequency Variation

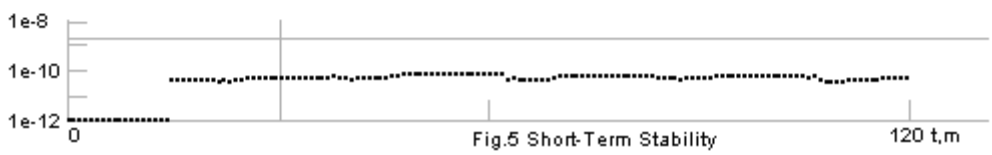


Fig.5 Short-Term Stability

Protocol N 3

Date 18.01.2010 Conditions Normal temperature

Beacon Model E100G class 2 Beacon N 0001200014I

Message:FFFE2F 8C96F9C0637FDFF992EF3 783E0F66C


Fig.6 Modulation index


Fig.7 Rise and Fall Times

Protocol N 4

Date 18.01.2010 Conditions Normal temperature

Beacon Model E100G class 2 Beacon N 0001200014I

Message:FFFE2F 8C96F9C0637FDFF992EF3 783E0F66C

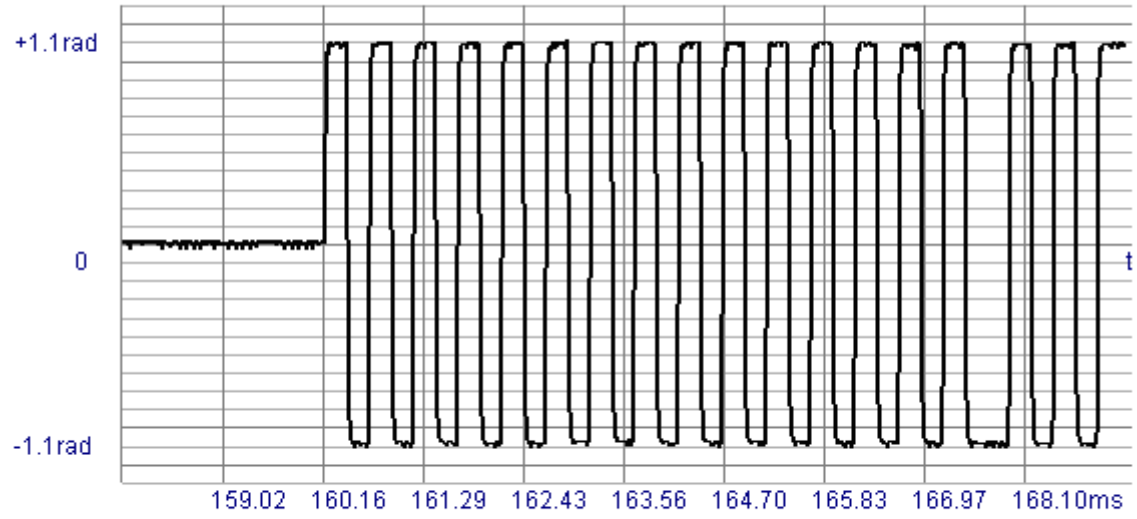



Fig.8 Phase

Phase+ =62.07 ° TRise+ =142.7 mcs

Phase- =-62.00 ° TFall- =157.9 mcs

Protocol N 5

Date 18.01.2010 Conditions Normal temperature

Beacon Model E100G class 2 Beacon N 0001200014I

| Test duration 2 h 0 m | Bursts received 147 | BCH error 0 | Self-Test 0 | | |
|---|---|---|---|---|---|
| **406 MHz Transmitter Parameters** | **Limits** | | **Measured** | | |
| | **min** | **max** | **min** | **current** | **max** |
| **Frequency, kHz** | 406036.000 | 406038.000 | 406036.930 | 406036.930 | 406036.938 |
| **+Phase deviation, rad** | 1.00 | 1.20 | 1.06 | 1.08 | 1.12 |
| **-Phase deviation, rad** | -1.00 | -1.20 | -1.04 | -1.08 | -1.11 |
| **Phase time rise, mcs** | 50.00 | 250.00 | 140.97 | 142.71 | 146.07 |
| **Phase time fall, mcs** | 50.00 | 250.00 | 156.46 | 157.86 | 159.87 |
| **Power, Wt** | 3.16 | 7.94 | 6.21 | 6.25 | 6.37 |
| **Power rise, ms** | 0.00 | 0.00 | 0.00 | 0.60 | 0.00 |
| **Bit Rate, bps** | 396.00 | 404.00 | 399.89 | 399.93 | 400.06 |
| **Asymmetry, %** | 0.00 | 5.00 | 0.27 | 0.46 | 0.73 |
| **CW Preamble, ms** | 158.40 | 161.60 | 160.10 | 160.12 | 160.12 |
| **Total burst duration, ms** | 514.80 | 525.20 | 519.00 | 519.05 | 519.15 |
| **Repetition period, s** | 47.50 | 52.50 | 47.50 | 52.51 | 52.51 |
| **Repetition period mean, s** | | | | 49.45 | |
| **Repetition period rms, s** | | | | 1.71 | |
| **Delta Rep. period, s** | 4.00 | | | 5.00 | 5.00 |
| **Slope(E-9)** | -1.00 | 1.00 | -0.541 | -0.001 | 0.020 |
| **Residual variations (E-9)** | 0.00 | 3.00 | 0.058 | 0.503 | 1.227 |
| **Short term variations (E-9)** | 0.00 | 2.00 | 0.036 | 0.055 | 0.083 |

| **121.5 MHz Transmitter Parameters** | | | |
|---|---|---|---|
| **Carrier Frequency, Hz** | 121499843 | **Low Sweep Frequency, Hz** | 351 |
| **Power, mW** | 80.3 | **High Sweep Frequency, Hz** | 1176 |
| **Sweep Period, sec** | 0.3 | **Sweep Range, Hz** | 825 |
| **Modulation Index, %** | 100 | | |

| **Message** | |
|---|---|
| **Contents (full)** | :FFFE2F 8C96F9C0637FDFF992EF3 783E0F66C |

Decoding Beacon ID

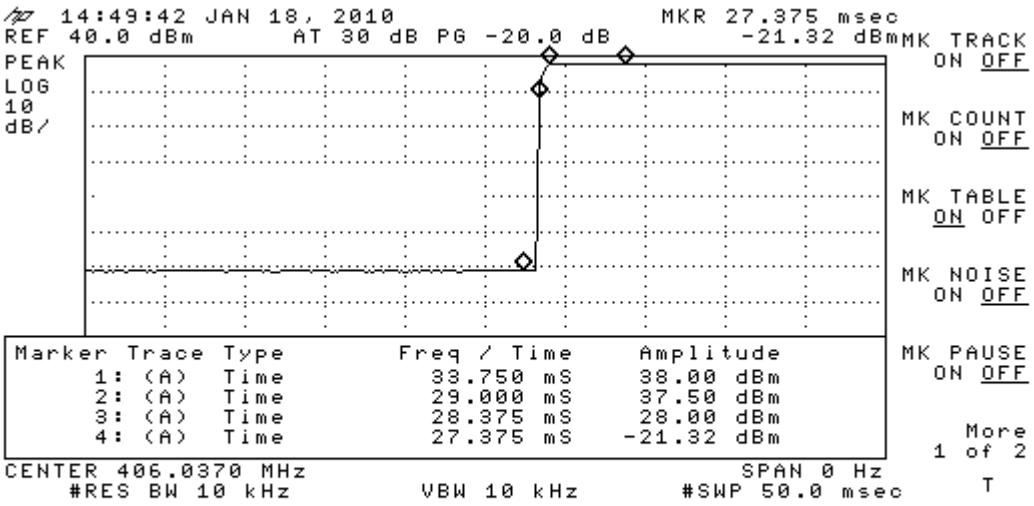
**Full message: FFFE2F8C96F9C0637FDFF992EF3783E0F66C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (Serial)** | **37-40** | **0110** |
| **Cospas-Sarsat #: 999** | **41-50** | **1111100111** |
| **Serial Number: 99** | **51-64** | **00000001100011** |
| **Latitude Sign: default** | **65** | **0** |
| **Latitude Degrees: default** | **66-72** | **1111111** |
| **Latitude Minutes: default** | **73-74** | **11** |
| **Longitude Sign: default** | **75** | **0** |
| **Longitude Degrees: default** | **76-83** | **11111111** |
| **Longitude Minutes: default** | **84-85** | **11** |
| **BCH 1 Encoded:** | **86-106** | **00110010010111011110 0** |
| **BCH 1 Calculated:** | **N/A** | **00110010010111011110 0** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: default** | **113** | **1** |
| **Latitude Offset Minutes: default** | **114-118** | **00000** |
| **Latitude Offset Seconds: default** | **119-122** | **1111** |
| **Longitude Offset Sign: default** | **123** | **1** |
| **Longitude Offset Minutes: default** | **124-128** | **00000** |
| **Longitude Offset Seconds: default** | **129-132** | **1111** |
| **BCH 2 Encoded:** | **133-144** | **011001101100** |
| **BCH 2 Calculated:** | **N/A** | **011001101100** |
| **Composite Latitude: default** | **N/A** | **Composite Longitude: default** |
| **15 Hex ID:** | **N/A** | **192DF380C6FFBFF** |

**Check of power output rise time of output signal 406,037 MHz**
**(item A.3.2.2.2 C/S T.007)**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 18.01.2010

Plot after 2 hours operating at normal temperature +20 ºC



**Measurement of time interval**
**from the moment of beacon activation till the first (operating) burst**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 18.01.2010

**Test conditions:**
- room ambient temperature: +21 °C;
- normal climatic operating EPIRB Survival temperature: +20 ºC;
- time of beacon exposure at maximum specified operating temperature , before measurement: 2 hours;
- beacon mode during exposure: turned off;
- number of measurements: 3

**Requirement of C/S T.007 (Table F.1, section 3, the last paragraph):**
first burst delay shall exceed 47,5 seconds for all climatic conditions

| | **Measurement commencement time** | **Time interval, sec** |
|---|---|---|
| | | **from the moment of beacon activation till the first (operating) burst** |
| 1st measurement | 14:50 | 49.31 |
| 2d measurement | 14:52 | 50.13 |
| 3d measurement | 14:54 | 49.42 |
| **Minimum value** | | **49.31** |
| **Maximum value** | | **50.13** |

**Statistic measurements of**
**randomized repetition period of transmission**
**(item A.3.1.1, C/S T.007)**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 18.01.2010

**Test conditions:**
normal climatic conditions: +20 °C;
time of beacon exposure at maximum specified operating temperature , before measurement: 2 hours;
beacon mode during exposure: turned ON;
number of measurements: 3

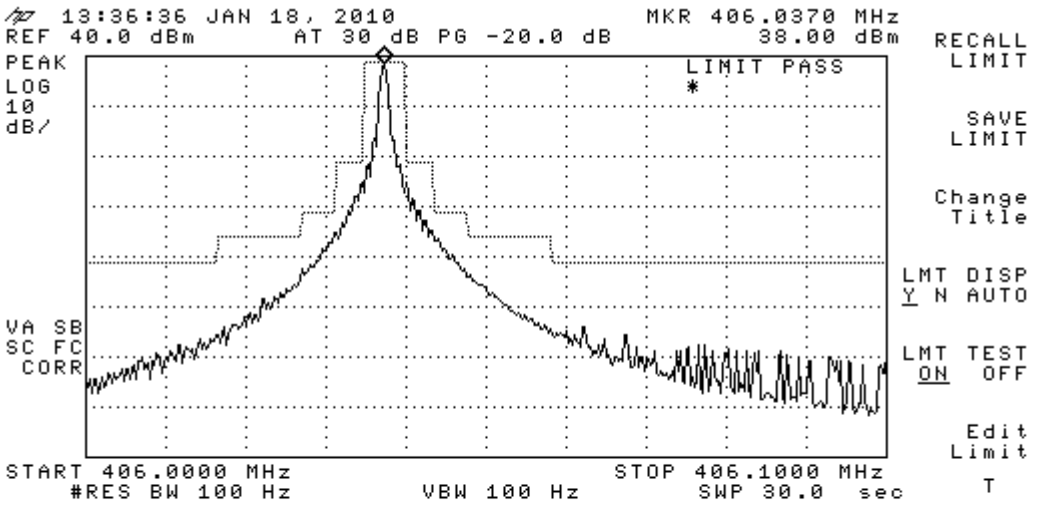
**Requirement of C/S T.007 (Table F.1, section 3, the first paragraph):**
the average repetition period based on 18 successive measurements shall be 50 sec ± 1,5 sec;
the standard deviation of the 18 values of $T_R$ shall be between 0,5 seconds and 2,0 seconds

| **Measurement commencement time** | **$T_R$ between the beginnings of two successive transmissions, seconds** | |
|---|---|---|
| | **Average repetition period** | **Deviation** |
| 13:15 | 49.45 | 1.71 |

**Check of out-of-band and spurious emissions of output signal 406,037 MHz within a frequency range 406,0-406,1 MHz**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 18.01.2010

Plot after 2 hours operating at normal temperature + 20 °C



**Measuring results when transmitter operated into a load having a VSWR of 3:1 (pure resistive load R=17 Ohm) after operation of the transmitter into an open circuit for period of 5 minutes, and then into a short circuit for period of 5 minutes.**

Protocol N 6

Date 18.01.2010 Conditions Normal temperature

Beacon Model E100G class 2 Beacon N 0001200014I

| Test duration 0 h 15 m | Bursts received 20 | BCH error 0 | Self-Test 0 | | |
|---|---|---|---|---|---|
| 406 MHz Transmitter Parameters | Limits | | Measured | | |
| | min | max | min | current | max |
| Frequency, kHz | 406036.000 | 406038.000 | 406036.929 | 406036.929 | 406036.929 |
| +Phase deviation, rad | 1.00 | 1.20 | 1.08 | 1.08 | 1.09 |
| -Phase deviation, rad | -1.00 | -1.20 | -1.08 | -1.08 | -1.09 |
| Phase time rise, mcs | 50.00 | 250.00 | 142.33 | 143.63 | 143.87 |
| Phase time fall, mcs | 50.00 | 250.00 | 157.32 | 157.32 | 158.41 |
| Power, Wt | 3.16 | 7.94 | 6.15 | 6.15 | 6.21 |
| Power rise, ms | 0.00 | 0.00 | 0.00 | 0.60 | 0.00 |
| Bit Rate, bps | 396.00 | 404.00 | 399.93 | 399.93 | 400.06 |
| Asymmetry, % | 0.00 | 5.00 | 0.41 | 0.45 | 0.49 |
| CW Preamble, ms | 158.40 | 161.60 | 160.11 | 160.11 | 160.12 |
| Total burst duration, ms | 514.80 | 525.20 | 519.00 | 519.05 | 519.05 |
| Repetition period, s | 47.50 | 52.50 | 47.51 | 49.31 | 52.51 |
| Delta Rep. period, s | 4.00 | | | 5.00 | 5.00 |
| Slope(E-9) | -1.00 | 1.00 | -0.120 | -0.095 | -0.095 |
| Residual variations (E-9) | 0.00 | 3.00 | 0.157 | 0.157 | 0.267 |
| Short term variations (E-9) | 0.00 | 2.00 | 0.049 | 0.049 | 0.049 |

| 121.5 MHz Transmitter Parameters | | | |
|---|---|---|---|
| Carrier Frequency, Hz | 121499873 | Low Sweep Frequency, Hz | 345 |
| Power, mW | 79.6 | High Sweep Frequency, Hz | 1176 |
| Sweep Period, sec | 0.3 | Sweep Range, Hz | 831 |
| Modulation Index, % | 100 | | |

| Message | |
|---|---|
| Contents (full) | :FFFE2F 8C96F9C0637FDFF992EF3 783E0F66C |

Decoding Beacon ID

**Full message: FFFE2F8C96F9C0637FDFF992EF3783E0F66C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (Serial)** | **37-40** | **0110** |
| **Cospas-Sarsat #: 999** | **41-50** | **1111100111** |
| **Serial Number: 99** | **51-64** | **00000001100011** |
| **Latitude Sign: default** | **65** | **0** |
| **Latitude Degrees: default** | **66-72** | **1111111** |
| **Latitude Minutes: default** | **73-74** | **11** |
| **Longitude Sign: default** | **75** | **0** |
| **Longitude Degrees: default** | **76-83** | **11111111** |
| **Longitude Minutes: default** | **84-85** | **11** |
| **BCH 1 Encoded:** | **86-106** | **00110010010111011110 0** |
| **BCH 1 Calculated:** | **N/A** | **00110010010111011110 0** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: default** | **113** | **1** |
| **Latitude Offset Minutes: default** | **114-118** | **00000** |
| **Latitude Offset Seconds: default** | **119-122** | **1111** |
| **Longitude Offset Sign: default** | **123** | **1** |
| **Longitude Offset Minutes: default** | **124-128** | **00000** |
| **Longitude Offset Seconds: default** | **129-132** | **1111** |
| **BCH 2 Encoded:** | **133-144** | **011001101100** |
| **BCH 2 Calculated:** | **N/A** | **011001101100** |
| **Composite Latitude: default** | **N/A** | **Composite Longitude: default** |
| **15 Hex ID:** | **N/A** | **192DF380C6FFBFF** |

## Measuring results of EPIRB self-test

Protocol N 7

Date 18.01.2010 Conditions Normal temperature

Beacon Model E100G class 2 Beacon N 0001200014I

| Test duration 0 h 0 m | Bursts received 1 | BCH error 0 | Self-Test 1 | | |
|---|---|---|---|---|---|
| **406 MHz Transmitter Parameters** | **Limits** | | **Measured** | | |
| | **min** | **max** | **min** | **current** | **max** |
| **Frequency, kHz** | 406036.000 | 406038.000 | 0.000 | 406036.943 | 0.000 |
| **+Phase deviation, rad** | 1.00 | 1.20 | 0.00 | 1.08 | 0.00 |
| **-Phase deviation, rad** | -1.00 | -1.20 | 0.00 | -1.09 | 0.00 |
| **Phase time rise, mcs** | 50.00 | 250.00 | 0.00 | 143.35 | 0.00 |
| **Phase time fall, mcs** | 50.00 | 250.00 | 0.00 | 157.21 | 0.00 |
| **Power, Wt** | 3.16 | 7.94 | 0.00 | 6.15 | 0.00 |
| **Power rise, ms** | 0.00 | 0.00 | 0.00 | 0.60 | 0.00 |
| **Bit Rate, bps** | 396.00 | 404.00 | 0.00 | 400.00 | 0.00 |
| **Asymmetry, %** | 0.00 | 5.00 | 0.00 | 0.44 | 0.00 |
| **CW Preamble, ms** | 158.40 | 161.60 | 0.00 | 160.10 | 0.00 |
| **Total burst duration, ms** | 514.80 | 525.20 | 0.00 | 519.05 | 0.00 |
| **Repetition period, s** | 47.50 | 52.50 | 0.00 | 0.00 | 0.00 |
| **Delta Rep. period, s** | 4.00 | | | 0.00 | 0.00 |
| **Slope(E-9)** | -1.00 | 1.00 | 0.000 | 0.000 | 0.000 |
| **Residual variations (E-9)** | 0.00 | 3.00 | 0.000 | 0.000 | 0.000 |
| **Short term variations (E-9)** | 0.00 | 2.00 | 0.000 | 0.000 | 0.000 |

| **121.5 MHz Transmitter Parameters** | | | |
|---|---|---|---|
| **Carrier Frequency, Hz** | 121499879 | **Low Sweep Frequency, Hz** | 345 |
| **Power, mW** | 80.0 | **High Sweep Frequency, Hz** | 1176 |
| **Sweep Period, sec** | 0.3 | **Sweep Range, Hz** | 831 |
| **Modulation Index, %** | 100 | | |

| **Message** | |
|---|---|
| **Contents (full)** | :FFFED0 8C96F9C0637FDFF992EF3 783E0F66C |

Decoding Beacon ID

**Full message: FFFED08C96F9C0637FDFF992EF3783E0F66C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (Serial)** | **37-40** | **0110** |
| **Cospas-Sarsat #: 999** | **41-50** | **1111100111** |
| **Serial Number: 99** | **51-64** | **00000001100011** |
| **Latitude Sign: default** | **65** | **0** |
| **Latitude Degrees: default** | **66-72** | **1111111** |
| **Latitude Minutes: default** | **73-74** | **11** |
| **Longitude Sign: default** | **75** | **0** |
| **Longitude Degrees: default** | **76-83** | **11111111** |
| **Longitude Minutes: default** | **84-85** | **11** |
| **BCH 1 Encoded:** | **86-106** | **00110010010111011110 0** |
| **BCH 1 Calculated:** | **N/A** | **00110010010111011110 0** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: default** | **113** | **1** |
| **Latitude Offset Minutes: default** | **114-118** | **00000** |
| **Latitude Offset Seconds: default** | **119-122** | **1111** |
| **Longitude Offset Sign: default** | **123** | **1** |
| **Longitude Offset Minutes: default** | **124-128** | **00000** |
| **Longitude Offset Seconds: default** | **129-132** | **1111** |
| **BCH 2 Encoded:** | **133-144** | **011001101100** |
| **BCH 2 Calculated:** | **N/A** | **011001101100** |
| **Composite Latitude: default** | **N/A** | **Composite Longitude: default** |
| **15 Hex ID:** | **N/A** | **192DF380C6FFBFF** |

**ANNEX 1.2**

**PERFORMANCE MEASUREMENTS**
**AT MAXIMUM DECLARED TEMPERATURE +55 °C**

**TEST DURATION 2 HOURS**

**(Annex A.2.1 C/S T.007)**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 19.01.2010

Protocol N 8
Date 19.01.2010 Conditions Maximum temperature
Beacon Model E100G class 2 Beacon N 0001200014I
Message:FFFE2F 8C96F9C0637FDFF992EF3 783E0F66C

Fig.1 Power

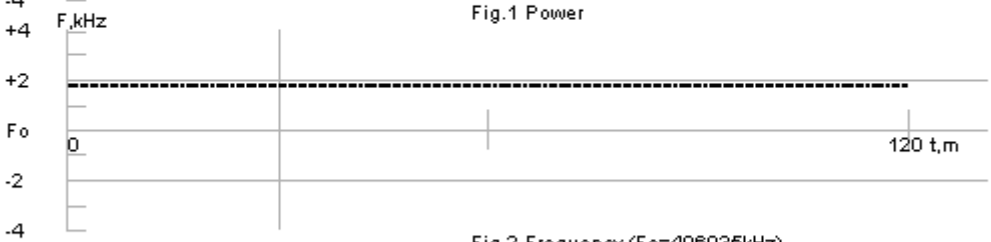


Fig.2 Frequency (Fo=406035kHz)

Rms delta bursts frequency

Protocol N 9
Date 19.01.2010 Conditions Maximum temperature
Beacon Model E100G class 2 Beacon N 0001200014I
Message:FFFE2F 8C96F9C0637FDFF992EF3 783E0F66C

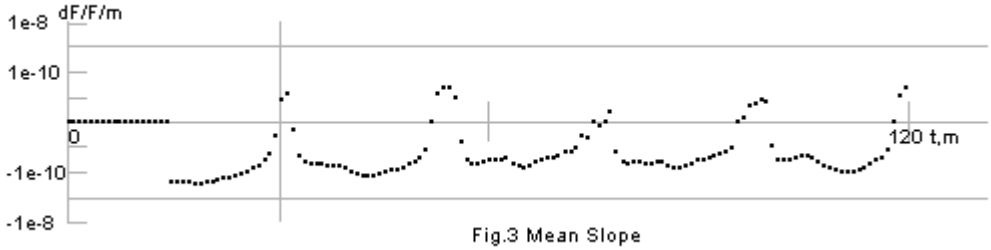


Fig.3 Mean Slope

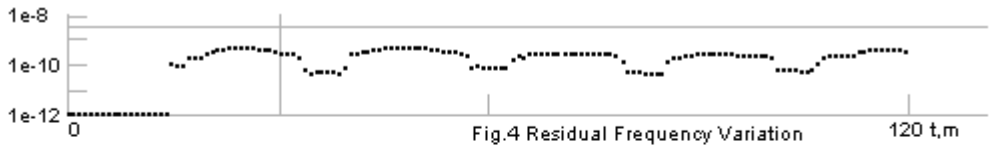


Fig.4 Residual Frequency Variation

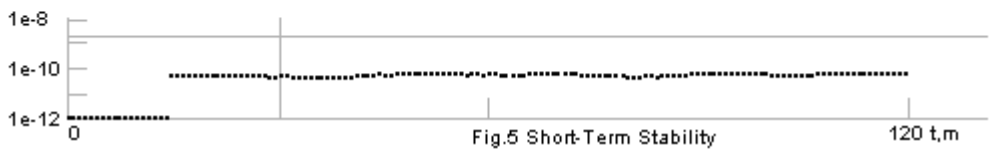


Fig.5 Short-Term Stability

Protocol N 10

Date 19.01.2010 Conditions Maximum temperature

Beacon Model E100G class 2 Beacon N 0001200014I

Message:FFFE2F 8C96F9C0637FDFF992EF3 783E0F66C


Fig.6 Modulation index


Fig.7 Rise and Fall Times

Protocol N 11

Date 19.01.2010 Conditions Maximum temperature

Beacon Model E100G class 2 Beacon N 0001200014I

Message:FFFE2F 8C96F9C0637FDFF992EF3 783E0F66C

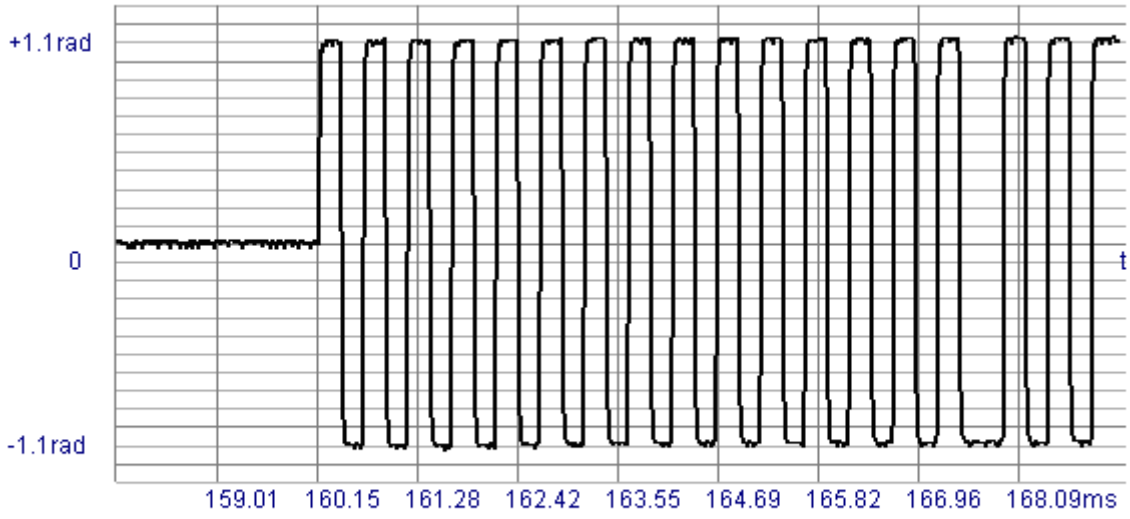



Fig.8 Phase

Phase+ =63.11 ° TRise+ =140.0 mcs

Phase- =-62.53 ° TFall- =155.2 mcs

Protocol N 12

Date 19.01.2010 Conditions Maximum temperature

Beacon Model E100G class 2 Beacon N 0001200014I

| Test duration 2 h 0 m | Bursts received 147 | BCH error 0 | Self-Test 0 | | |
|---|---|---|---|---|---|
| 406 MHz Transmitter Parameters | Limits | | Measured | | |
| | min | max | min | current | max |
| Frequency, kHz | 406036.000 | 406038.000 | 406036.913 | 406036.913 | 406036.915 |
| +Phase deviation, rad | 1.00 | 1.20 | 1.06 | 1.10 | 1.12 |
| -Phase deviation, rad | -1.00 | -1.20 | -1.07 | -1.09 | -1.13 |
| Phase time rise, mcs | 50.00 | 250.00 | 137.06 | 140.02 | 145.10 |
| Phase time fall, mcs | 50.00 | 250.00 | 150.05 | 155.22 | 158.20 |
| Power, Wt | 3.16 | 7.94 | 6.15 | 6.15 | 6.16 |
| Power rise, ms | 0.00 | 0.00 | 0.00 | 0.55 | 0.00 |
| Bit Rate, bps | 396.00 | 404.00 | 399.87 | 400.01 | 400.01 |
| Asymmetry, % | 0.00 | 5.00 | 0.20 | 0.45 | 0.62 |
| CW Preamble, ms | 158.40 | 161.60 | 160.10 | 160.11 | 160.13 |
| Total burst duration, ms | 514.80 | 525.20 | 519.10 | 519.15 | 519.15 |
| Repetition period, s | 47.50 | 52.50 | 47.51 | 50.41 | 52.51 |
| Repetition period mean, s | | | | 49.45 | |
| Repetition period rms, s | | | | 1.71 | |
| Delta Rep. period, s | 4.00 | | | 5.00 | 5.00 |
| Slope(E-9) | -1.00 | 1.00 | -0.255 | 0.039 | 0.039 |
| Residual variations (E-9) | 0.00 | 3.00 | 0.043 | 0.300 | 0.476 |
| Short term variations (E-9) | 0.00 | 2.00 | 0.042 | 0.067 | 0.069 |

| 121.5 MHz Transmitter Parameters | | | |
|---|---|---|---|
| Carrier Frequency, Hz | 121499239 | Low Sweep Frequency, Hz | 345 |
| Power, mW | 79.4 | High Sweep Frequency, Hz | 1176 |
| Sweep Period, sec | 0.3 | Sweep Range, Hz | 831 |
| Modulation Index, % | 100 | | |

| Message | |
|---|---|
| Contents (full) | :FFFE2F 8C96F9C0632C84337695B 79500A39A |

Decoding Beacon ID

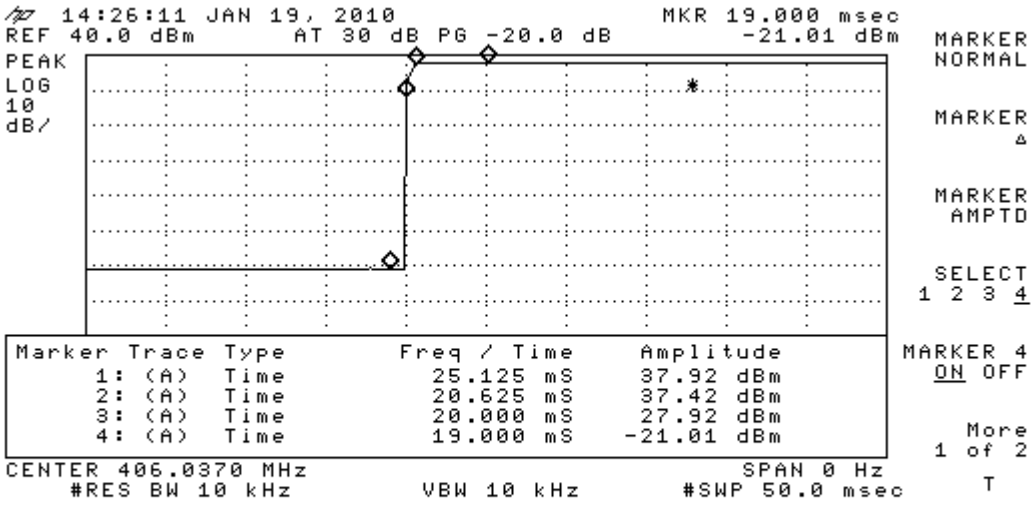
**Full message: FFFE2F8C96F9C0637FDFF992EF3783E0F66C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (Serial)** | **37-40** | **0110** |
| **Cospas-Sarsat #: 999** | **41-50** | **1111100111** |
| **Serial Number: 99** | **51-64** | **00000001100011** |
| **Latitude Sign: default** | **65** | **0** |
| **Latitude Degrees: default** | **66-72** | **1111111** |
| **Latitude Minutes: default** | **73-74** | **11** |
| **Longitude Sign: default** | **75** | **0** |
| **Longitude Degrees: default** | **76-83** | **11111111** |
| **Longitude Minutes: default** | **84-85** | **11** |
| **BCH 1 Encoded:** | **86-106** | **00110010010111011110 0** |
| **BCH 1 Calculated:** | **N/A** | **00110010010111011110 0** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: default** | **113** | **1** |
| **Latitude Offset Minutes: default** | **114-118** | **00000** |
| **Latitude Offset Seconds: default** | **119-122** | **1111** |
| **Longitude Offset Sign: default** | **123** | **1** |
| **Longitude Offset Minutes: default** | **124-128** | **00000** |
| **Longitude Offset Seconds: default** | **129-132** | **1111** |
| **BCH 2 Encoded:** | **133-144** | **011001101100** |
| **BCH 2 Calculated:** | **N/A** | **011001101100** |
| **Composite Latitude: default** | **N/A** | **Composite Longitude: default** |
| **15 Hex ID:** | **N/A** | **192DF380C6FFBFF** |

**Check of power output rise time of output signal 406,037 MHz**
**(item A.3.2.2.2 C/S T.007)**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 19.01.2010

Plot after 2 hours operating at maximum temperature +55 ºC



**Measurement of time interval**
**from the moment of beacon activation till the first (operating) burst**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 19.01.2010

**Test conditions:**
- room ambient temperature : +20 °C;
- maximum specified operating EPIRB Survival temperature: +55 ºC;
- time of beacon exposure at maximum specified operating temperature , before measurement: 2 hours;
- beacon mode during exposure: turned off;
- number of measurements: 3

**Requirement of C/S T.007 (Table F.1, section 3, the last paragraph):**
first burst delay shall exceed 47,5 seconds for all climatic conditions

| | **Measurement commencement time** | **Time interval, sec** |
|---|---|---|
| | | **from the moment of beacon activation till the first (operating) burst** |
| 1st measurement | 16:02 | 49.38 |
| 2d measurement | 16:04 | 50.05 |
| 3d measurement | 16:06 | 49.73 |
| **Minimum value** | | **49.38** |
| **Maximum value** | | **50.05** |

**Statistic measurements of**
**randomized repetition period of transmission**
**(item A.3.1.1, C/S T.007)**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 19.01.2010

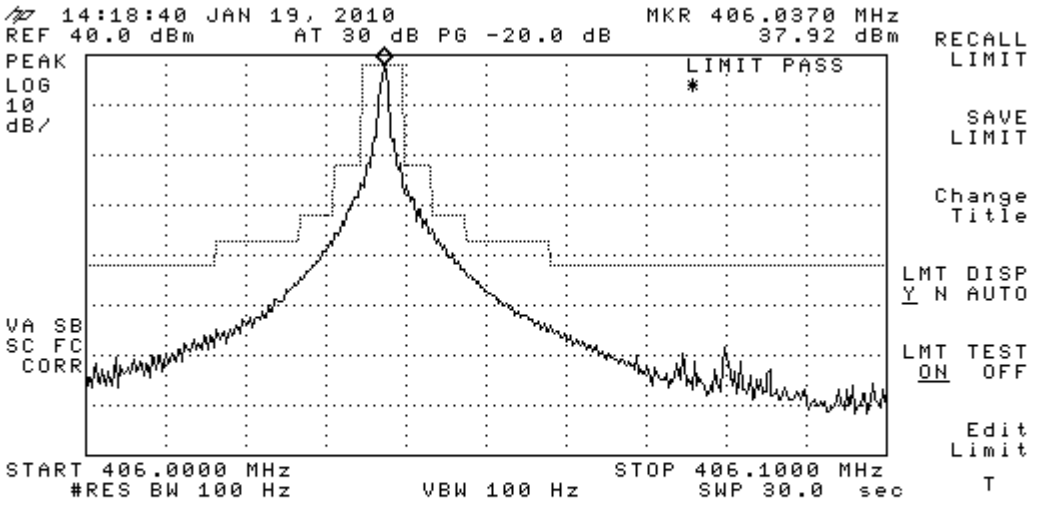
**Test conditions:**
maximum specified operating EPIRB Survival temperature: +55 ºC;
time of beacon exposure at maximum specified operating temperature , before measurement: 2 hours;
beacon mode during exposure: turned off;
**Requirement of C/S T.007 (Table F.1, section 3, the first paragraph):**
the average repetition period based on 18 successive measurements shall be 50 sec ± 1,5 sec;
the standard deviation of the 18 values of $T_R$ shall be between 0,5 seconds and 2,0 seconds

| **Measurement commencement time** | **$T_R$ between the beginnings of two successive transmissions, seconds** | |
|---|---|---|
| | **Average repetition period** | **Deviation** |
| 14:30 | 49.45 | 1.71 |

**Check of out-of-band and spurious emissions of output signal 406,037 MHz within a frequency range 406,0-406,1 MHz**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 19.01.2010

Plot after 2 hours operating at maximum declared temperature +55 °C.



**Measuring results when transmitter operated into a load having a VSWR of 3:1 (pure resistive load R=17 Ohm) after operation of the transmitter into an open circuit for period of 5 minutes, and then into a short circuit for period of 5 minutes.**

Protocol N 13
Date 19.01.2010 Conditions Maximum temperature
Beacon Model E100G class 2 Beacon N 0001200014I

| Test duration 0 h 15 m | Bursts received 20 | BCH error 0 | Self-Test 0 | | |
|---|---|---|---|---|---|
| 406 MHz Transmitter Parameters | Limits | | Measured | | |
| | min | max | min | current | max |
| Frequency, kHz | 406036.000 | 406038.000 | 406036.913 | 406036.913 | 406036.914 |
| +Phase deviation, rad | 1.00 | 1.20 | 1.09 | 1.09 | 1.09 |
| -Phase deviation, rad | -1.00 | -1.20 | -1.09 | -1.10 | -1.10 |
| Phase time rise, mcs | 50.00 | 250.00 | 139.90 | 140.97 | 148.64 |
| Phase time fall, mcs | 50.00 | 250.00 | 153.45 | 154.09 | 155.18 |
| Power, Wt | 3.16 | 7.94 | 6.15 | 6.15 | 6.15 |
| Power rise, ms | 0.00 | 0.00 | 0.00 | 0.55 | 0.00 |
| Bit Rate, bps | 396.00 | 404.00 | 399.87 | 399.88 | 400.01 |
| Asymmetry, % | 0.00 | 5.00 | 0.36 | 0.40 | 0.42 |
| CW Preamble, ms | 158.40 | 161.60 | 160.10 | 160.11 | 160.12 |
| Total burst duration, ms | 514.80 | 525.20 | 519.10 | 519.15 | 519.15 |
| Repetition period, s | 47.50 | 52.50 | 47.51 | 50.41 | 52.51 |
| Delta Rep. period, s | 4.00 | | | 5.00 | 5.00 |
| Slope(E-9) | -1.00 | 1.00 | -0.178 | -0.178 | -0.178 |
| Residual variations (E-9) | 0.00 | 3.00 | 0.182 | 0.182 | 0.221 |
| Short term variations (E-9) | 0.00 | 2.00 | 0.057 | 0.057 | 0.058 |

| 121.5 MHz Transmitter Parameters | | | |
|---|---|---|---|
| Carrier Frequency, Hz | 121499248 | Low Sweep Frequency, Hz | 345 |
| Power, mW | 79.0 | High Sweep Frequency, Hz | 1176 |
| Sweep Period, sec | 0.3 | Sweep Range, Hz | 831 |
| Modulation Index, % | 100 | | |

| Message | |
|---|---|
| Contents (full) | :FFFE2F 8C96F9C0632C84337695B 79500A39A |

Decoding Beacon ID

**Full message: FFFE2F8C96F9C0637FDFF992EF3783E0F66C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (Serial)** | **37-40** | **0110** |
| **Cospas-Sarsat #: 999** | **41-50** | **1111100111** |
| **Serial Number: 99** | **51-64** | **00000001100011** |
| **Latitude Sign: default** | **65** | **0** |
| **Latitude Degrees: default** | **66-72** | **1111111** |
| **Latitude Minutes: default** | **73-74** | **11** |
| **Longitude Sign: default** | **75** | **0** |
| **Longitude Degrees: default** | **76-83** | **11111111** |
| **Longitude Minutes: default** | **84-85** | **11** |
| **BCH 1 Encoded:** | **86-106** | **00110010010111011110 0** |
| **BCH 1 Calculated:** | **N/A** | **00110010010111011110 0** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: default** | **113** | **1** |
| **Latitude Offset Minutes: default** | **114-118** | **00000** |
| **Latitude Offset Seconds: default** | **119-122** | **1111** |
| **Longitude Offset Sign: default** | **123** | **1** |
| **Longitude Offset Minutes: default** | **124-128** | **00000** |
| **Longitude Offset Seconds: default** | **129-132** | **1111** |
| **BCH 2 Encoded:** | **133-144** | **011001101100** |
| **BCH 2 Calculated:** | **N/A** | **011001101100** |
| **Composite Latitude: default** | **N/A** | **Composite Longitude: default** |
| **15 Hex ID:** | **N/A** | **192DF380C6FFBFF** |

## Measuring results of EPIRB self-test

Protocol N 14

Date 19.01.2010 Conditions Maximum temperature

Beacon Model E100G class 2 Beacon N 0001200014I

| Test duration 0 h 0 m | Bursts received 1 | BCH error 0 | Self-Test 1 | | |
|---|---|---|---|---|---|
| 406 MHz Transmitter Parameters | Limits | | Measured | | |
| | min | max | min | current | max |
| Frequency, kHz | 406036.000 | 406038.000 | 0.000 | 406036.912 | 0.000 |
| +Phase deviation, rad | 1.00 | 1.20 | 0.00 | 1.09 | 0.00 |
| -Phase deviation, rad | -1.00 | -1.20 | 0.00 | -1.09 | 0.00 |
| Phase time rise, mcs | 50.00 | 250.00 | 0.00 | 140.85 | 0.00 |
| Phase time fall, mcs | 50.00 | 250.00 | 0.00 | 154.87 | 0.00 |
| Power, Wt | 3.16 | 7.94 | 0.00 | 6.15 | 0.00 |
| Power rise, ms | 0.00 | 0.00 | 0.00 | 0.55 | 0.00 |
| Bit Rate, bps | 396.00 | 404.00 | 0.00 | 400.01 | 0.00 |
| Asymmetry, % | 0.00 | 5.00 | 0.00 | 0.44 | 0.00 |
| CW Preamble, ms | 158.40 | 161.60 | 0.00 | 160.10 | 0.00 |
| Total burst duration, ms | 514.80 | 525.20 | 0.00 | 519.15 | 0.00 |
| Repetition period, s | 47.50 | 52.50 | 0.00 | 0.00 | 0.00 |
| Delta Rep. period, s | 4.00 | | | 0.00 | 0.00 |
| Slope(E-9) | -1.00 | 1.00 | 0.000 | 0.000 | 0.000 |
| Residual variations (E-9) | 0.00 | 3.00 | 0.000 | 0.000 | 0.000 |
| Short term variations (E-9) | 0.00 | 2.00 | 0.000 | 0.000 | 0.000 |

| 121.5 MHz Transmitter Parameters | | | |
|---|---|---|---|
| Carrier Frequency, Hz | 121499250 | Low Sweep Frequency, Hz | 345 |
| Power, mW | 79.5 | High Sweep Frequency, Hz | 1176 |
| Sweep Period, sec | 0.3 | Sweep Range, Hz | 831 |
| Modulation Index, % | 100 | | |

| Message | |
|---|---|
| Contents (full) | :FFFED0 8C96F9C0637FDFF992EF3 783E0F66C |

Decoding Beacon ID

**Full message: FFFED08C96F9C0637FDFF992EF3783E0F66C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (Serial)** | **37-40** | **0110** |
| **Cospas-Sarsat #: 999** | **41-50** | **1111100111** |
| **Serial Number: 99** | **51-64** | **00000001100011** |
| **Latitude Sign: default** | **65** | **0** |
| **Latitude Degrees: default** | **66-72** | **1111111** |
| **Latitude Minutes: default** | **73-74** | **11** |
| **Longitude Sign: default** | **75** | **0** |
| **Longitude Degrees: default** | **76-83** | **11111111** |
| **Longitude Minutes: default** | **84-85** | **11** |
| **BCH 1 Encoded:** | **86-106** | **00110010010111011110 0** |
| **BCH 1 Calculated:** | **N/A** | **00110010010111011110 0** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: default** | **113** | **1** |
| **Latitude Offset Minutes: default** | **114-118** | **00000** |
| **Latitude Offset Seconds: default** | **119-122** | **1111** |
| **Longitude Offset Sign: default** | **123** | **1** |
| **Longitude Offset Minutes: default** | **124-128** | **00000** |
| **Longitude Offset Seconds: default** | **129-132** | **1111** |
| **BCH 2 Encoded:** | **133-144** | **011001101100** |
| **BCH 2 Calculated:** | **N/A** | **011001101100** |
| **Composite Latitude: default** | **N/A** | **Composite Longitude: default** |
| **15 Hex ID:** | **N/A** | **192DF380C6FFBFF** |

**ANNEX 1.3**

**PERFORMANCE MEASUREMENTS**
**AT MINIMUM DECLARED TEMPERATURE MINUS 20 °C**

**TEST DURATION 2 HOURS**

**(Annex A.2.1 C/S T.007)**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 20.01.2010

Protocol N 15
Date 20.01.2010 Conditions Minimum temperature
Beacon Model E100G class 2 Beacon N 0001200014I
Message:FFFE2F 8C96F9C0637FDFF992EF3 783E0F66C

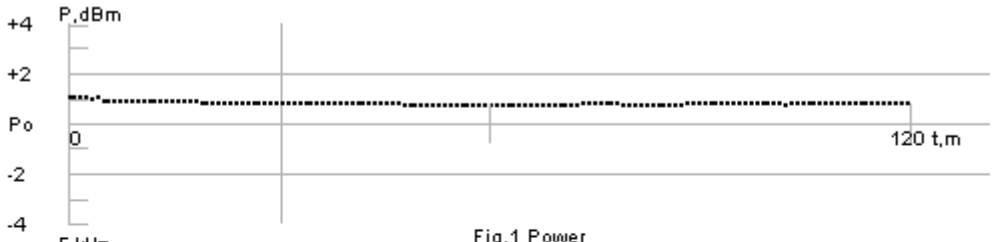


Fig.1 Power

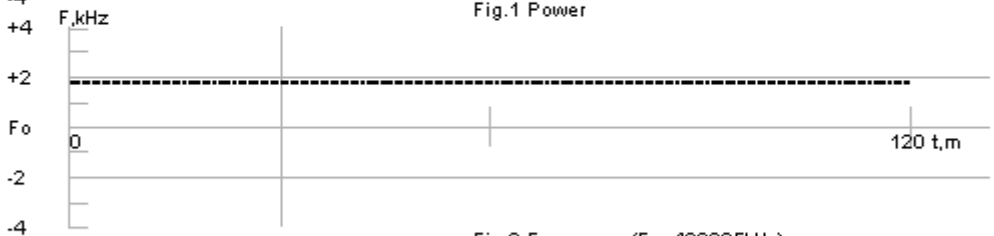


Fig.2 Frequency (Fo=406035kHz)


Protocol N 16
Date 20.01.2010 Conditions Minimum temperature
Beacon Model E100G class 2 Beacon N 0001200014I
Message:FFFE2F 8C96F9C0637FDFF992EF3 783E0F66C

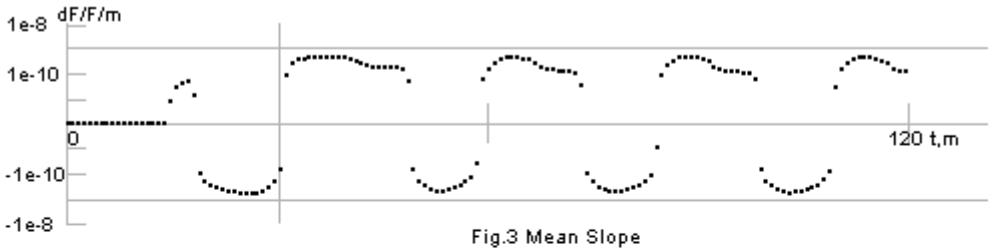


Fig.3 Mean Slope

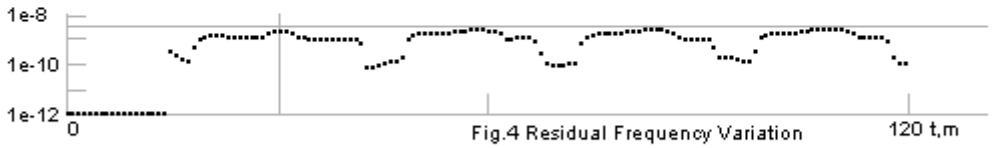


Fig.4 Residual Frequency Variation

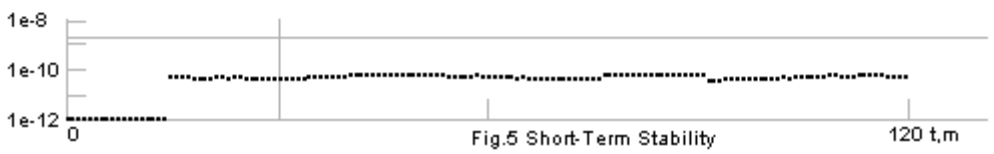


Fig.5 Short-Term Stability

Protocol N 17

Date 20.01.2010 Conditions Minimum temperature

Beacon Model E100G class 2 Beacon N 0001200014I

Message:FFFE2F 8C96F9C0637FDFF992EF3 783E0F66C

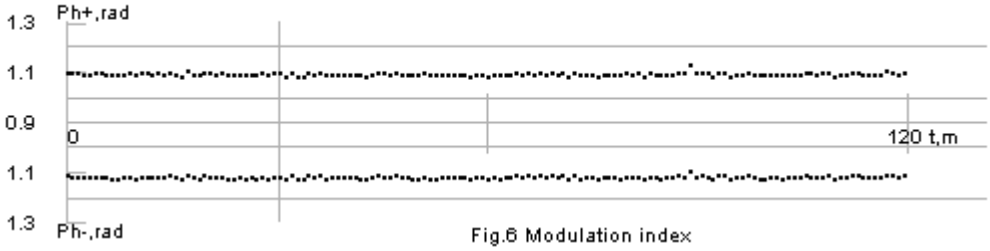



Fig.6 Modulation index

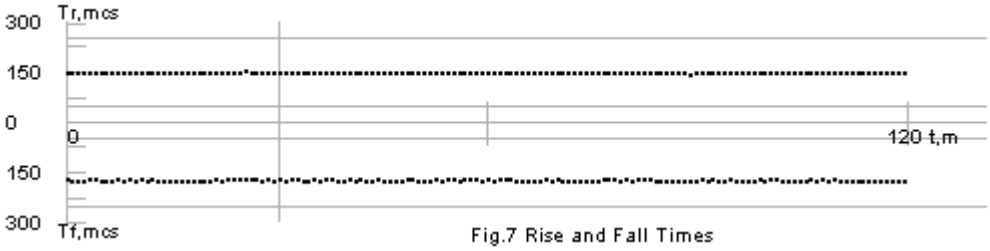



Fig.7 Rise and Fall Times

Protocol N 18

Date 20.01.2010 Conditions Minimum temperature

Beacon Model E100G class 2 Beacon N 0001200014I

Message:FFFE2F 8C96F9C0637FDFF992EF3 783E0F66C

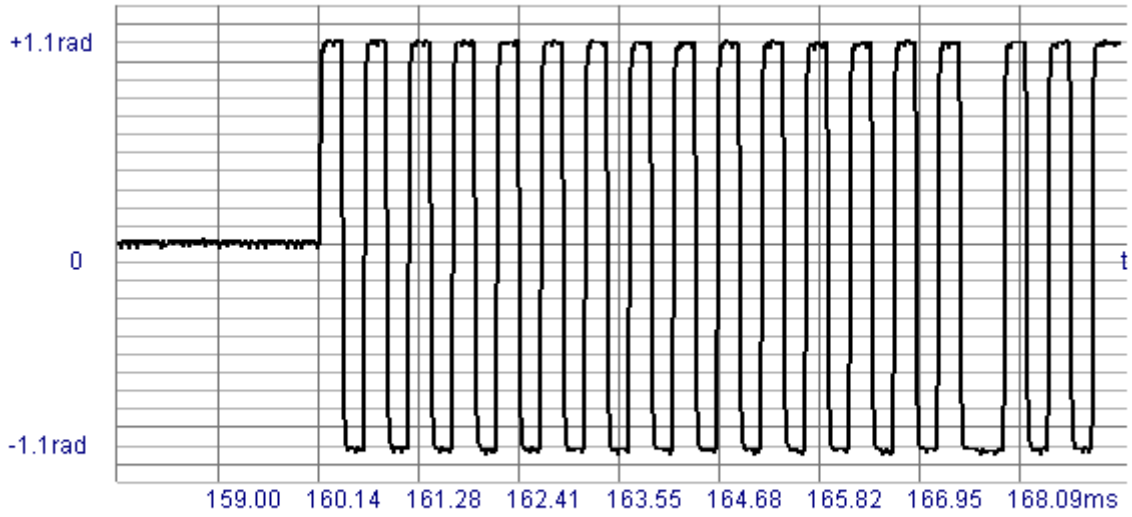



Fig.8 Phase

Phase+ =62.27 ° TRise+ =147.6 mcs

Phase- =-64.31 ° TFall- =162.0 mcs

Protocol N 19

Date 20.01.2010 Conditions Minimum temperature

Beacon Model E100G class 2 Beacon N 0001200014I

| Test duration 2 h 0 m | Bursts received 147 | BCH error 0 | Self-Test 0 | | |
|---|---|---|---|---|---|
| 406 MHz Transmitter Parameters | Limits | | Measured | | |
| | min | max | min | current | max |
| Frequency, kHz | 406036.000 | 406038.000 | 406036.942 | 406036.946 | 406036.946 |
| +Phase deviation, rad | 1.00 | 1.20 | 1.08 | 1.09 | 1.13 |
| -Phase deviation, rad | -1.00 | -1.20 | -1.06 | -1.12 | -1.13 |
| Phase time rise, mcs | 50.00 | 250.00 | 143.64 | 147.65 | 150.02 |
| Phase time fall, mcs | 50.00 | 250.00 | 159.18 | 162.02 | 166.58 |
| Power, Wt | 3.16 | 7.94 | 5.93 | 6.09 | 6.37 |
| Power rise, ms | 0.00 | 0.00 | 0.00 | 0.82 | 0.00 |
| Bit Rate, bps | 396.00 | 404.00 | 399.86 | 399.99 | 400.00 |
| Asymmetry, % | 0.00 | 5.00 | 0.29 | 0.34 | 1.02 |
| CW Preamble, ms | 158.40 | 161.60 | 160.10 | 160.11 | 160.12 |
| Total burst duration, ms | 514.80 | 525.20 | 518.55 | 518.60 | 519.00 |
| Repetition period, s | 47.50 | 52.50 | 47.50 | 49.61 | 52.51 |
| Repetition period mean, s | | | | 49.45 | |
| Repetition period rms, s | | | | 1.71 | |
| Delta Rep. period, s | 4.00 | | | 5.00 | 5.00 |
| Slope(E-9) | -1.00 | 1.00 | -0.551 | 0.121 | 0.517 |
| Residual variations (E-9) | 0.00 | 3.00 | 0.072 | 0.105 | 2.575 |
| Short term variations (E-9) | 0.00 | 2.00 | 0.038 | 0.051 | 0.063 |

| 121.5 MHz Transmitter Parameters | | | |
|---|---|---|---|
| Carrier Frequency, Hz | 121500253 | Low Sweep Frequency, Hz | 345 |
| Power, mW | 78.6 | High Sweep Frequency, Hz | 1176 |
| Sweep Period, sec | 0.3 | Sweep Range, Hz | 831 |
| Modulation Index, % | 100 | | |

| Message | |
|---|---|
| Contents (full) | :FFFE2F 8C96F9C0637FDFF992EF3 783E0F66C |

Decoding Beacon ID

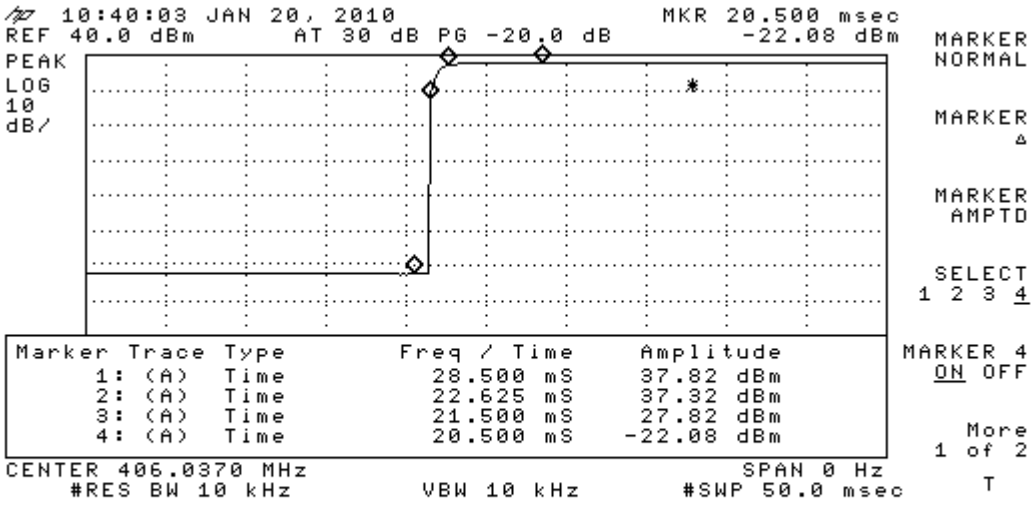
**Full message: FFFE2F8C96F9C0637FDFF992EF3783E0F66C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (Serial)** | **37-40** | **0110** |
| **Cospas-Sarsat #: 999** | **41-50** | **1111100111** |
| **Serial Number: 99** | **51-64** | **00000001100011** |
| **Latitude Sign: default** | **65** | **0** |
| **Latitude Degrees: default** | **66-72** | **1111111** |
| **Latitude Minutes: default** | **73-74** | **11** |
| **Longitude Sign: default** | **75** | **0** |
| **Longitude Degrees: default** | **76-83** | **11111111** |
| **Longitude Minutes: default** | **84-85** | **11** |
| **BCH 1 Encoded:** | **86-106** | **00110010010111011110 0** |
| **BCH 1 Calculated:** | **N/A** | **00110010010111011110 0** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: default** | **113** | **1** |
| **Latitude Offset Minutes: default** | **114-118** | **00000** |
| **Latitude Offset Seconds: default** | **119-122** | **1111** |
| **Longitude Offset Sign: default** | **123** | **1** |
| **Longitude Offset Minutes: default** | **124-128** | **00000** |
| **Longitude Offset Seconds: default** | **129-132** | **1111** |
| **BCH 2 Encoded:** | **133-144** | **011001101100** |
| **BCH 2 Calculated:** | **N/A** | **011001101100** |
| **Composite Latitude: default** | **N/A** | **Composite Longitude: default** |
| **15 Hex ID:** | **N/A** | **192DF380C6FFBFF** |

**Check of power output rise time of output signal 406,037 MHz**
**(item A.3.2.2.2 C/S T.007)**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 20.01.2010

Plot after 2 hours operating at minimum temperature minus 20 ºC



**Measurement of time interval**
**from the moment of beacon activation till the first (operating) burst**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 20.01.2010

**Test conditions:**
- room ambient temperature: +19°C;
- minimum specified operating EPIRB Survival temperature: minus 20 ºC;
- time of beacon exposure at minimum specified operating temperature , before measurement: 2 hours;
- beacon mode during exposure: turned off;

**Requirement of C/S T.007 (Table F.1, section 3, the last paragraph):**
first burst delay shall exceed 47,5 seconds for all climatic conditions

| | **Measurement commencement time** | **Time interval, sec** |
|---|---|---|
| | | **from the moment of beacon activation till the first (operating) burst** |
| 1st measurement | 12:20 | 49.06 |
| 2d measurement | 12:22 | 49.48 |
| 3d measurement | 12:24 | 49.22 |
| **Minimum value** | | **49.06** |
| **Maximum value** | | **49.48** |

**Statistic measurements of**
**randomized repetition period of transmission**
**(Item A.3.1.1, C/S T.007)**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 20.01.2010

**Test conditions:**
minimum specified operating EPIRB Survival temperature: minus 20 ºC;
time of beacon exposure at minimum specified operating temperature , before measurement: 2 hours;
beacon mode during exposure: turned off;

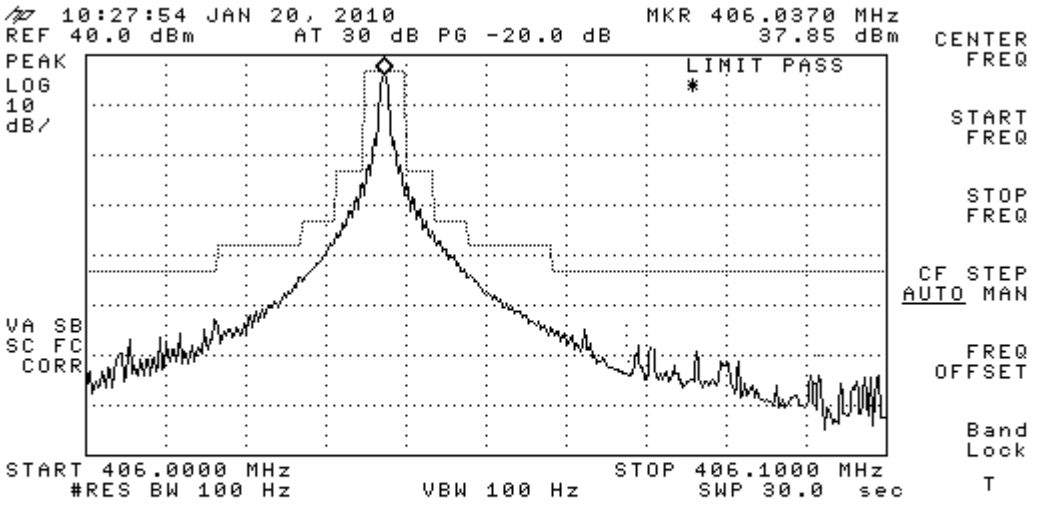
**Requirement of C/S T.007 (Table F.1, section 3, the first paragraph):**
the average repetition period based on 18 successive measurements shall be 50 sec ± 1,5 sec;
the standard deviation of the 18 values of $T_R$ shall be between 0,5 seconds and 2,0 seconds

| **Measurement commencement time** | **$T_R$ between the beginnings of two successive transmissions, seconds** | |
|---|---|---|
| | **Average repetition period** | **Deviation** |
| 10:45 | 49.45 | 1.71 |

**Check of out-of-band and spurious emissions of output signal 406,037 MHz within a frequency range 406,0-406,1 MHz**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 20.01.2010

Plot after 2 hours operating at minimum declared temperature minus 20 °C.



**Measuring results when transmitter operated into a load having a VSWR of 3:1 (pure resistive load R=17 Ohm) after operation of the transmitter into an open circuit for period of 5 minutes, and then into a short circuit for period of 5 minutes.**

Protocol N 20

Date 20.01.2010 Conditions Minimum temperature

Beacon Model E100G class 2 Beacon N 0001200014I

| Test duration 0 h 15 m | Bursts received 20 | BCH error 0 | Self-Test 0 | | |
|---|---|---|---|---|---|
| **406 MHz Transmitter Parameters** | **Limits** | | **Measured** | | |
| | **min** | **max** | **min** | **current** | **max** |
| **Frequency, kHz** | 406036.000 | 406038.000 | 406036.943 | 406036.944 | 406036.944 |
| **+Phase deviation, rad** | 1.00 | 1.20 | 1.09 | 1.09 | 1.10 |
| **-Phase deviation, rad** | -1.00 | -1.20 | -1.12 | -1.12 | -1.13 |
| **Phase time rise, mcs** | 50.00 | 250.00 | 146.09 | 147.14 | 148.08 |
| **Phase time fall, mcs** | 50.00 | 250.00 | 161.29 | 163.14 | 163.14 |
| **Power, Wt** | 3.16 | 7.94 | 5.99 | 6.05 | 6.05 |
| **Power rise, ms** | 0.00 | 0.00 | 0.00 | 0.80 | 0.00 |
| **Bit Rate, bps** | 396.00 | 404.00 | 399.86 | 399.99 | 400.00 |
| **Asymmetry, %** | 0.00 | 5.00 | 0.33 | 0.37 | 0.40 |
| **CW Preamble, ms** | 158.40 | 161.60 | 160.10 | 160.10 | 160.11 |
| **Total burst duration, ms** | 514.80 | 525.20 | 518.55 | 518.60 | 518.70 |
| **Repetition period, s** | 47.50 | 52.50 | 47.50 | 50.41 | 52.51 |
| **Delta Rep. period, s** | 4.00 | | | 5.00 | 5.00 |
| **Slope(E-9)** | -1.00 | 1.00 | 0.151 | 0.151 | 0.221 |
| **Residual variations (E-9)** | 0.00 | 3.00 | 0.585 | 0.585 | 0.910 |
| **Short term variations (E-9)** | 0.00 | 2.00 | 0.057 | 0.057 | 0.057 |

| **121.5 MHz Transmitter Parameters** | | | |
|---|---|---|---|
| **Carrier Frequency, Hz** | 121500286 | **Low Sweep Frequency, Hz** | 345 |
| **Power, mW** | 78.3 | **High Sweep Frequency, Hz** | 1176 |
| **Sweep Period, sec** | 0.3 | **Sweep Range, Hz** | 831 |
| **Modulation Index, %** | 100 | | |

| **Message** | |
|---|---|
| **Contents (full)** | :FFFE2F 8C96F9C0637FDFF992EF3 783E0F66C |

Decoding Beacon ID

**Full message: FFFE2F8C96F9C0637FDFF992EF3783E0F66C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (Serial)** | **37-40** | **0110** |
| **Cospas-Sarsat #: 999** | **41-50** | **1111100111** |
| **Serial Number: 99** | **51-64** | **00000001100011** |
| **Latitude Sign: default** | **65** | **0** |
| **Latitude Degrees: default** | **66-72** | **1111111** |
| **Latitude Minutes: default** | **73-74** | **11** |
| **Longitude Sign: default** | **75** | **0** |
| **Longitude Degrees: default** | **76-83** | **11111111** |
| **Longitude Minutes: default** | **84-85** | **11** |
| **BCH 1 Encoded:** | **86-106** | **00110010010111011110 0** |
| **BCH 1 Calculated:** | **N/A** | **00110010010111011110 0** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: default** | **113** | **1** |
| **Latitude Offset Minutes: default** | **114-118** | **00000** |
| **Latitude Offset Seconds: default** | **119-122** | **1111** |
| **Longitude Offset Sign: default** | **123** | **1** |
| **Longitude Offset Minutes: default** | **124-128** | **00000** |
| **Longitude Offset Seconds: default** | **129-132** | **1111** |
| **BCH 2 Encoded:** | **133-144** | **011001101100** |
| **BCH 2 Calculated:** | **N/A** | **011001101100** |
| **Composite Latitude: default** | **N/A** | **Composite Longitude: default** |
| **15 Hex ID:** | **N/A** | **192DF380C6FFBFF** |

**Measuring results of EPIRB self-test**

Protocol N 21

Date 20.01.2010 Conditions Minimum temperature

Beacon Model E100G class 2 Beacon N 0001200014I

| Test duration 0 h 0 m | Bursts received 1 | BCH error 0 | Self-Test 1 | | |
|---|---|---|---|---|---|
| **406 MHz Transmitter Parameters** | **Limits** | | **Measured** | | |
| | **min** | **max** | **min** | **current** | **max** |
| **Frequency, kHz** | 406036.000 | 406038.000 | 0.000 | 406036.959 | 0.000 |
| **+Phase deviation, rad** | 1.00 | 1.20 | 0.00 | 1.10 | 0.00 |
| **-Phase deviation, rad** | -1.00 | -1.20 | 0.00 | -1.11 | 0.00 |
| **Phase time rise, mcs** | 50.00 | 250.00 | 0.00 | 146.71 | 0.00 |
| **Phase time fall, mcs** | 50.00 | 250.00 | 0.00 | 161.94 | 0.00 |
| **Power, Wt** | 3.16 | 7.94 | 0.00 | 6.05 | 0.00 |
| **Power rise, ms** | 0.00 | 0.00 | 0.00 | 0.80 | 0.00 |
| **Bit Rate, bps** | 396.00 | 404.00 | 0.00 | 399.92 | 0.00 |
| **Asymmetry, %** | 0.00 | 5.00 | 0.00 | 0.40 | 0.00 |
| **CW Preamble, ms** | 158.40 | 161.60 | 0.00 | 160.10 | 0.00 |
| **Total burst duration, ms** | 514.80 | 525.20 | 0.00 | 518.65 | 0.00 |
| **Repetition period, s** | 47.50 | 52.50 | 0.00 | 0.00 | 0.00 |
| **Delta Rep. period, s** | 4.00 | | | 0.00 | 0.00 |
| **Slope(E-9)** | -1.00 | 1.00 | 0.000 | 0.000 | 0.000 |
| **Residual variations (E-9)** | 0.00 | 3.00 | 0.000 | 0.000 | 0.000 |
| **Short term variations (E-9)** | 0.00 | 2.00 | 0.000 | 0.000 | 0.000 |

| **121.5 MHz Transmitter Parameters** | | | |
|---|---|---|---|
| **Carrier Frequency, Hz** | 121500284 | **Low Sweep Frequency, Hz** | 345 |
| **Power, mW** | 78.7 | **High Sweep Frequency, Hz** | 1176 |
| **Sweep Period, sec** | 0.3 | **Sweep Range, Hz** | 831 |
| **Modulation Index, %** | 100 | | |

| **Message** | |
|---|---|
| **Contents (full)** | :FFFED0 8C96F9C0637FDFF992EF3 783E0F66C |

Decoding Beacon ID

**Full message: FFFED08C96F9C0637FDFF992EF3783E0F66C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (Serial)** | **37-40** | **0110** |
| **Cospas-Sarsat #: 999** | **41-50** | **1111100111** |
| **Serial Number: 99** | **51-64** | **00000001100011** |
| **Latitude Sign: default** | **65** | **0** |
| **Latitude Degrees: default** | **66-72** | **1111111** |
| **Latitude Minutes: default** | **73-74** | **11** |
| **Longitude Sign: default** | **75** | **0** |
| **Longitude Degrees: default** | **76-83** | **11111111** |
| **Longitude Minutes: default** | **84-85** | **11** |
| **BCH 1 Encoded:** | **86-106** | **00110010010111011110 0** |
| **BCH 1 Calculated:** | **N/A** | **00110010010111011110 0** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: default** | **113** | **1** |
| **Latitude Offset Minutes: default** | **114-118** | **00000** |
| **Latitude Offset Seconds: default** | **119-122** | **1111** |
| **Longitude Offset Sign: default** | **123** | **1** |
| **Longitude Offset Minutes: default** | **124-128** | **00000** |
| **Longitude Offset Seconds: default** | **129-132** | **1111** |
| **BCH 2 Encoded:** | **133-144** | **011001101100** |
| **BCH 2 Calculated:** | **N/A** | **011001101100** |
| **Composite Latitude: default** | **N/A** | **Composite Longitude: default** |
| **15 Hex ID:** | **N/A** | **192DF380C6FFBFF** |

**ANNEX 2**

**THERMAL SHOCK TEST**

**(Annex A.2.2 C/S T.007)**

**List of beacon parameters measured during thermal shock test**

**Test conditions:**

- Room ambient temperature: +19 °C;
- Beacon environment temperature before thermal shock: +55 °C;
- Time of beacon exposure at environment temperature before thermal shock: 2 hours;
- Beacon mode during exposure before thermal shock: turned off;
- Beacon environment temperature during thermal shock test: +25 °C;
- Difference in environment temperatures before and during thermal shock: 30 °C;
- Beacon mode when it was exposed to thermal shock +25 °C : turned on right after the beacon environment changed;
- Time interval after beacon was turned on till the beginning of measurement: 15 minutes;
- Duration of beacon test after commencement of parameter measurements 2 hours;
- matching network was not used.

**List of test reports**

| **Measured parameters** | **Test report number (page number)** |
|---|---|
| **Transmission frequency 406 MHz** | |
| Nominal frequency value | 22 (56) |
| Short and average frequency stability | 23 (56) |
| Maximum and minimum frequency stability values during test | 24 (57) |
| **Transmitter power output** | |
| Diagram of power output values during test | 22 (56) |
| Maximum and minimum power output values during test | 24 (57) |
| **Modulation** | |
| Maximum and minimum modulation values during test | 24 (57) |
| **Message** | |
| Message contents | 58 |

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 19.01.2010

Protocol N 22
Date 19.01.2010 Conditions Thermal shock
Beacon Model E100G class 2 Beacon N 0001200014I
Message:FFFE2F 8C96F9C0637FDFF992EF3 783E0F66C


Fig.1 Power

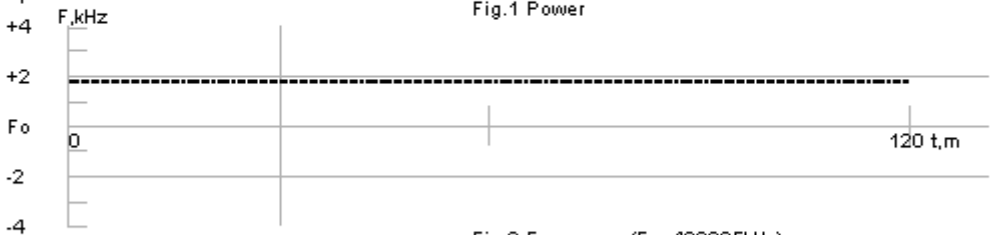



Fig.2 Frequency (Fo=406035kHz)


Rms delta bursts frequency

Protocol N 23
Date 19.01.2010 Conditions Thermal shock
Beacon Model E100G class 2 Beacon N 0001200014I
Message:FFFE2F 8C96F9C0637FDFF992EF3 783E0F66C


Fig.3 Mean Slope

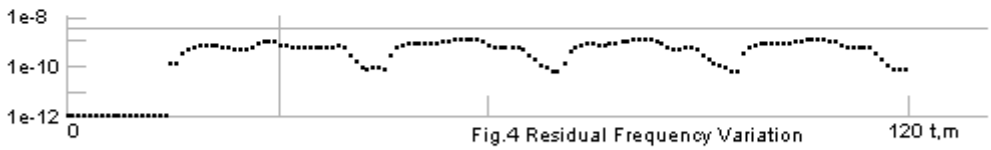



Fig.4 Residual Frequency Variation


Fig.5 Short-Term Stability

Protocol N 24
Date 19.01.2010 Conditions Thermal shock
Beacon Model E100G class 2 Beacon N 0001200014I

| Test duration 2 h 0 m | Bursts received 147 | BCH error 0 | Self-Test 0 | | |
|---|---|---|---|---|---|
| **406 MHz Transmitter Parameters** | **Limits** | | **Measured** | | |
| | **min** | **max** | **min** | **current** | **max** |
| **Frequency, kHz** | 406036.000 | 406038.000 | 406036.936 | 406036.936 | 406036.943 |
| **+Phase deviation, rad** | 1.00 | 1.20 | 1.07 | 1.09 | 1.11 |
| **-Phase deviation, rad** | -1.00 | -1.20 | -1.08 | -1.09 | -1.11 |
| **Phase time rise, mcs** | 50.00 | 250.00 | 140.04 | 142.00 | 146.44 |
| **Phase time fall, mcs** | 50.00 | 250.00 | 152.53 | 157.82 | 158.91 |
| **Power, Wt** | 3.16 | 7.94 | 6.59 | 6.60 | 6.64 |
| **Power rise, ms** | 0.00 | 0.00 | 0.00 | 0.60 | 0.00 |
| **Bit Rate, bps** | 396.00 | 404.00 | 399.87 | 400.03 | 400.03 |
| **Asymmetry, %** | 0.00 | 5.00 | 0.39 | 0.52 | 0.60 |
| **CW Preamble, ms** | 158.40 | 161.60 | 160.09 | 160.10 | 160.11 |
| **Total burst duration, ms** | 514.80 | 525.20 | 518.95 | 519.00 | 519.05 |
| **Repetition period, s** | 47.50 | 52.50 | 47.51 | 47.51 | 52.51 |
| **Delta Rep. period, s** | 4.00 | | | 5.00 | 5.00 |
| **Slope(E-9)** | -1.00 | 1.00 | -0.467 | -0.075 | 0.202 |
| **Residual variations (E-9)** | 0.00 | 3.00 | 0.059 | 0.210 | 1.212 |
| **Short term variations (E-9)** | 0.00 | 2.00 | 0.038 | 0.059 | 0.086 |

| **121.5 MHz Transmitter Parameters** | | | |
|---|---|---|---|
| **Carrier Frequency, Hz** | 121499526 | **Low Sweep Frequency, Hz** | 351 |
| **Power, mW** | 77.5 | **High Sweep Frequency, Hz** | 1176 |
| **Sweep Period, sec** | 0.3 | **Sweep Range, Hz** | 825 |
| **Modulation Index, %** | 100 | | |

| **Message** | |
|---|---|
| **Contents (full)** | :FFFE2F 8C96F9C0637FDFF992EF3 783E0F66C |

Decoding Beacon ID

**Full message: FFFE2F8C96F9C0637FDFF992EF3783E0F66C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (Serial)** | **37-40** | **0110** |
| **Cospas-Sarsat #: 999** | **41-50** | **1111100111** |
| **Serial Number: 99** | **51-64** | **00000001100011** |
| **Latitude Sign: default** | **65** | **0** |
| **Latitude Degrees: default** | **66-72** | **1111111** |
| **Latitude Minutes: default** | **73-74** | **11** |
| **Longitude Sign: default** | **75** | **0** |
| **Longitude Degrees: default** | **76-83** | **11111111** |
| **Longitude Minutes: default** | **84-85** | **11** |
| **BCH 1 Encoded:** | **86-106** | **00110010010111011110 0** |
| **BCH 1 Calculated:** | **N/A** | **00110010010111011110 0** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: default** | **113** | **1** |
| **Latitude Offset Minutes: default** | **114-118** | **00000** |
| **Latitude Offset Seconds: default** | **119-122** | **1111** |
| **Longitude Offset Sign: default** | **123** | **1** |
| **Longitude Offset Minutes: default** | **124-128** | **00000** |
| **Longitude Offset Seconds: default** | **129-132** | **1111** |
| **BCH 2 Encoded:** | **133-144** | **011001101100** |
| **BCH 2 Calculated:** | **N/A** | **011001101100** |
| **Composite Latitude: default** | **N/A** | **Composite Longitude: default** |
| **15 Hex ID:** | **N/A** | **192DF380C6FFBFF** |

**ANNEX 3**

**FREQUENCY STABILITY TEST WITH TEMPERATURE GRADIENT**

**(Annex A.2.4 C/S T.007)**

**Beacon parameters**
**monitored during its testing with temperature gradient**
**from minus 20 ºC to +55 ºC and from +55 ºC to minus 20 ºC**

**Testing conditions:**

- Laboratory ambient temperature (normal climatic conditions): +19 °C;
- Minimum declared operating temperature of the beacon (Tmin): minus 20 °C;
- Exposure time of the turned-off beacon at the temperature (Tmin): 2 hours;
- Exposure time of the turned-on beacon at the temperature (Tmin) prior to measurements: 15 minutes;
- Parameters measurement duration of turned-on beacon at the temperature (Tmin) : 1 hour;
- Temperature gradient from minus 20 ºC to +55 ºC: +5 °C/hour;
- Duration of temperature gradient from minus 20 ºC to +55 ºC: 15 hours;
- Maximum declared operating temperature of the beacon (Tmax): +55 °C;
- Exposure time of the turned-on beacon at the temperature (Tmax=+55 °C): 2 hours;
- Temperature gradient from +55 ºC to minus 20 ºC: minus 5 °C/hour;
- Duration of temperature gradient from +55 ºC to minus 20 ºC: 15 hours;
- Exposure time of the turned-on beacon at the temperature (Tmin= minus 20 ºC ): 2 hours.

**List of test reports**

| Measured parameters | Test report number (page number) |
|---|---|
| **Transmission frequency 406 MHz** | |
| Nominal frequency value | 25 (61) |
| Short and average frequency stability | 26 (61) |
| Maximum and minimum frequency stability values during test | 27 (62) |
| **Transmitter power output** | |
| Diagram of power output values during test | 25 (61) |
| Maximum and minimum power output values during test | 27 (62) |
| **Modulation** | |
| Maximum and minimum modulation values during test | 27 (62) |
| **Message** | |
| Message contents | 63 |

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** from 22.01.2010 to 24.01.2010

Protocol N 25
Date 24.01.2010 Conditions Temperature gradient
Beacon Model E100G class 2 Beacon N 0001200014I
Message:FFFE2F 8C96F9C0637FDFF992EF3 783E0F66C


Fig.1 Power

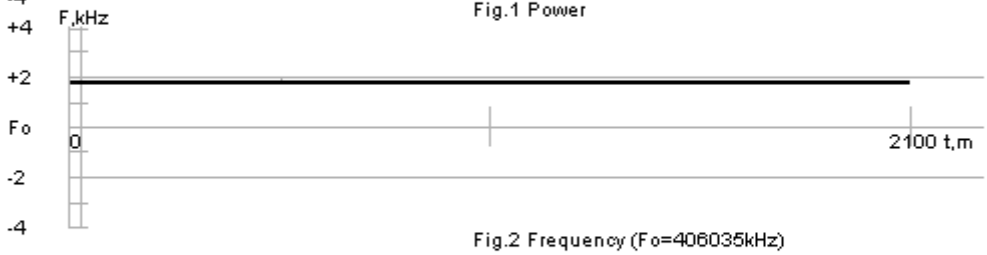



Fig.2 Frequency (Fo=406035kHz)

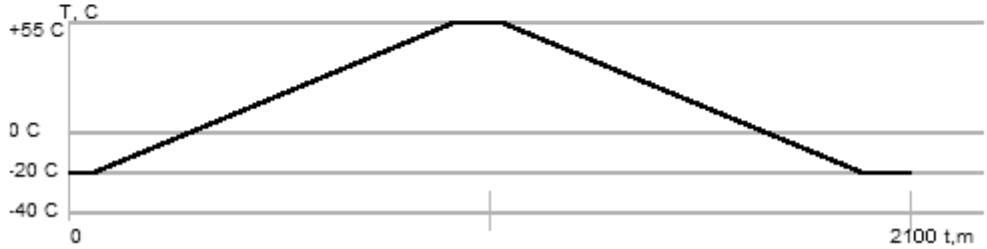



Figure A.1: Temperature Gradient Test Profile

Protocol N 26
Date 24.01.2010 Conditions Temperature gradient
Beacon Model E100G class 2 Beacon N 0001200014I
Message:FFFE2F 8C96F9C0637FDFF992EF3 783E0F66C

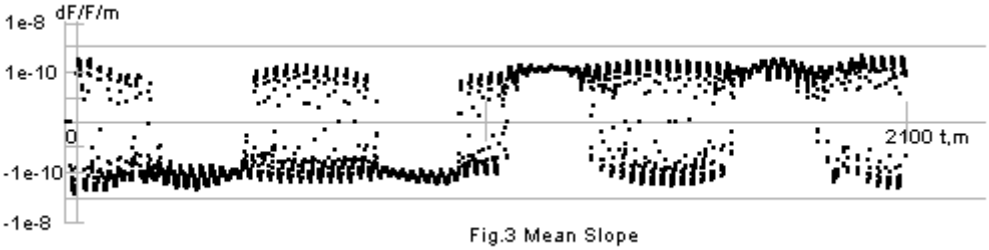



Fig.3 Mean Slope


Fig.4 Residual Frequency Variation


Fig.5 Short-Term Stability

Protocol N 27

Date 24.01.2010 Conditions Temperature gradient

Beacon Model E100G class 2 Beacon N 0001200014I

| Test duration 35 h 0 m | Bursts received 2549 | BCH error 0 | Self-Test 0 | | |
|---|---|---|---|---|---|
| 406 MHz Transmitter Parameters | Limits | | Measured | | |
| | min | max | min | current | max |
| Frequency, kHz | 406036.000 | 406038.000 | 406036.908 | 406036.937 | 406036.950 |
| +Phase deviation, rad | 1.00 | 1.20 | 1.05 | 1.09 | 1.11 |
| -Phase deviation, rad | -1.00 | -1.20 | -1.06 | -1.13 | -1.15 |
| Phase time rise, mcs | 50.00 | 250.00 | 139.16 | 148.02 | 149.73 |
| Phase time fall, mcs | 50.00 | 250.00 | 150.93 | 162.04 | 164.05 |
| Power, Wt | 3.16 | 7.94 | 5.72 | 5.72 | 6.15 |
| Power rise, ms | 0.00 | 0.00 | 0.00 | 0.75 | 0.00 |
| Bit Rate, bps | 396.00 | 404.00 | 399.83 | 400.03 | 400.09 |
| Asymmetry, % | 0.00 | 5.00 | 0.21 | 0.33 | 0.55 |
| CW Preamble, ms | 158.40 | 161.60 | 160.09 | 160.10 | 160.12 |
| Total burst duration, ms | 514.80 | 525.20 | 518.50 | 518.75 | 519.15 |
| Repetition period, s | 47.50 | 52.50 | 47.50 | 48.21 | 52.51 |
| Delta Rep. period, s | 4.00 | | | 5.00 | 5.00 |
| Slope(E-9) | -1.00 | 1.00 | -0.637 | -0.125 | 0.437 |
| Residual variations (E-9) | 0.00 | 3.00 | 0.038 | 1.263 | 2.118 |
| Short term variations (E-9) | 0.00 | 2.00 | 0.024 | 0.052 | 0.080 |

| 121.5 MHz Transmitter Parameters | | | |
|---|---|---|---|
| Carrier Frequency, Hz | 121500279 | Low Sweep Frequency, Hz | 345 |
| Power, mW | 65.7 | High Sweep Frequency, Hz | 1176 |
| Sweep Period, sec | 0.3 | Sweep Range, Hz | 831 |
| Modulation Index, % | 100 | | |

| Message | |
|---|---|
| Contents (full) | :FFFE2F 8C96F9C0637FDFF992EF3 783E0F66C |

Decoding Beacon ID

**Full message: FFFE2F8C96F9C0637FDFF992EF3783E0F66C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (Serial)** | **37-40** | **0110** |
| **Cospas-Sarsat #: 999** | **41-50** | **1111100111** |
| **Serial Number: 99** | **51-64** | **00000001100011** |
| **Latitude Sign: default** | **65** | **0** |
| **Latitude Degrees: default** | **66-72** | **1111111** |
| **Latitude Minutes: default** | **73-74** | **11** |
| **Longitude Sign: default** | **75** | **0** |
| **Longitude Degrees: default** | **76-83** | **11111111** |
| **Longitude Minutes: default** | **84-85** | **11** |
| **BCH 1 Encoded:** | **86-106** | **00110010010111011110 0** |
| **BCH 1 Calculated:** | **N/A** | **00110010010111011110 0** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: default** | **113** | **1** |
| **Latitude Offset Minutes: default** | **114-118** | **00000** |
| **Latitude Offset Seconds: default** | **119-122** | **1111** |
| **Longitude Offset Sign: default** | **123** | **1** |
| **Longitude Offset Minutes: default** | **124-128** | **00000** |
| **Longitude Offset Seconds: default** | **129-132** | **1111** |
| **BCH 2 Encoded:** | **133-144** | **011001101100** |
| **BCH 2 Calculated:** | **N/A** | **011001101100** |
| **Composite Latitude: default** | **N/A** | **Composite Longitude: default** |
| **15 Hex ID:** | **N/A** | **192DF380C6FFBFF** |

**ANNEX 4**

**OPERATING LIFETIME AT MINIMUM TEMPERATURE (MINUS 20 $^{O}$C)**

**(Annex A.2.3 C/S T.007)**

Battery discharge analysis due to storage and tests.

| | |
|---|---|
| Battery replacement interval : | 5 Years |
| Initial Battery Capacity Class 2 | 4500mAh |
| Battery Self Drain : | 0.6% per year |
| Self Test Interval : | 12 tests per year |
| GPS Self Test Interval : | 1 tests per year |
| Battery reset : | 1 test per battery life |

1. Calculation of discharge of battery.

1.1 The depletion in battery power resulting from normal battery loss of energy due to battery ageing over the rated life of the battery pack:
Battery self Drain = Capacity – (1-self drain/year%)$^{\text{replacement Interval}}$ x Capacity
Class 2 Battery Self drain = 4500 – (1-0.006)$^{5}$x4500 = 133.39 mAh

Off Drain = Hours per year x replacement Interval x off Current
Average off Current in Off State Mode <100nA
Off Drain = 365x24x5x100x10$^{-9}$ = 4.38 mAh

1.2 The number of self-tests is 12 per year, as recommended by the beacon manufacturer.
Maximum duration of one self test procedure is 9.25 secunds.
Average current measured in self test mode is 79.34 mA.

Capacity loss by one self test
Self Test Drain = Self tests per battery x self test current x self test duration (in hours)
Self Test Drain = 12x5x 79.34 x (9.25/3600) = 12.237 mAh

The number of Battery Reset 1 per battery life, as recommended by the beacon manufacturer.
Maximum duration of one Battery Reset procedure is 28.756 secunds.
Average current measured in Battery Reset mode is 31.609 mA.

Capacity loss by one Reset mode
Battery Reset drain = Average Reset Current x Duration of reset (in hours)
Battery Reset Drain = 1x 31.609 x (28.756/3600) = 0.252 mAh

The number of GPS Test Drain 1 time per year, as recommended by the beacon manufacturer.
Maximum duration of one GPS Test Drain procedure is 320.06 secunds.
Average current measured in GPS Test Drain mode is 62.72 mA.

Capacity loss by one GPS Test Drain mode
GPS Test Drain = GPS test per Battery x GPS-test Current x GPS test duration (in hours)
GPS Test Drain = 1x5x62.72 x (320.06/3600) = 27.881mAh

Total Drain = Battery Self Drain + Off Drain + Self Test Drain + Battery reset + GPS Test Drain
Class 2 Total Drain = 133.39 + 4.38 + 12.237 + 0.252 + 27.881
Class 2 Total Drain =178.14 mAh.

1.3 Correction coefficient of 1.65 applied to item (1.1) and item (1.2).
Worst case Drain= Battery Self Drain + 1.65x(Off Drain + Self Test Drain + Battery reset+ GPS Test Drain )
Worst Case Drain Class 2 = 133.39 + 1.65(4.38+12.237+0.252+27.881) = 207.228 mAh.

In accordance T.007 (A.2.3) the preliminary discharge of the battery was replaced by the equivalent extension of the operating lifetime test.

**Beacon Operating Current Table (Table F-E.1: Appendix E to Annex F of C/S T.007)**

| Beacon Operating Modes | Mode: Manuallyselectable or Automatic | Measurement interval, sec | Average Current, mAsec | Peak Current, mA |
|---|---|---|---|---|
| Standby mode | Beacon does not consume a current in a standby mode. | | | |
| Self-test mode | Manually to Self-test On Automatic to Off mode | 9.25 | 79.34 | 1237 (525ms) |
| Operating mode with GPS receiver in search mode | Automatic | 49.73 | 63.00 | 1281.1 (519ms) |
| Operating mode | Automatic | 50.38 | 37.59 | 1232 (520ms) |
| GPS Test mode | Manually to GPS Test On | 320,06 | 62.72 | 233.33 |
| Battery Reset | Manually to Battery Reset On | 28.756 | 31.609 | 1222.82 |

The Battery preconditioning discharge time = Worst Case drain / Operational Current
For an E100G Class 2 EPIRB
The average current drain is 79.34 mA
The Battery preconditioning discharge time 207.228 mAh /79.34 mA= 2.61 hours = 2 hours 36.6 minutes
**For Class 2 E100G the discharge period will be 2 hours 37 minutes.**
Total current drain after 2 hours 37 minutes is 79.34x157/60 = 207.61 mAh

2. Radio beacon measurement results, used for further tests and calculations.

| | |
|---|---|
| 2.1 Transmitter power output value of the 406 MHz radio beacon measured at normal climatic conditions +20ºC prior to the radio beacon placement into the low temperature room. | 38.00 dBm |
| 2.2 Transmitter power output value of the 406 MHz radio beacon measured at minimum temperature minus 20ºC at the beginning of the test. | 37.92 dBm |
| 2.3 Transmitter power output value of the 406 MHz radio beacon measured at minimum temperature minus 20ºC at the end of the test. | 36.95 dBm |
| 2.4 The difference between the power output value of the 406 MHz radio beacon measured at the beginning and the end of the test | 0.97 dB |

**Oscillograms of consumed currents of the EPIRB Survival in various modes**

The oscillograms are presented below are measured on resistor with resistance 0,68 Ohm, plugged in the break of wire, connecting the positive terminal of battery with connection terminal of EPIRB.
The current value calculated with equation:

$$I = \frac{U}{R},$$

where $I$ is a value of current (A), $U$ is a value of voltage (V), Resistor value 0.68 (Ohm). Results of calculation are presented in Table 4.1

**Table 4.1 –** Consumption current for Self test mode of EPIRB

| Part of selftest | Average current, A | Duration, sec | Consumption (A·hour) | Consumption (A.sec) |
|---|---|---|---|---|
| Start burst | 0,00575 | 1,02 | 1,62917E-06 | 0,005865 |
| Serial green flash | 0,007714 | 1,96 | 4,19984E-06 | 0,01511944 |
| 1-st step befor 121 ch | 0,00557 | 0,528 | 8,16933E-07 | 0,00294096 |
| 2-nd step befor 121 ch | 0,0114 | 0,4895 | 1,55008E-06 | 0,0055803 |
| 121 ch | 0,02094 | 0,993 | 5,77595E-06 | 0,02079342 |

| Part of selftest | Average current, A | Duration, sec | Consumption (A·hour) | Consumption (A.sec) |
|---|---|---|---|---|
| 1-st step befor 406 ch | 0,00544 | 0,598 | 9,03644E-07 | 0,00325312 |
| 2-nd step befor 406 ch | 0,0164 | 0,409 | 1,86322E-06 | 0,0067076 |
| 406 ch | 1,237 | 0,525 | 0,000180396 | 0,649425 |
| 1-st serial green flash after 406 | 0,014 | 0,489 | 1,90167E-06 | 0,006846 |
| Pause betvin serial flesh | 0,0076 | 1,984 | 4,18844E-06 | 0,0150784 |
| 2-nd serial green flash after 406 | 0,0102 | 0,259 | 7,33833E-07 | 0,0026418 |
| Total | | 9,2545 | 0,000203959 | |

Average current in Self test mode I av=0,07934 A

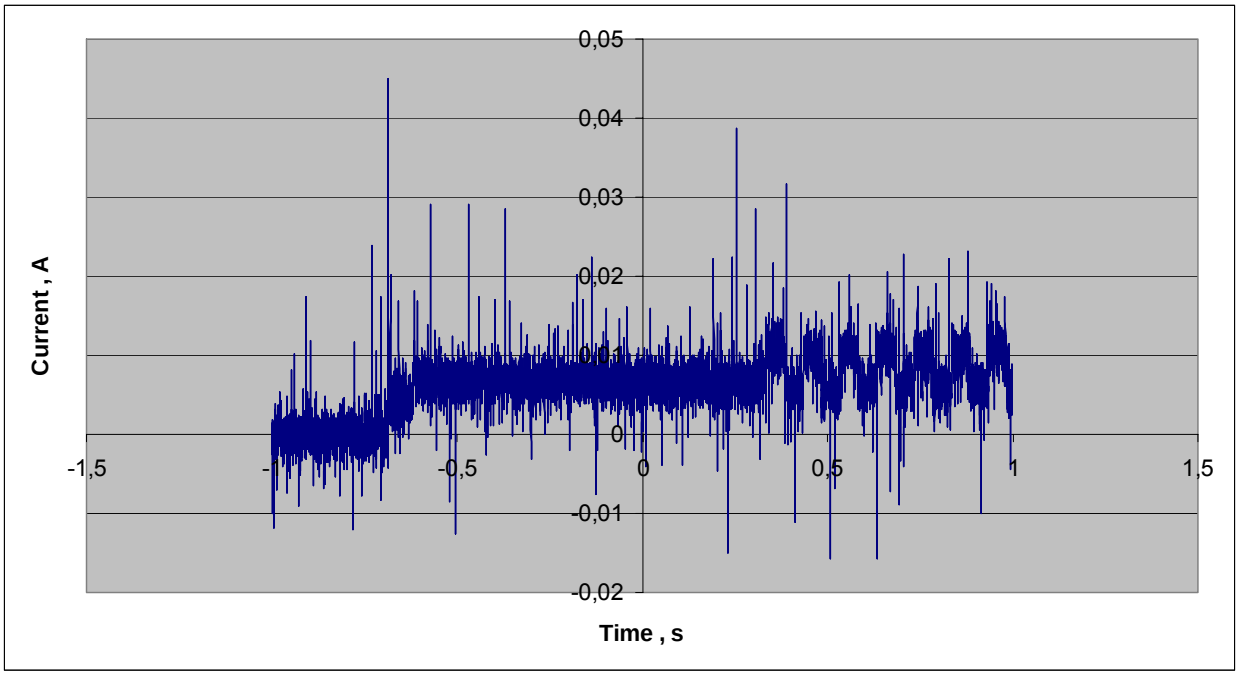



**Fig 4.1** –Form of the current consumption during self-test mode after EPIRB to switch on

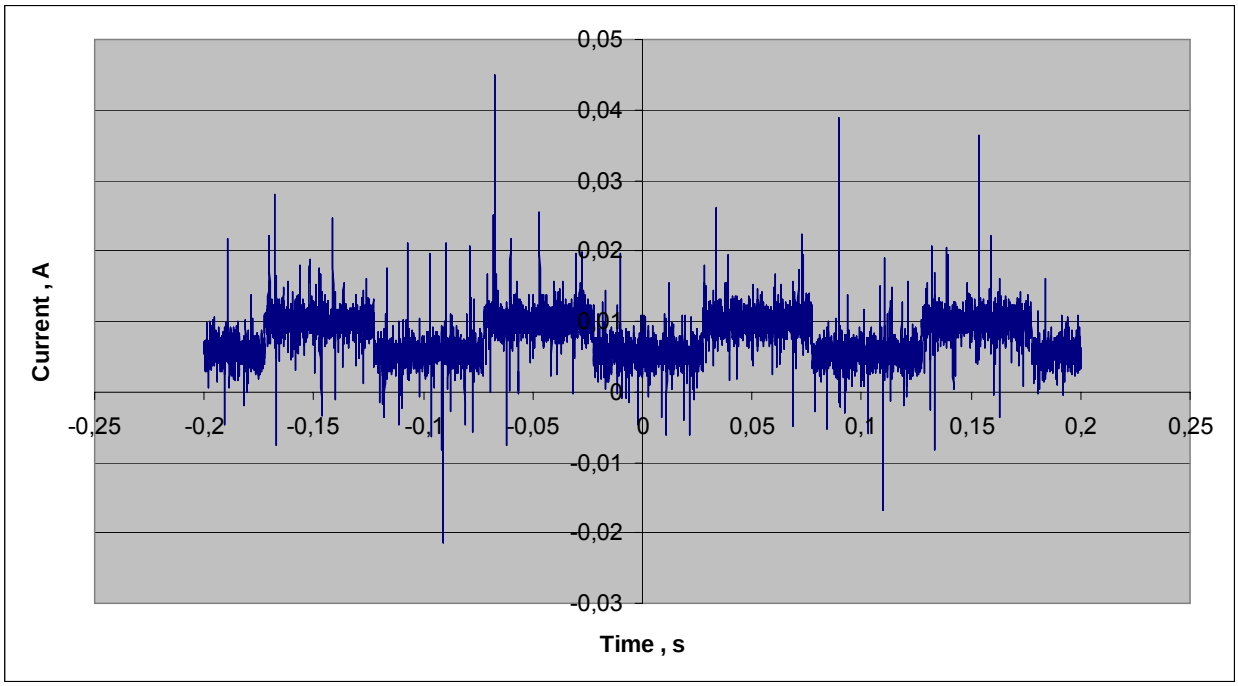



**Fig 4.2** – A series green flash-light from the moment of EPIRB to switch on before radiation frequency 121,5 MHz

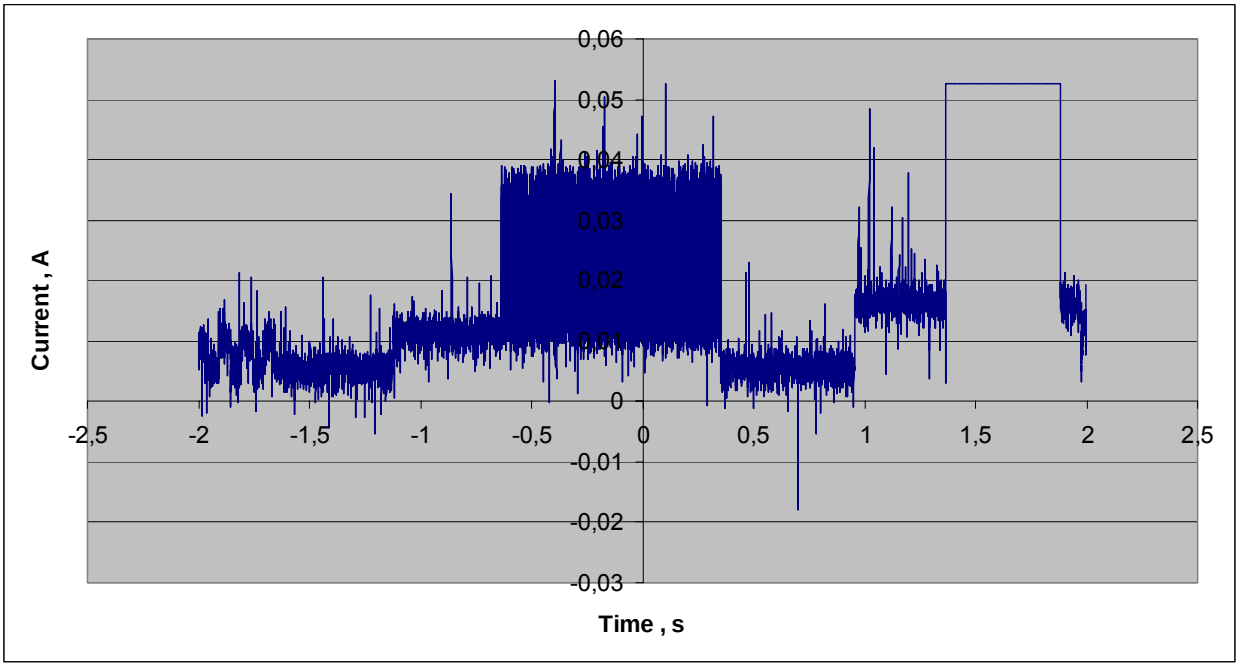



**Fig 4.3** – Current deep before radiation of frequency 121,5 MHz. and current consumption of frequency 121,5 MHz

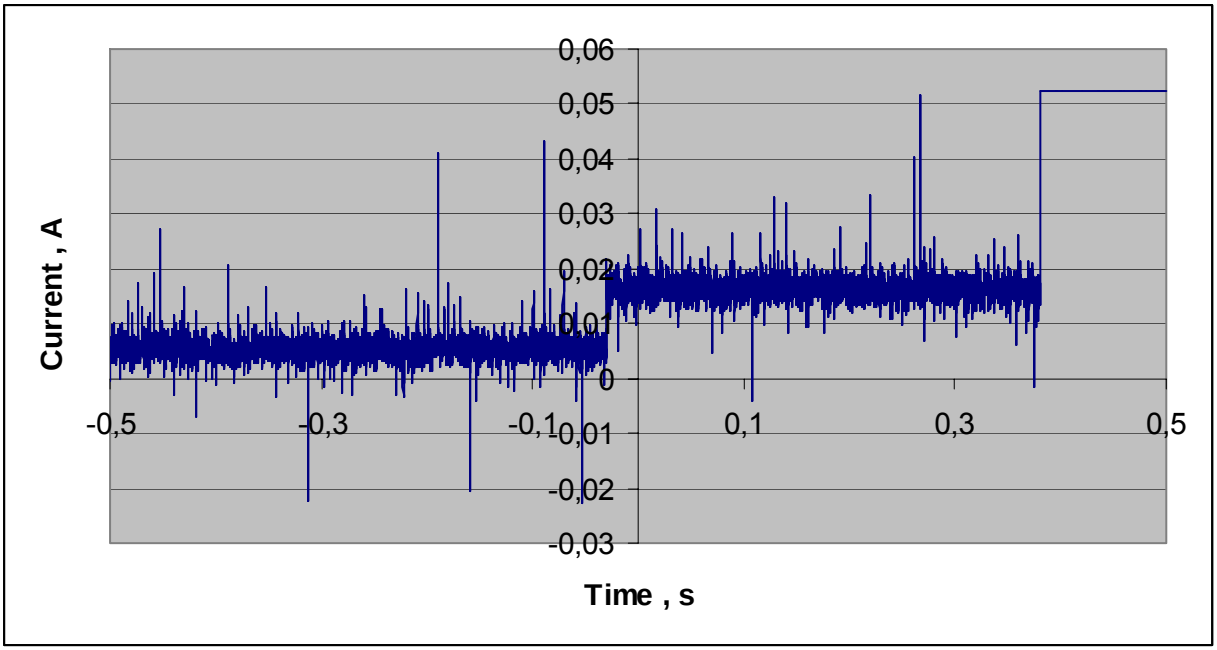



**Fig 4.4** – Current deep before radiation of frequency 406,037 MHz

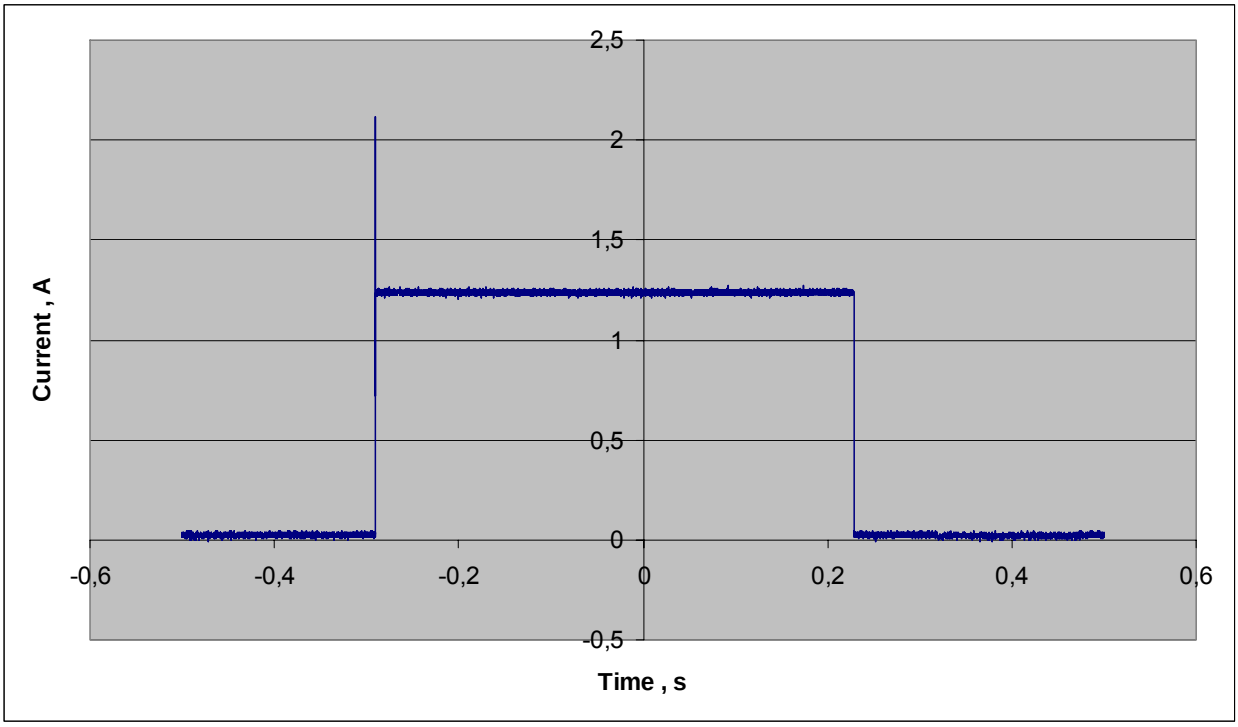



**Fig 4.5** – Current consumption of frequency 406,037 MHz

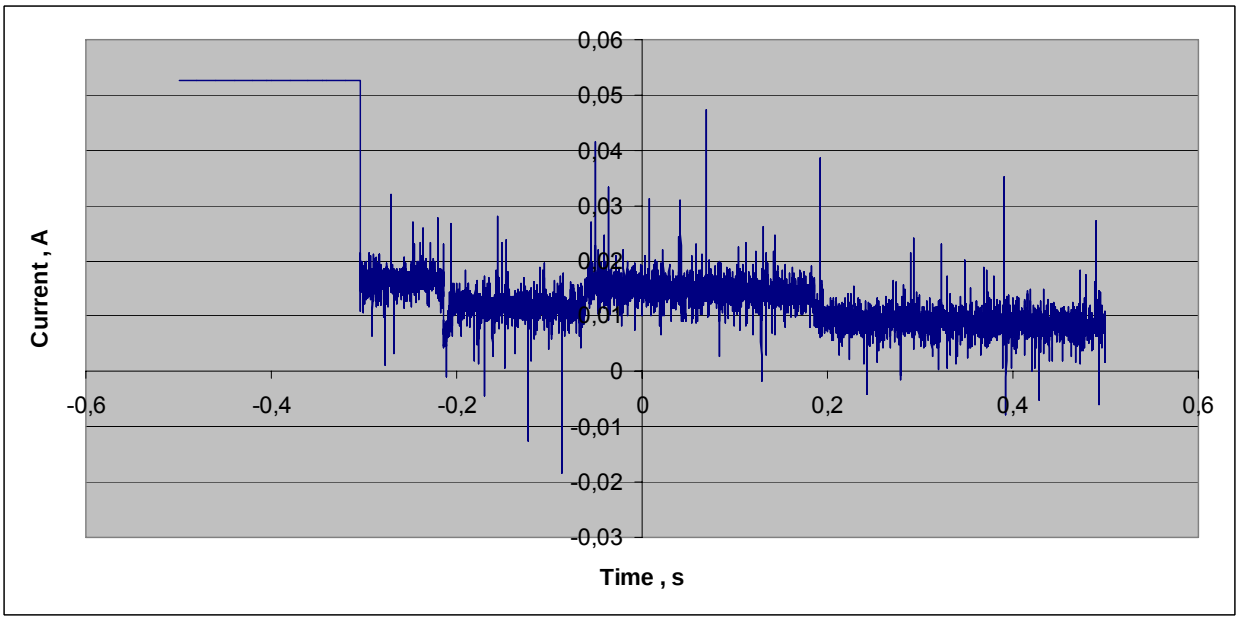



**Fig 4.6** – Green flash-light after radiation of frequency 406,037 MHz

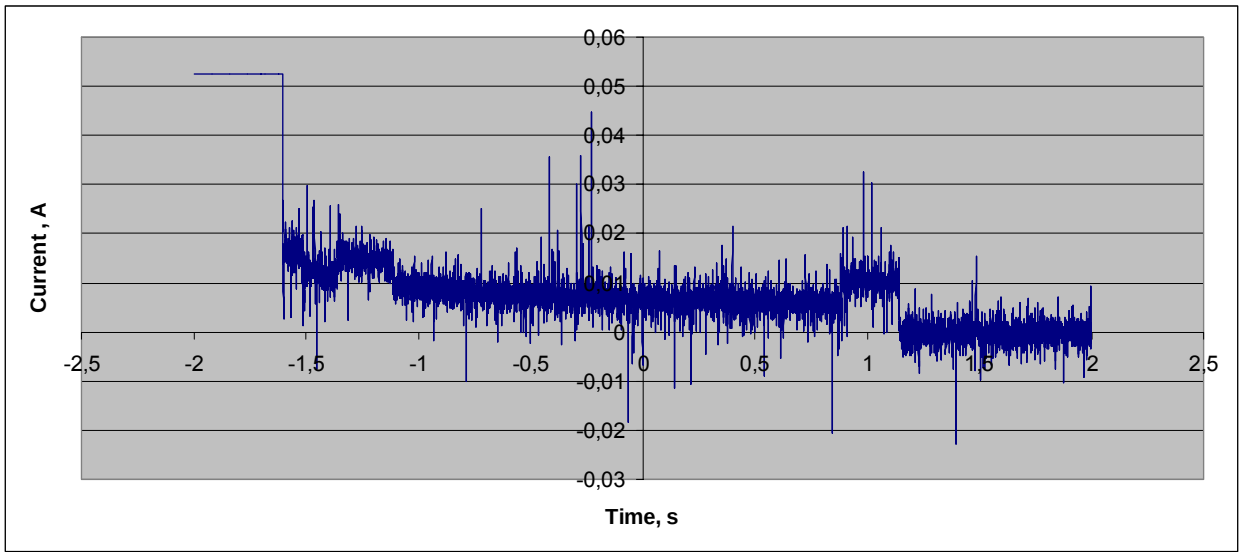



**Fig 4.7** – Interval between green flash-light

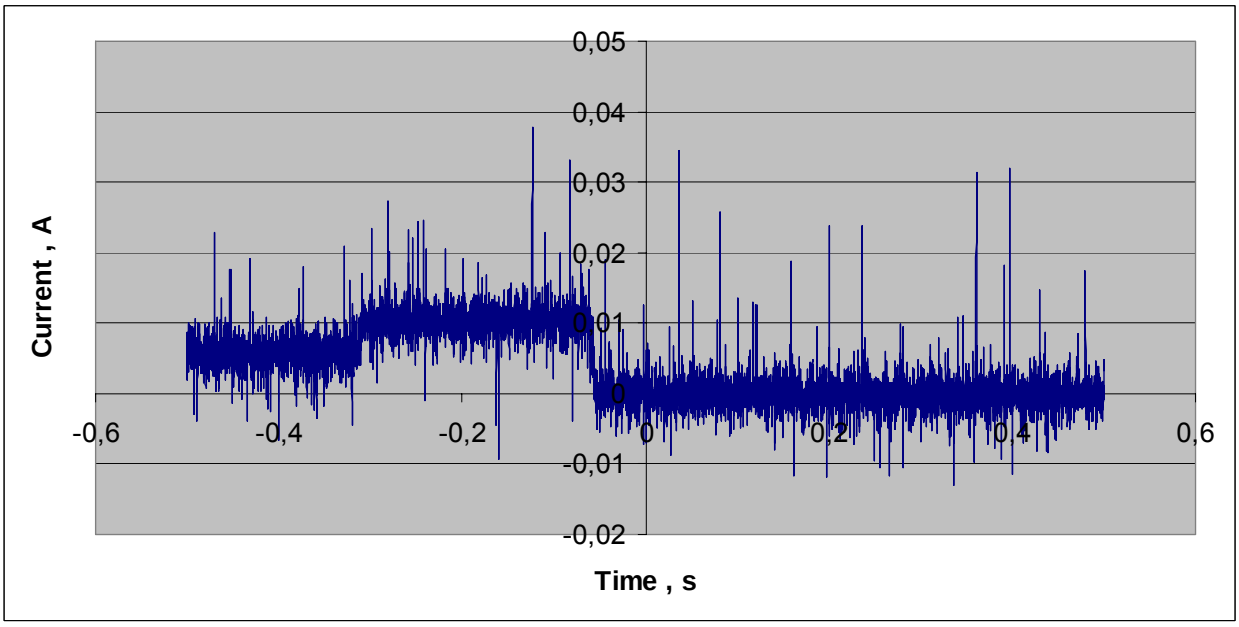



**Fig 4.8** – Green flash-light after interval between green flash-light

**Table 4.2** – Operating mode with GPS receiver in search mode

| Part of search mode | Average current , A | Duration, sec | Consumption (A·hour) | Consumption (A.sec) |
|---|---|---|---|---|
| Start burst | 0,0081 | 1,02 | 0,000002295 | 0,008262 |
| Step | 0,0039 | 0,1 | 1,08333E-07 | 0,00039 |
| 1-st flesh (main+green) | 0,0596 | 2,5 | 4,13889E-05 | 0,149 |
| 2-nd flesh (main) - 9 series | 0,0498 | 21,6 | 0,0002988 | 1,07568 |
| 3-d flesh (main+green) - 9 series | 0,0512 | 23,4 | 0,0003328 | 1,19808 |
| 1-st step befor 406 ch | 0,0564 | 0,189 | 0,000002961 | 0,0106596 |
| 2-nd step befor 406 ch | 0,0655 | 0,409 | 7,44153E-06 | 0,0267895 |
| 406 ch | 1,2811 | 0,519 | 0,000184692 | 0,6648909 |
| Total | | 49,737 | 0,000870487 | |

Average current in Operating mode with GPS receiver in search mode Iav = 0,063006 A

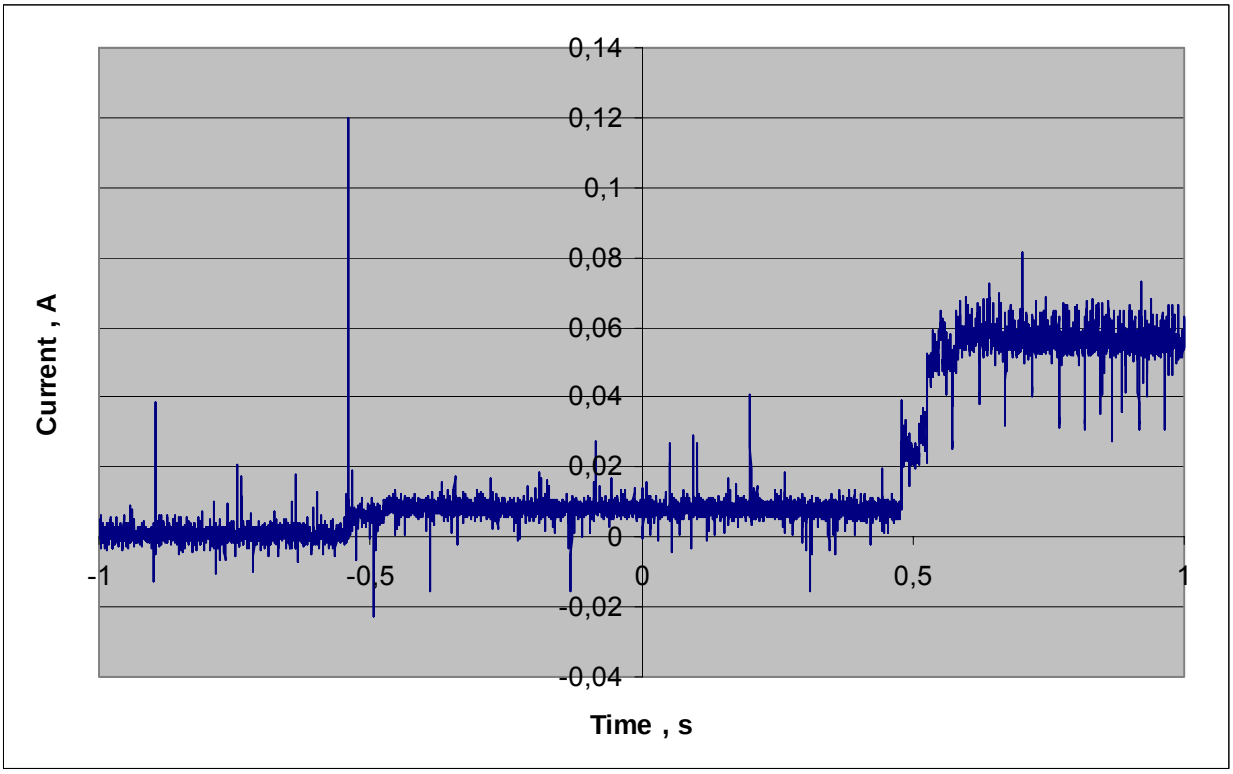



**Fig 4.9** –Form of the current consumption during operation mode after EPIRB to switch on

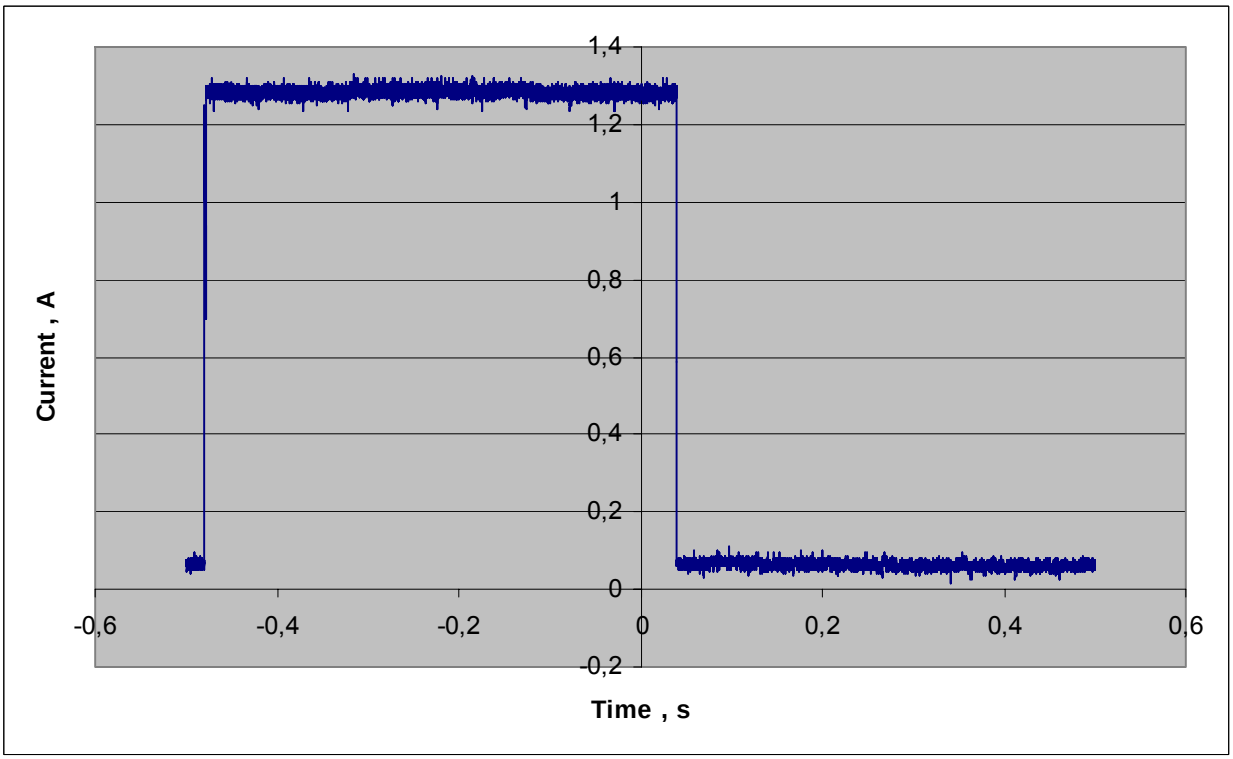



**Fig 4.10** – Current consumption of frequency 406,037 MHz in search mode

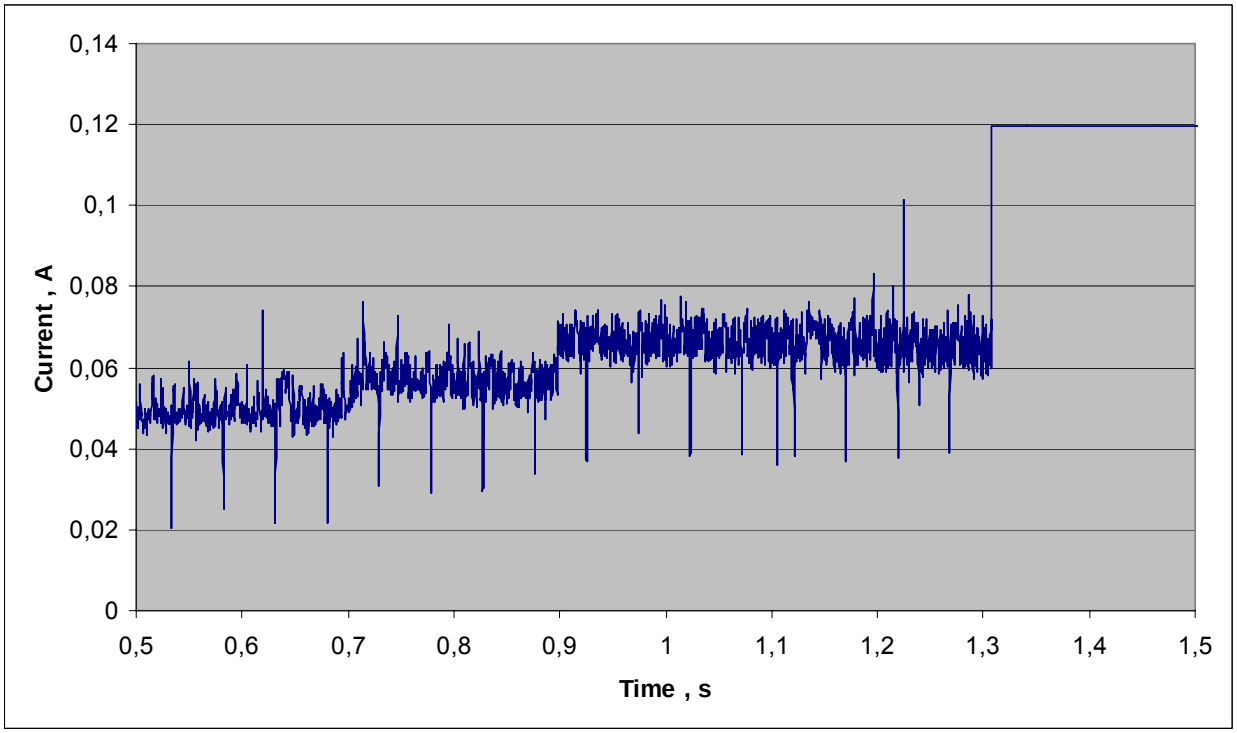



**Fig 4.11** – Current consumption before transmit 406,037 MHz

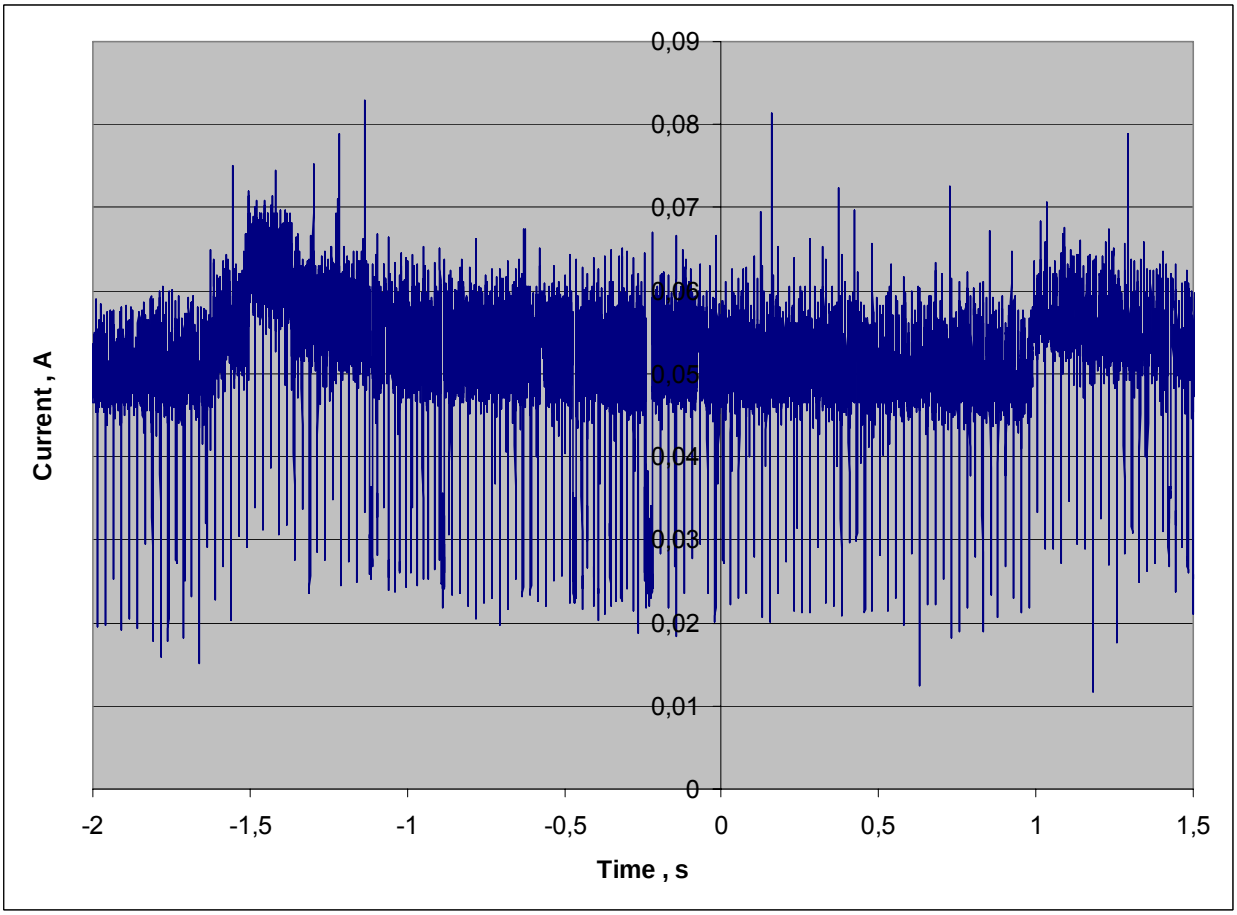



**Fig 4.12** – Current consumption main and green fleshes

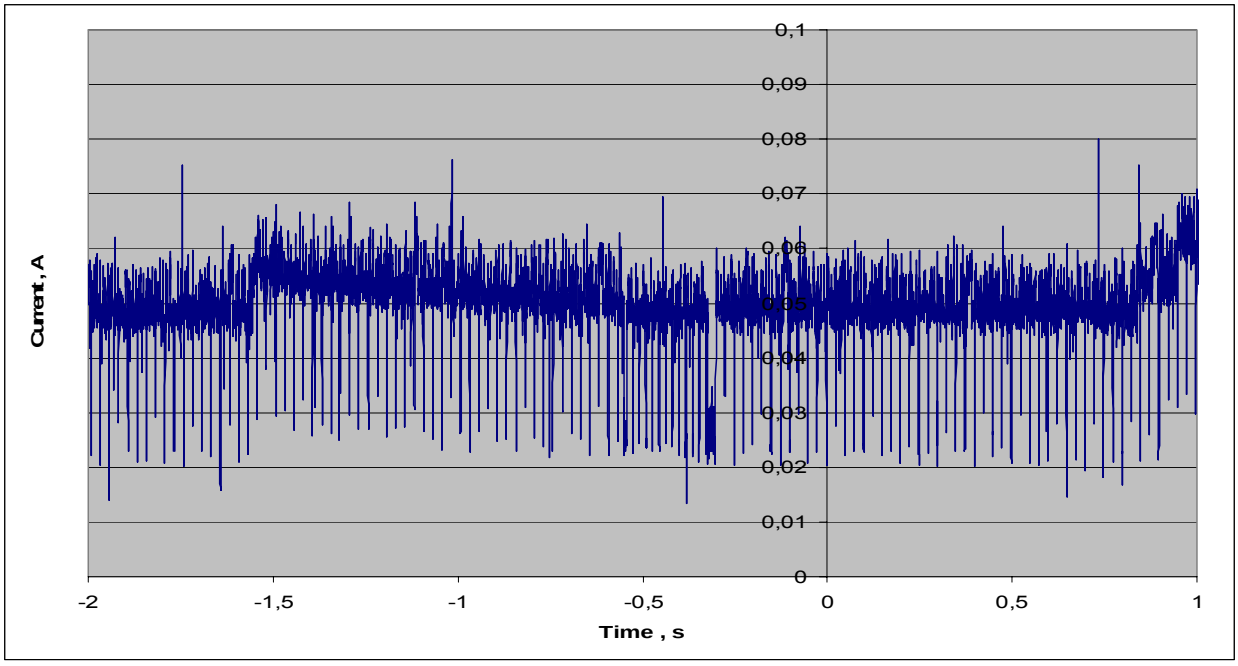



**Fig 4.13** – Current consumption main flesh

**Table 4.3** – Operating mode current consumption

| Part of operation mod | Average current , A | Duration, sec | Consumption (A·hour) | Consumption (A.sec) |
|---|---|---|---|---|
| Start burst | 0,01479 | 0,591 | 2,42803E-06 | 0,00874089 |
| Three flesh after start | 0,02324 | 0,859 | 5,54532E-06 | 0,01996316 |
| Consumption befor 1-st main flech | 0,02105 | 0,937 | 5,47885E-06 | 0,01972385 |
| flesh (main+red) - 9 series | 0,02547 | 22,482 | 0,00015906 | 0,57261654 |
| flesh (main) - 10 series | 0,02527 | 24,99 | 0,000175416 | 0,6314973 |
| 406 ch | 1,232 | 0,5204 | 0,000178092 | 0,6411328 |
| Total | | 50,3794 | 0,000526021 | |

Average current in Operating mode Iav = 0,037588 A

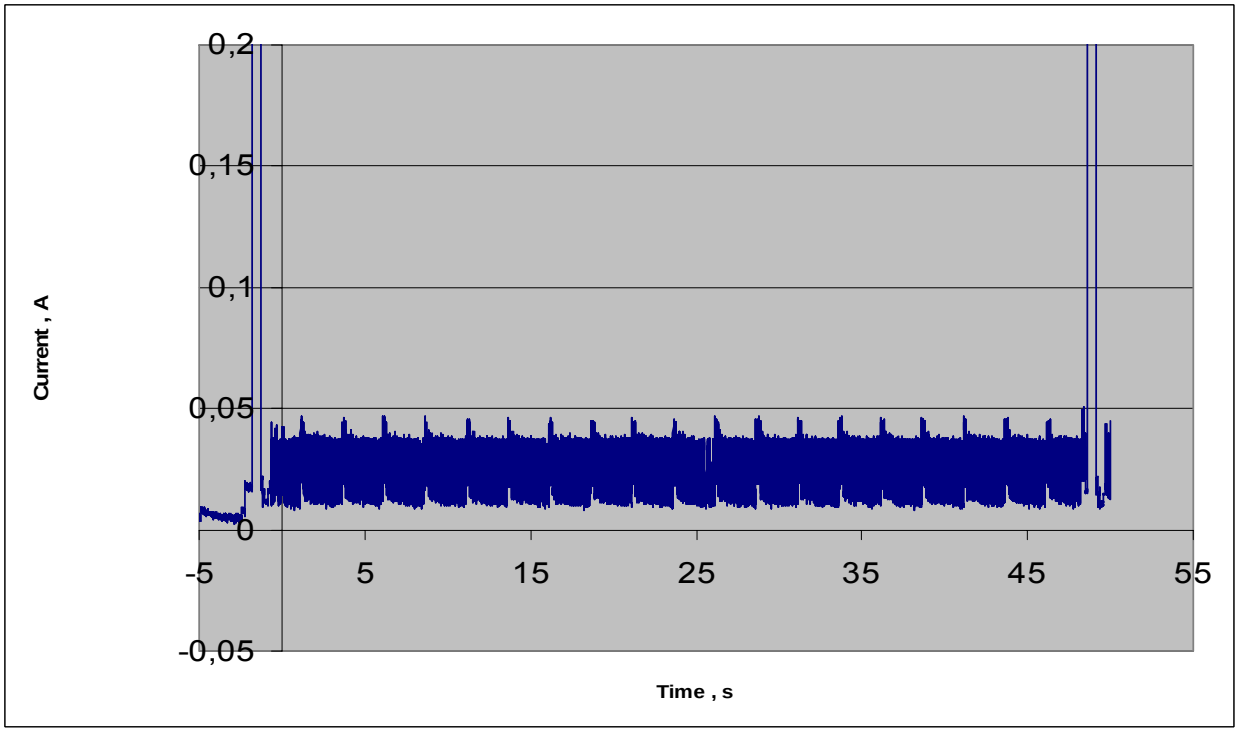



**Fig 4.14** – Current consumption in operating mode

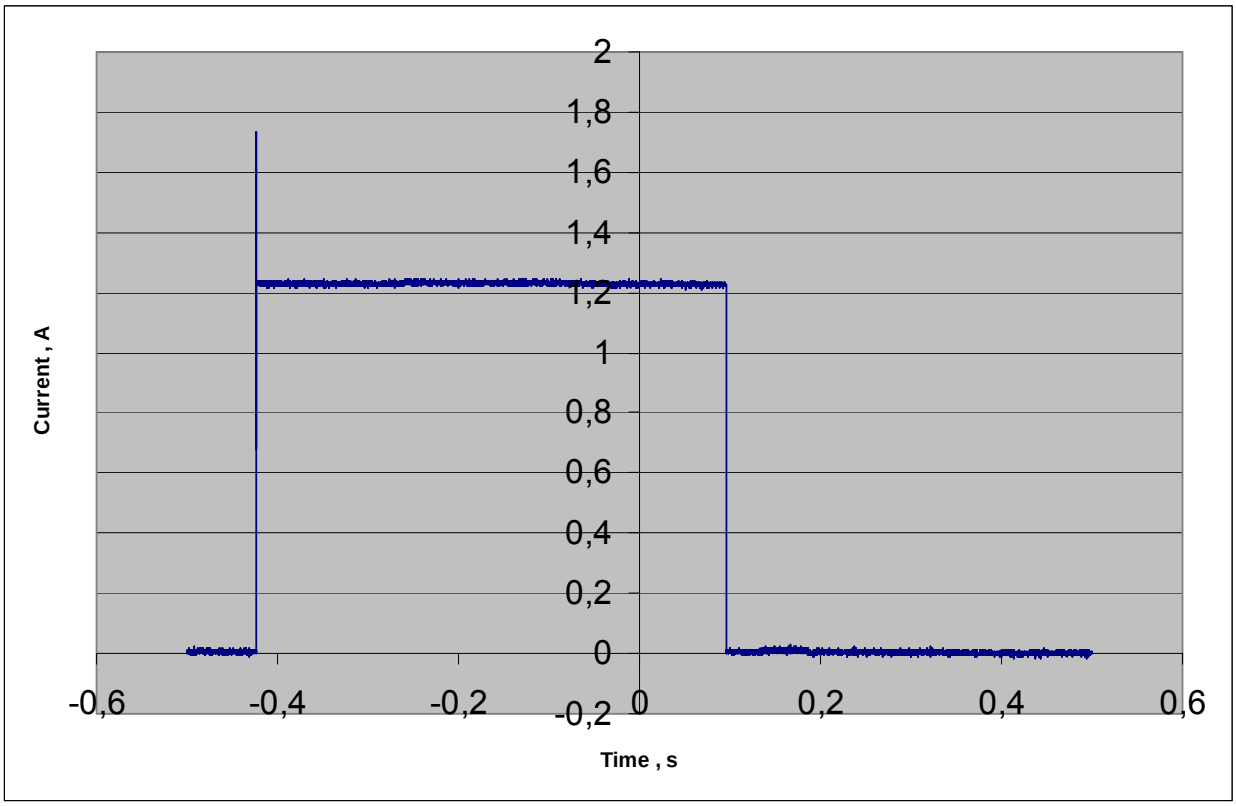



**Fig 4.15** – Current consumption of frequency 406,037 MHz in operation mod

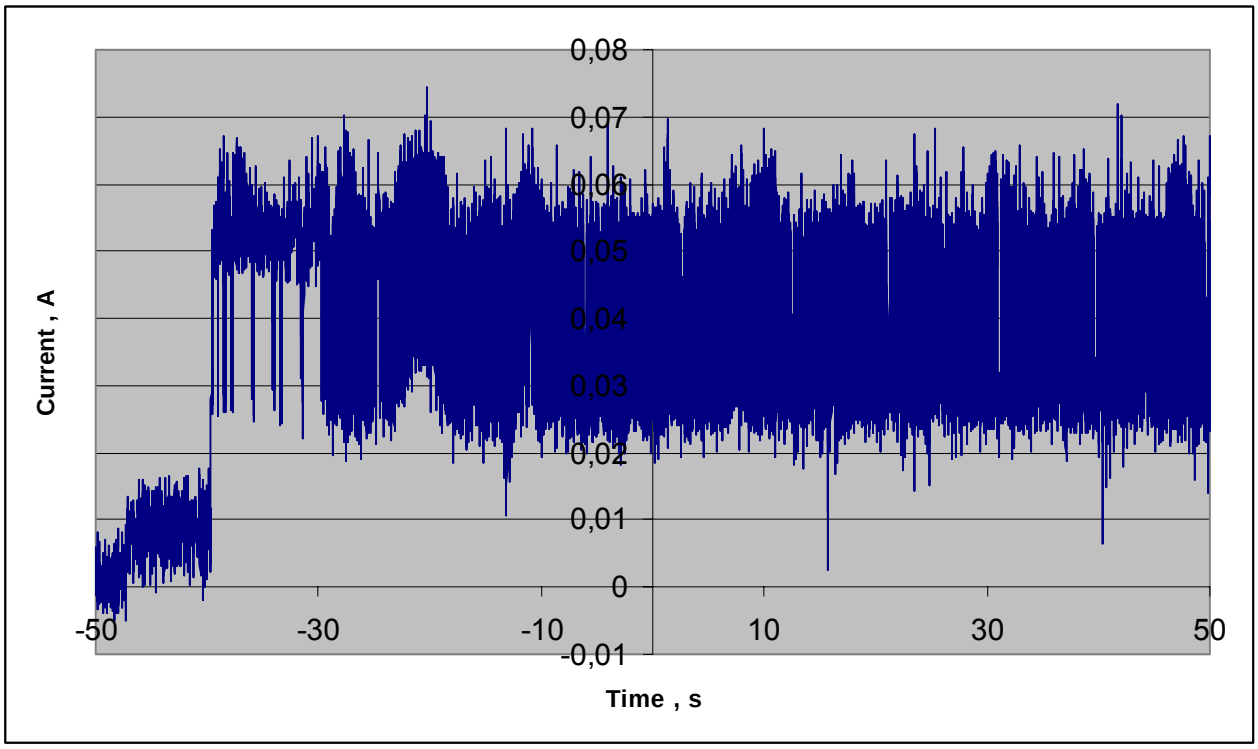



**Fig 4.16** – Current consumption first 100 sec in GPS Test

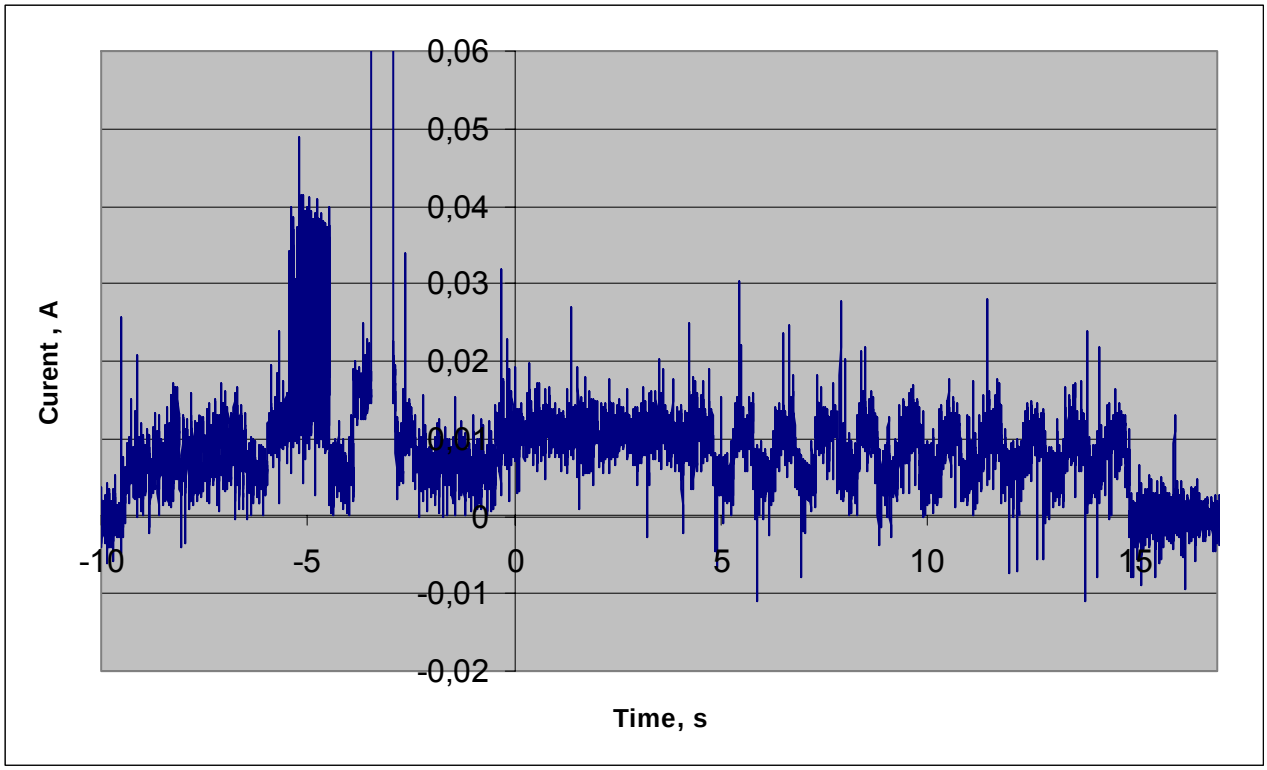



**Fig 4.17** – Current consumption in Battery Reset

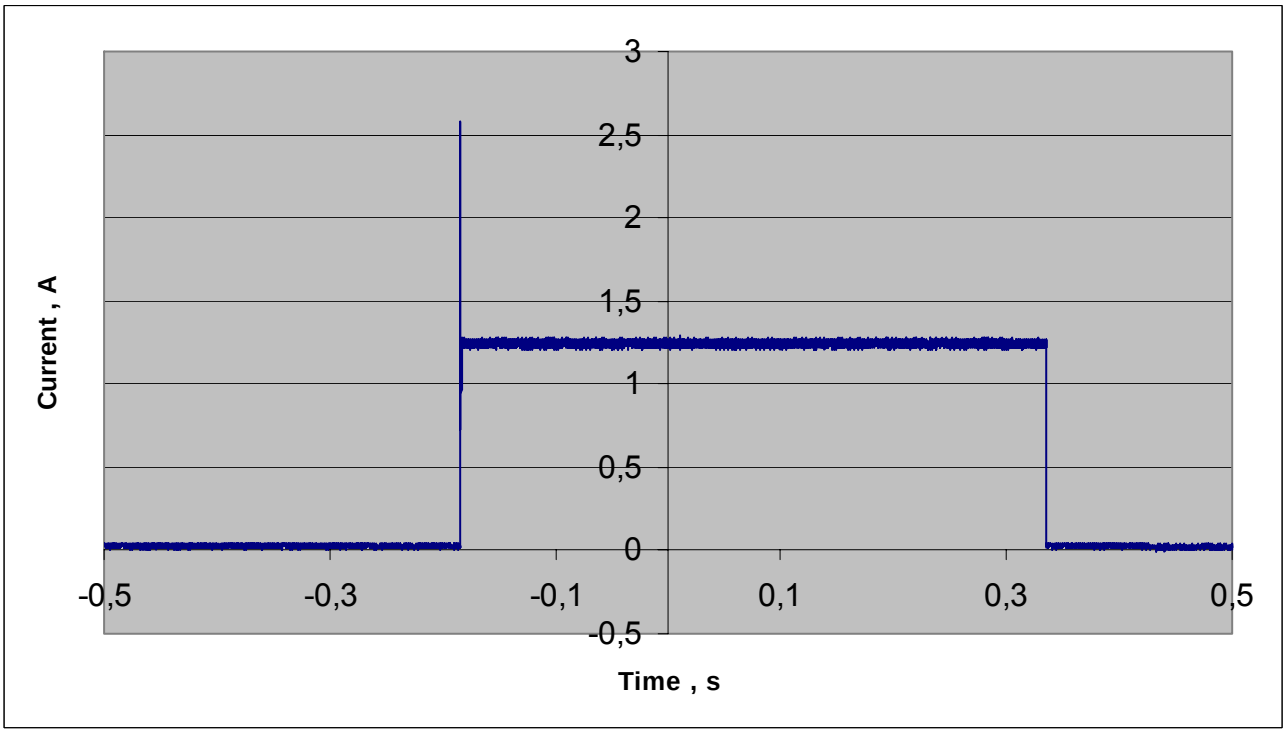



**Fig 4.18** – Current consumption 406-th ch in Battery Reset

**EPIRB's battery preliminary discharge carrying out**

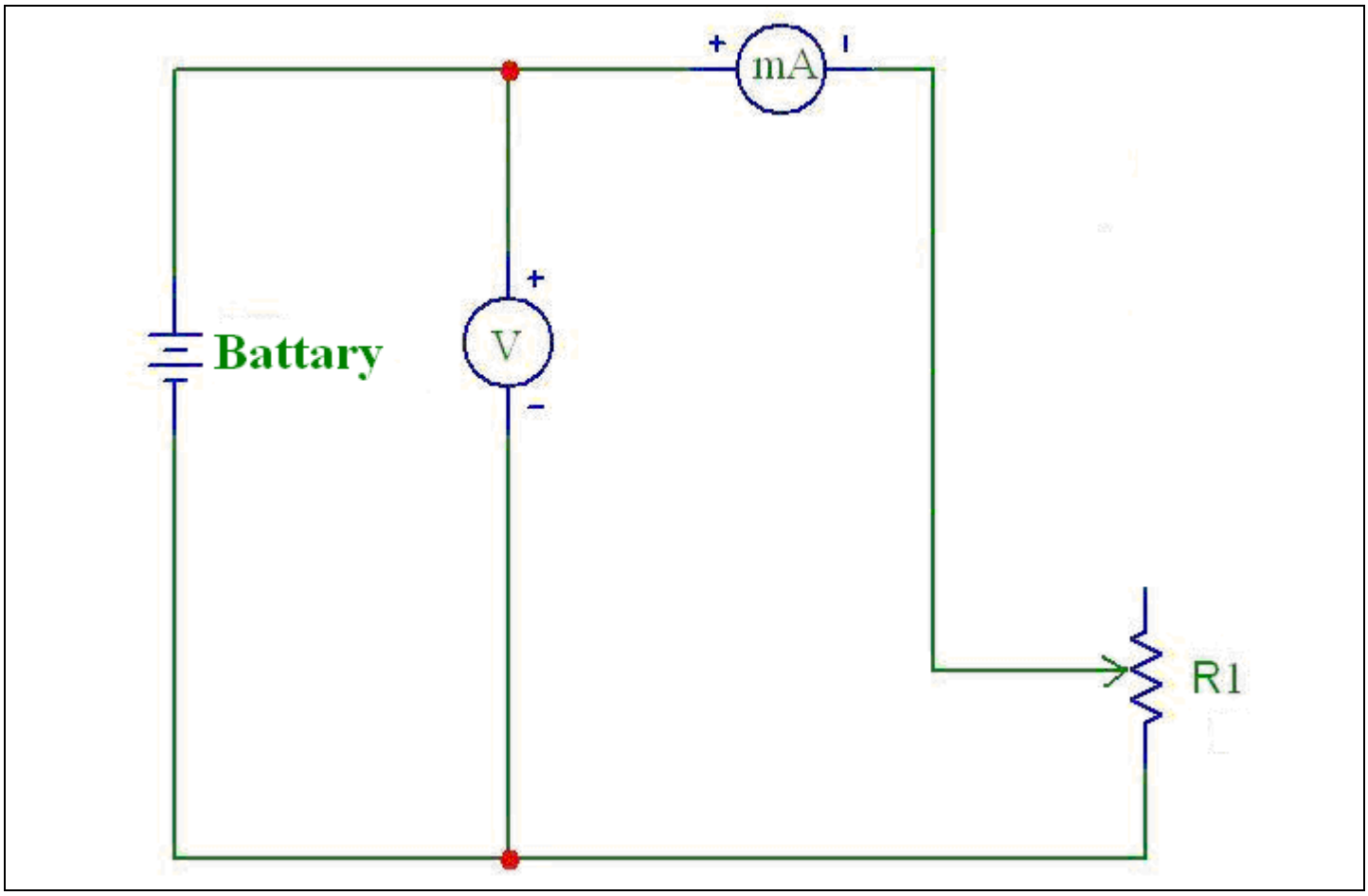



**Fig 4.19** – Circuit, used for a preliminary discharge

**Table of battery voltage value during preliminary voltage**

Preliminary discharge was carry out 04.02.2010
Current invariability (82.3 mA) during preliminary discharge provide by means rheostat (R1 on fig. 4.19)

| Date | Time | Ubat, V | I, mA |
|---|---|---|---|
| 04.02.2010 | 12:00 | 8.711 | 82.3 |
| 04.02.2010 | 12:15 | 8.422 | 82.3 |
| 04.02.2010 | 12:30 | 8.398 | 82.3 |
| 04.02.2010 | 12:45 | 8.410 | 82.3 |
| 04.02.2010 | 13:00 | 8.419 | 82.3 |
| 04.02.2010 | 13:15 | 8.427 | 82.3 |
| 04.02.2010 | 13:30 | 8.434 | 82.3 |
| 04.02.2010 | 13:45 | 8.438 | 82.3 |
| 04.02.2010 | 14:00 | 8.448 | 82.3 |
| 04.02.2010 | 14:15 | 8.452 | 82.3 |
| 04.02.2010 | 14:32 | 8.457 | 82.3 |

**List of beacon parameters,**
**measured during operating lifetime test**
**at minimum temperature minus 20 ºC**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** from 04.02.2010 to 06.02.2010

Total during of lifetime test is 48 hours.

**List of test reports**

| **Measured parameters** | **Test report number (page number)** |
|---|---|
| **Transmission frequency 406 MHz:** | |
| Nominal frequency value | 28 (78) |
| Short and average frequency stability | 29 (78) |
| Maximum and minimum frequency stability values during test | 30 (79) |
| **Transmitter power output:** | |
| Diagram of power output values during test | 28 (78) |
| Maximum and minimum power output values during test | 30 (79) |
| **Message:** | |
| Message contents | 80 |

Protocol N 28

Date 06.02.2010 Conditions Lifetime

Beacon Model E100G class 2 Beacon N 0001200014I

Message:FFFE2F 8C96F9C0637FDFF992EF3 783E0F66C

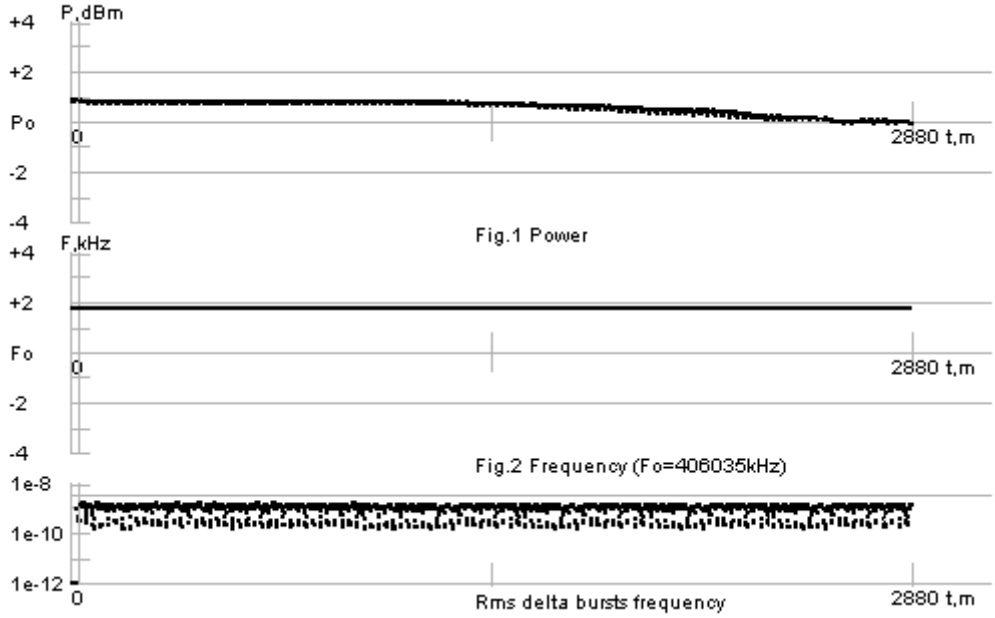



Fig.1 Power




Fig.2 Frequency (Fo=406035kHz)




Rms delta bursts frequency

Protocol N 29

Date 06.02.2010 Conditions Lifetime

Beacon Model E100G class 2 Beacon N 0001200014I

Message:FFFE2F 8C96F9C0637FDFF992EF3 783E0F66C

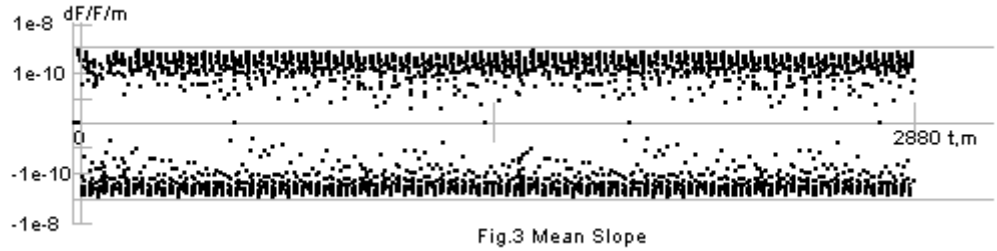



Fig.3 Mean Slope


Fig.4 Residual Frequency Variation


Fig.5 Short-Term Stability

Protocol N 30

Date 06.02.2010 Conditions Lifetime

Beacon Model E100G class 2 Beacon N 0001200014I

| Test duration 48 h 0 m | Bursts received 3530 | BCH error 0 | Self-Test 0 | | |
|---|---|---|---|---|---|
| **406 MHz Transmitter Parameters** | **Limits** | | **Measured** | | |
| | **min** | **max** | **min** | **current** | **max** |
| **Frequency, kHz** | 406036.000 | 406038.000 | 406036.942 | 406036.946 | 406036.954 |
| **+Phase deviation, rad** | 1.00 | 1.20 | 1.07 | 1.08 | 1.10 |
| **-Phase deviation, rad** | -1.00 | -1.20 | -1.10 | -1.11 | -1.14 |
| **Phase time rise, mcs** | 50.00 | 250.00 | 142.86 | 142.86 | 149.83 |
| **Phase time fall, mcs** | 50.00 | 250.00 | 156.30 | 156.92 | 162.37 |
| **Power, Wt** | 3.16 | 7.94 | 4.95 | 4.95 | 6.20 |
| **Power rise, ms** | 0.00 | 0.00 | 0.00 | 0.75 | 0.00 |
| **Bit Rate, bps** | 396.00 | 404.00 | 399.84 | 399.87 | 400.10 |
| **Asymmetry, %** | 0.00 | 5.00 | 0.23 | 0.33 | 0.46 |
| **CW Preamble, ms** | 158.40 | 161.60 | 160.09 | 160.10 | 160.12 |
| **Total burst duration, ms** | 514.80 | 525.20 | 518.30 | 518.30 | 518.90 |
| **Repetition period, s** | 47.50 | 52.50 | 47.50 | 47.50 | 52.51 |
| **Delta Rep. period, s** | 4.00 | | | 5.00 | 5.00 |
| **Slope(E-9)** | -1.00 | 1.00 | -0.815 | -0.519 | 0.799 |
| **Residual variations (E-9)** | 0.00 | 3.00 | 0.151 | 1.499 | 2.957 |
| **Short term variations (E-9)** | 0.00 | 2.00 | 0.030 | 0.073 | 0.083 |

| **121.5 MHz Transmitter Parameters** | | | |
|---|---|---|---|
| **Carrier Frequency, Hz** | 121500168 | **Low Sweep Frequency, Hz** | 351 |
| **Power, mW** | 58.0 | **High Sweep Frequency, Hz** | 1176 |
| **Sweep Period, sec** | 0.3 | **Sweep Range, Hz** | 825 |
| **Modulation Index, %** | 100 | | |

| **Message** | |
|---|---|
| **Contents (full)** | :FFFE2F 8C96F9C0637FDFF992EF3 783E0F66C |

Decoding Beacon ID

**Full message: FFFE2F8C96F9C0637FDFF992EF3783E0F66C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (Serial)** | **37-40** | **0110** |
| **Cospas-Sarsat #: 999** | **41-50** | **1111100111** |
| **Serial Number: 99** | **51-64** | **00000001100011** |
| **Latitude Sign: default** | **65** | **0** |
| **Latitude Degrees: default** | **66-72** | **1111111** |
| **Latitude Minutes: default** | **73-74** | **11** |
| **Longitude Sign: default** | **75** | **0** |
| **Longitude Degrees: default** | **76-83** | **11111111** |
| **Longitude Minutes: default** | **84-85** | **11** |
| **BCH 1 Encoded:** | **86-106** | **00110010010111011110 0** |
| **BCH 1 Calculated:** | **N/A** | **00110010010111011110 0** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: default** | **113** | **1** |
| **Latitude Offset Minutes: default** | **114-118** | **00000** |
| **Latitude Offset Seconds: default** | **119-122** | **1111** |
| **Longitude Offset Sign: default** | **123** | **1** |
| **Longitude Offset Minutes: default** | **124-128** | **00000** |
| **Longitude Offset Seconds: default** | **129-132** | **1111** |
| **BCH 2 Encoded:** | **133-144** | **011001101100** |
| **BCH 2 Calculated:** | **N/A** | **011001101100** |
| **Composite Latitude: default** | **N/A** | **Composite Longitude: default** |
| **15 Hex ID:** | **N/A** | **192DF380C6FFBFF** |

**ANNEX 5**

**BEACON ANTENNA TEST**

**(ANNEX B C/S T.007)**

## ANNEX 5.1

## TEST CONFIGURATION 1: “WATER” GROUND PLANE

Figure B.2 C/S T.007 (Issue 4 – Revision 4 October 2009)

**(Annex B C/S T.007)**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 24.02.2010

## 406 MHz BEACON ANTENNA TEST RESULTS

**Table F-B.1: Effective isotropically radiated power (dBm) / antenna gain (dBi)**

| Azimuth Angle (degrees) | Elevation Angle (degrees) | | | | |
|---|---|---|---|---|---|
| | **10** | **20** | **30** | **40** | **50** |
| **0** | ~~43,7~~ / 5,8 | 39,7 / 1,7 | 39,4 / 1,4 | 33,9 / -4,0 | 36,7 / -1,2 |
| **30** | ~~43,4~~ / 5,5 | 39,7 / 1,8 | 39,3 / 1,4 | 34,0 / -3,9 | 36,8 / -1,2 |
| **60** | ~~43,1~~ / 5,2 | 40,1 / 2,1 | 39,2 / 1,3 | 34,6 / -3,4 | 36,7 / -1,2 |
| **90** | 42,8 / 4,8 | 40,1 / 2,2 | 39,1 / 1,2 | 34,1 / -3,8 | 36,9 / -1,1 |
| **120** | 42,6 / 4,6 | 39,7 / 1,8 | 38,9 / 0,9 | 34,0 / -4,0 | 36,6 / -1,4 |
| **150** | 42,6 / 4,7 | 40,0 / 2,0 | 39,3 / 1,4 | 34,3 / -3,7 | 36,9 / -1,0 |
| **180** | 42,8 / 4,8 | 39,4 / 1,5 | 39,4 / 1,5 | 34,4 / -3,6 | 37,2 / -0,8 |
| **210** | 42,8 / 4,8 | 39,2 / 1,2 | 39,1 / 1,2 | 33,8 / -4,2 | 37,1 / -0,9 |
| **240** | 42,7 / 4,7 | 38,8 / 0,8 | 39,4 / 1,5 | 33,5 / -4,4 | 37,1 / -0,8 |
| **270** | 42,8 / 4,9 | 38,8 / 0,8 | 39,4 / 1,4 | 33,7 / -4,3 | 37,5 / -0,5 |
| **300** | ~~43,1~~ / 5,1 | 39,8 / 1,8 | 39,2 / 1,2 | 34,0 / -4,0 | 37,8 / -0,1 |
| **330** | ~~43,2~~ / 5,2 | 39,0 / 1,0 | 39,4 / 1,4 | 33,9 / -4,1 | 37,3 / -0,7 |
| **Overall Gain Variation** | 1,1 | 1,3 | 0,6 | 1,0 | 1,2 |

**$EIRP_{LOSS} = P_{t\ ambient} - P_{t\ EOL} = 37,9 – 36,9 = 0,9$ dB**

**$EIRP_{max\ EOL} = MAX [ EIRP_{max} ; ( EIRP_{max} - EIRP_{LOSS)} ] = MAX (42.8 ; 41.9) = 42.8$ dBm (<,= 43 dBm)**

**$EIRP_{min\ EOL} = MIN [ EIRP_{min} ; ( EIRP_{min} - EIRP_{LOSS}) ] = MIN (33.5; 32,6) = 32,6$ dBm (>,= 32 dBm)**

**Table F-B.2: Induced Voltage Measurements Vv / Vh (dBuV)**

| Azimuth Angle (degrees) | Elevation Angle (degrees) | | | | |
|---|---|---|---|---|---|
| | **10** | **20** | **30** | **40** | **50** |
| **0** | 109,8 / 98,8 | 114,7 / 99,4 | 108,8 / 95,4 | 101,9 / 91,5 | 103,0 / 90,6 |
| **30** | 109,9 / 99,2 | 114,4 / 99,4 | 108,8 / 95,2 | 102,0 / 91,8 | 103,1 / 89,9 |
| **60** | 110,3 / 99,7 | 114,0 / 99,3 | 108,7 / 94,6 | 102,5 / 92,4 | 103,1 / 89,1 |
| **90** | 110,4 / 100,0 | 113,7 / 98,9 | 108,5 / 95,9 | 102,1 / 92,1 | 103,3 / 88,7 |
| **120** | 110,0 / 100,0 | 113,5 / 98,0 | 108,3 / 96,3 | 101,8 / 92,4 | 103,0 / 87,2 |
| **150** | 110,2 / 99,4 | 113,5 / 97,8 | 108,7 / 97,0 | 101,8 / 95,0 | 103,4 / 87,0 |
| **180** | 109,7 / 99,9 | 113,7 / 96,6 | 108,7 / 97,8 | 101,6 / 96,5 | 103,6 / 88,6 |
| **210** | 109,5 / 100,0 | 113,7 / 97,0 | 108,4 / 97,1 | 101,6 / 92,3 | 103,4 / 89,1 |
| **240** | 109,1 / 99,7 | 113,5 / 96,8 | 108,7 / 97,8 | 101,5 / 91,5 | 103,5 / 89,1 |
| **270** | 109,0 / 99,8 | 113,7 / 97,4 | 108,8 / 97,1 | 101,6 / 91,5 | 103,9 / 88,3 |
| **300** | 110,0 / 99,5 | 114,0 / 98,2 | 108,5 / 97,3 | 101,9 / 92,0 | 104,3 / 88,8 |
| **330** | 109,1 / 99,1 | 114,1 / 98,9 | 108,8 / 96,2 | 101,9 / 90,6 | 103,6 / 89,7 |
| **Min(Vv-Vh)** | 13,5 | 10,2 | 10,9 | 5,0 | 12,4 |

The measurement was performed in accordance with Figure B.2 C/S T.007 (Issue 4 – Revision 4 October 2009).

EPIRB Survival was placed in the center of the aluminium ground plane (125 cm radius). Aluminium ground plane was placed at 0,75 meter above ground surface at the open test site. The open test site was an area clear of any obstruction such as trees, bushes or metal fences within the distance of more than 20 meters.

## ANNEX 5.2

## TEST CONFIGURATION 2: BEACON ABOVE GROUND PLANE

Figure B.5 C/S T.007 (Issue 4 – Revision 4 October 2009)

**(Annex B C/S T.007)**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 25.02.2010

**406 MHz BEACON ANTENNA TEST RESULTS**

**Table F-B.3: Equivalent Isotropically Radiated Power (dBm) / Antenna Gain (dBi)**

| Azimuth Angle (degrees) | Elevation Angle (degrees) | | | | |
|---|---|---|---|---|---|
| | **10** | **20** | **30** | **40** | **50** |
| **0** | 36,5 / -1,5 | 41,6 / 3,7 | 41,2 / 3,3 | 39,1 / 1,1 | 36,4 / -1,5 |
| **90** | 36,5 / -1,4 | 41,5 / 3,5 | 41,0 / 3,1 | 39,3 / 1,4 | 36,4 / -1,5 |
| **180** | 36,5 / -1,4 | 42,3 / 4,4 | 40,0 / 2,0 | 39,1 / 1,2 | 36,2 / -1,8 |
| **270** | 35,5 / -2,5 | 42,3 / 4,3 | 39,6 / 1,6 | 39,3 / 1,3 | 35,4 / -2,6 |
| **Overall Gain Variation** | 1,0 | 0,9 | 1,7 | 0,2 | 1,1 |

**$EIRP_{LOSS}$ = $Pt_{ambient}$ - $Pt_{EOL}$ = 37.9 – 36.9 = 0.91 dB**

**$EIRP_{max\ EOL}$ = MAX [ $ERP_{max}$ , ( $ERP_{max}$ - $ERP_{LOSS}$) ] = MAX ( 42.3 ; 41.4 ) = 42.3 dBm (<,= 43 dBm)**

**$EIRP_{min\ EOL}$ = MIN [ $ERP_{min}$ , ( $ERP_{min}$ - $ERP_{LOSS}$) ] = MIN ( 35.4 ; 34.5 ) =34.5 dBm (>,= 30 dBm)**

**Table F-B.2: Induced Voltage Measurements Vv / Vh (dBuV)**

| Azimuth Angle (degrees) | Elevation Angle (degrees) | | | | |
|---|---|---|---|---|---|
| | **10** | **20** | **30** | **40** | **50** |
| **0** | 107,5 / 85,0 | 112,1 / 90,3 | 110,9 / 89,0 | 107,3 / 92,9 | 102,8 / 89,6 |
| **90** | 107,6 / 78,1 | 112,0 / 91,5 | 110,7 / 83,5 | 107,5 / 92,1 | 102,8 / 89,1 |
| **180** | 107,6 / 80,9 | 112,8 / 91,5 | 109,6 / 89,1 | 107,4 / 91,3 | 102,6 / 88,6 |
| **270** | 106,5 / 88,6 | 112,8 / 90,2 | 109,1 / 92,3 | 107,4 / 94,1 | 101,5 / 91,6 |
| **Min(Vv-Vh)** | 17,9 | 20,5 | 16,8 | 13,3 | 9,9 |

The measurement was performed in accordance with Figure B.5 C/S T.007 (Issue 4 – Revision 4 October 2009).

EPIRB Survival was placed on site, covered with RF absorbing material. RF absorbing material had size 3.9 x 2.45 meters. EPIRB Survival was placed on non-conductive support that raised the beacon 0.45 meters above ground plane.

**ANNEX 6**

**BEACON CODING SOFTWARE**

**(Annex section A.2.8 of standard C/S T.007)**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 16.02.2010-17.02.2010

The procedure for checking of possibility of the radio beacon coding with a protocol is as follows:
1. Operator inputs the protocol data to programm.
2. Programm rewrites the data to the radio beacon long-term power independent memory via a data comport.
3. The radio beacon switched on and the message checked.
4. The self-test and operating message is verified.

Table of page numbers of report on testing of the coding of the declared EPIRB user's protocol types

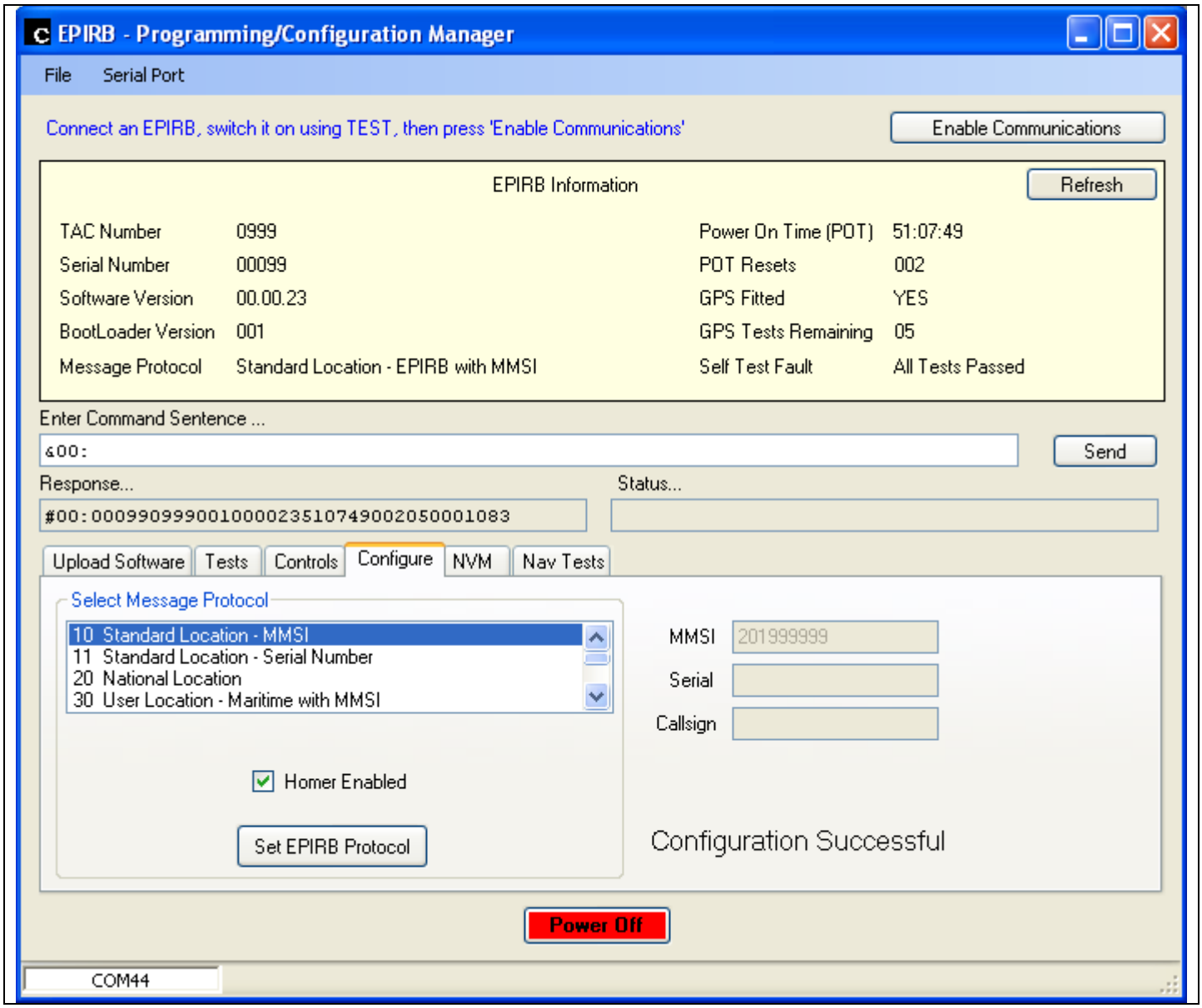
| **Protocol type** | | **Protocol No. (page No.)** | | | |
|---|---|---|---|---|---|
| | | **Printout Kind** | | | |
| | | **Registration and identification card of protocol type** | **Printout of decoded self-test mode message and parameters** | **Printout of decoded operating message and parameters, location A** | **Printout of decoded operating message and parameters, location B** |
| 1 | Standard Location: EPIRB with MMSI | (90) | 32 (93) | 31A (91) | 31B (92) |
| 2 | Standard Location: EPIRB with Serial Number | (94) | 34 (97) | 33A (95) | 33B (96) |
| 3 | National Location Protocol | (98) | 36 (101) | 35A (99) | 35B (100) |
| 4 | Maritime User Protocol with MMSI | (102) | 38 (105) | 37A (103) | 37B (104) |
| 5 | Maritime User Protocol with Radio Call Sign | (106) | 40 (109) | 39A (107) | 39B (108) |
| 6 | Serial User: Float-Free EPIRB with Serial Number | (110) | 42 (113) | 41A (111) | 41B (112) |
| 7 | Serial User: Non Float-Free EPIRB with Serial Number | (114) | 44 (117) | 43A (115) | 43B (116) |
| 8 | Radio Call Sign User Protocol | (118) | 46 (121) | 45A (119) | 45B (120) |

BEACON CODING SOFTWARE RESULTS

Table F-D.2: Examples of Location Protocol Beacon Messages
(Examples required for each protocol requested for inclusion on the type approval certificate)

| **Protocol** | **Operational Message (in hexadecimal including bit and frame synchronisation bits)** | | **Self-Test Message (in hexadecimal including bit and frame synchronisation bits)** | **GNSS Self Test Message (if applicable, in hexadecimal, including bit and frame synchronisation bits)** |
|---|---|---|---|---|
| | **Location "A"** | **Location "B"** | | **Location "A"** |
| Standard Location: EPIRB with MMSI | FFFE2F8C92F423F02C 8431CF8AB79500A39A | FFFE2F8C92F423F02C C4302F18771666DA9F | FFFED08C92F423F07F DFFB2BF03783E0F66C | |
| Standard Location: EPIRB with Serial Number | FFFE2F8C96F9C0632C 84337695B79500A39A | FFFE2F8C96F9C0632C C4329607771666DA9F | FFFED08C96F9C0637F DFF992EF3783E0F66C | |
| National Location Protocol | FFFE2F8C9A0018CB2 42179A0E63716280201 | FFFE2F8C9A0018CB2 82197B55177133409C8 | FFFED08C9A0018DFC 0FF02AD44779F3C0010 | |
| Maritime User Protocol with MMSI | FFFE2FCC9418618618 6689DE52A59221788C | FFFE2FCC9418618618 6689DE52A594219798 | FFFED0CC9418618618 6689DE52AFE0FF0146 | |
| Maritime User Protocol with Radio Call Sign | FFFE2FCC9526F6F06 B268F9F32259221788C | FFFE2FCC9526F6F06 B268F9F322594219798 | FFFED0CC9526F6F06 B268F9F322FE0FF0146 | |
| Serial User: Float-Free EPIRB with Serial Number | FFFE2FCC96A000C600 7CEEBD42E59221788C | FFFE2FCC96A000C600 7CEEBD42E594219798 | FFFED0CC96A000C600 7CEEBD42EFE0FF0146 | |
| Serial User: Non Float-Free EPIRB with Serial Number | FFFE2FCC972000C600 7CEB7FB1659221788C | FFFE2FCC972000C600 7CEB7FB16594219798 | FFFE2FCC972000C600 7CEB7FB16FE0FF0146 | |
| Radio Call Sign User Protocol | FFFE2FCC9DBDBC1A5 5468ED9F6259221788C | FFFE2FCC9DBDBC1A 55468ED9F62594219798 | FFFED0CC9DBDBC1A5 5468ED9F62FE0FF0146 | |

**Registration and identification card of protocol type No.1**



Protocol No. 31A — Operational Message Standard Location: EPIRB with MMSI, Location “A”

Decoding Beacon ID

**Full message: FFFE2F8C92F423F02C8431CF8AB79500A39A**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (MMSI)** | **37-40** | **0010** |
| **MID: 999999** | **41-60** | **11110100001000111111** |
| **Specific Beacon: 0** | **61-64** | **0000** |
| **Latitude Sign: North** | **65** | **0** |
| **Latitude Degrees: 44** | **66-72** | **0101100** |
| **Latitude Minutes: 30** | **73-74** | **10** |
| **Longitude Sign: East** | **75** | **0** |
| **Longitude Degrees: 33** | **76-83** | **00100001** |
| **Longitude Minutes: 30** | **84-85** | **10** |
| **BCH 1 Encoded:** | **86-106** | **00111001111000101010** |
| **BCH 1 Calculated:** | **N/A** | **00111001111000101010** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: +** | **113** | **1** |
| **Latitude Offset Minutes: 5** | **114-118** | **00101** |
| **Latitude Offset Seconds: 16** | **119-122** | **0100** |
| **Longitude Offset Sign: -** | **123** | **0** |
| **Longitude Offset Minutes: 0** | **124-128** | **00000** |
| **Longitude Offset Seconds: 40** | **129-132** | **1010** |
| **BCH 2 Encoded:** | **133-144** | **001110011010** |
| **BCH 2 Calculated:** | **N/A** | **001110011010** |
| **Composite Latitude: 44.58777777777778 Degrees North** | **N/A** | **Composite Longitude: 33.48888888888889 Degrees East** |
| **15 Hex ID:** | **N/A** | **1925E847E0FFBFF** |

Protocol No. 31B — Operational Message Standard Location: EPIRB with MMSI, Location “B”

Decoding Beacon ID

**Full message: FFFE2F8C92F423F02CC4302F18771666DA9F**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (MMSI)** | **37-40** | **0010** |
| **MID: 999999** | **41-60** | **11110100001000111111** |
| **Specific Beacon: 0** | **61-64** | **0000** |
| **Latitude Sign: North** | **65** | **0** |
| **Latitude Degrees: 44** | **66-72** | **0101100** |
| **Latitude Minutes: 45** | **73-74** | **11** |
| **Longitude Sign: East** | **75** | **0** |
| **Longitude Degrees: 33** | **76-83** | **00100001** |
| **Longitude Minutes: 30** | **84-85** | **10** |
| **BCH 1 Encoded:** | **86-106** | **00000101111000110000 1** |
| **BCH 1 Calculated:** | **N/A** | **00000101111000110000 1** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: -** | **113** | **0** |
| **Latitude Offset Minutes: 5** | **114-118** | **00101** |
| **Latitude Offset Seconds: 36** | **119-122** | **1001** |
| **Longitude Offset Sign: +** | **123** | **1** |
| **Longitude Offset Minutes: 6** | **124-128** | **00110** |
| **Longitude Offset Seconds: 52** | **129-132** | **1101** |
| **BCH 2 Encoded:** | **133-144** | **101010011111** |
| **BCH 2 Calculated:** | **N/A** | **101010011111** |
| **Composite Latitude: 44.656666666666666 Degrees North** | **N/A** | **Composite Longitude: 33.614444444444445 Degrees East** |
| **15 Hex ID:** | **N/A** | **1925E847E0FFBFF** |

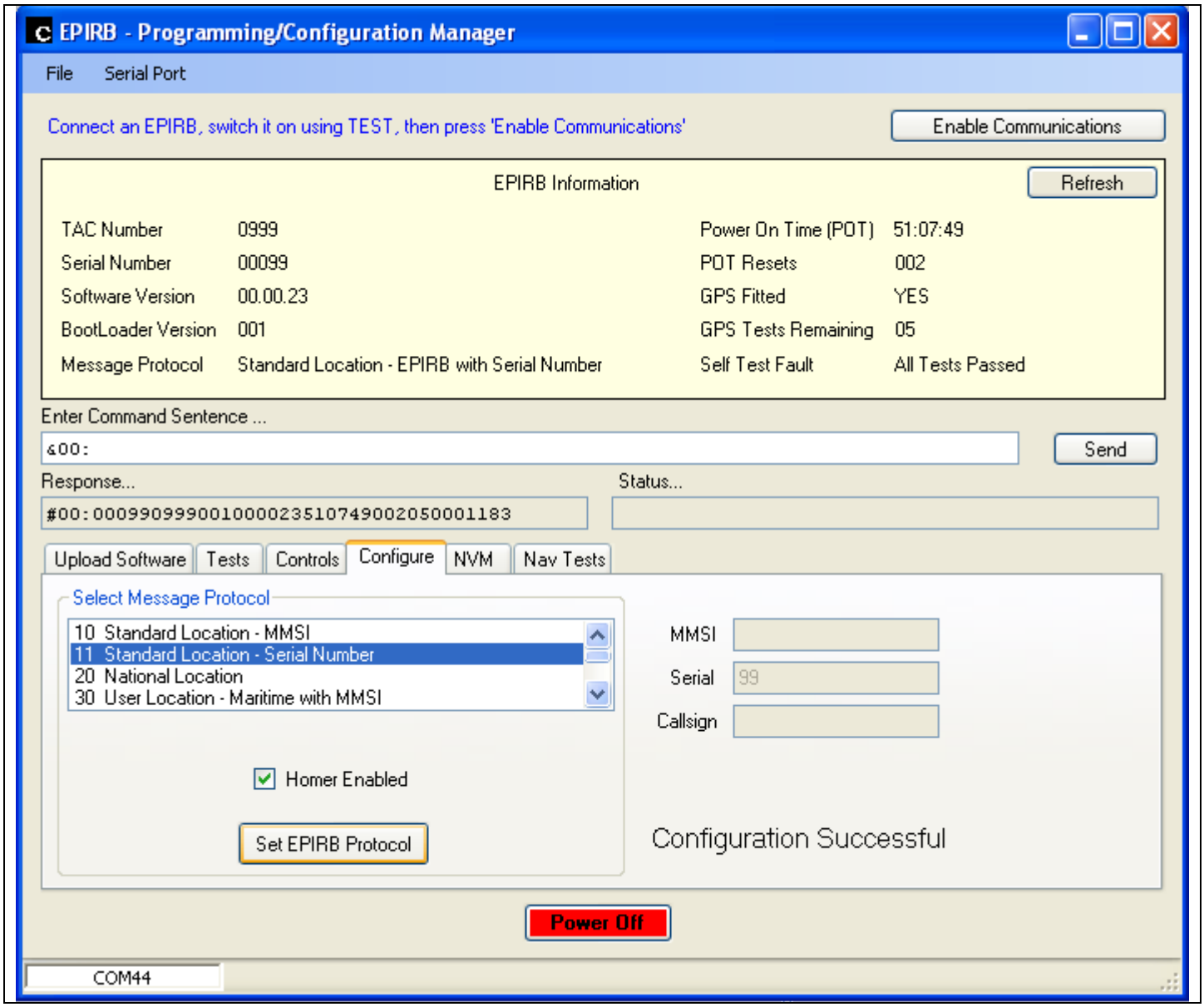
Protocol No. 32 — Self-Test Message Standard Location: EPIRB with MMSI

Decoding Beacon ID

**Full message: FFFED08C92F423F07FDFFB2BF03783E0F66C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (MMSI)** | **37-40** | **0010** |
| **MID: 999999** | **41-60** | **11110100001000111111** |
| **Specific Beacon: 0** | **61-64** | **0000** |
| **Latitude Sign: default** | **65** | **0** |
| **Latitude Degrees: default** | **66-72** | **1111111** |
| **Latitude Minutes: default** | **73-74** | **11** |
| **Longitude Sign: default** | **75** | **0** |
| **Longitude Degrees: default** | **76-83** | **11111111** |
| **Longitude Minutes: default** | **84-85** | **11** |
| **BCH 1 Encoded:** | **86-106** | **01100101011111000000** |
| **BCH 1 Calculated:** | **N/A** | **01100101011111000000** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: default** | **113** | **1** |
| **Latitude Offset Minutes: default** | **114-118** | **00000** |
| **Latitude Offset Seconds: default** | **119-122** | **1111** |
| **Longitude Offset Sign: default** | **123** | **1** |
| **Longitude Offset Minutes: default** | **124-128** | **00000** |
| **Longitude Offset Seconds: default** | **129-132** | **1111** |
| **BCH 2 Encoded:** | **133-144** | **011001101100** |
| **BCH 2 Calculated:** | **N/A** | **011001101100** |
| **Composite Latitude: default** | **N/A** | **Composite Longitude: default** |
| **15 Hex ID:** | **N/A** | **1925E847E0FFBFF** |

**Registration and identification card of protocol type No.2**



Protocol No. 33A — Operational Message Standard Location: EPIRB with Serial Number, Location “A”

Decoding Beacon ID

**Full message: FFFE2F8C96F9C0632C84337695B79500A39A**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (Serial)** | **37-40** | **0110** |
| **Cospas-Sarsat #: 999** | **41-50** | **1111100111** |
| **Serial Number: 99** | **51-64** | **00000001100011** |
| **Latitude Sign: North** | **65** | **0** |
| **Latitude Degrees: 44** | **66-72** | **0101100** |
| **Latitude Minutes: 30** | **73-74** | **10** |
| **Longitude Sign: East** | **75** | **0** |
| **Longitude Degrees: 33** | **76-83** | **00100001** |
| **Longitude Minutes: 30** | **84-85** | **10** |
| **BCH 1 Encoded:** | **86-106** | **01101110110100101011 0** |
| **BCH 1 Calculated:** | **N/A** | **01101110110100101011 0** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: +** | **113** | **1** |
| **Latitude Offset Minutes: 5** | **114-118** | **00101** |
| **Latitude Offset Seconds: 16** | **119-122** | **0100** |
| **Longitude Offset Sign: -** | **123** | **0** |
| **Longitude Offset Minutes: 0** | **124-128** | **00000** |
| **Longitude Offset Seconds: 40** | **129-132** | **1010** |
| **BCH 2 Encoded:** | **133-144** | **001110011010** |
| **BCH 2 Calculated:** | **N/A** | **001110011010** |
| **Composite Latitude: 44.58777777777778 Degrees North** | **N/A** | **Composite Longitude: 33.48888888888889 Degrees East** |
| **15 Hex ID:** | **N/A** | **192DF380C6FFBFF** |

Protocol No. 33B — Operational Message Standard Location: EPIRB with Serial Number, Location “B”

Decoding Beacon ID

**Full message: FFFE2F8C96F9C0632CC4329607771666DA9F**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (Serial)** | **37-40** | **0110** |
| **Cospas-Sarsat #: 999** | **41-50** | **1111100111** |
| **Serial Number: 99** | **51-64** | **00000001100011** |
| **Latitude Sign: North** | **65** | **0** |
| **Latitude Degrees: 44** | **66-72** | **0101100** |
| **Latitude Minutes: 45** | **73-74** | **11** |
| **Longitude Sign: East** | **75** | **0** |
| **Longitude Degrees: 33** | **76-83** | **00100001** |
| **Longitude Minutes: 30** | **84-85** | **10** |
| **BCH 1 Encoded:** | **86-106** | **01010010110000011101** |
| **BCH 1 Calculated:** | **N/A** | **01010010110000011101** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: -** | **113** | **0** |
| **Latitude Offset Minutes: 5** | **114-118** | **00101** |
| **Latitude Offset Seconds: 36** | **119-122** | **1001** |
| **Longitude Offset Sign: +** | **123** | **1** |
| **Longitude Offset Minutes: 6** | **124-128** | **00110** |
| **Longitude Offset Seconds: 52** | **129-132** | **1101** |
| **BCH 2 Encoded:** | **133-144** | **101010011111** |
| **BCH 2 Calculated:** | **N/A** | **101010011111** |
| **Composite Latitude: 44.656666666666666 Degrees North** | **N/A** | **Composite Longitude: 33.614444444444445 Degrees East** |
| **15 Hex ID:** | **N/A** | **192DF380C6FFBFF** |

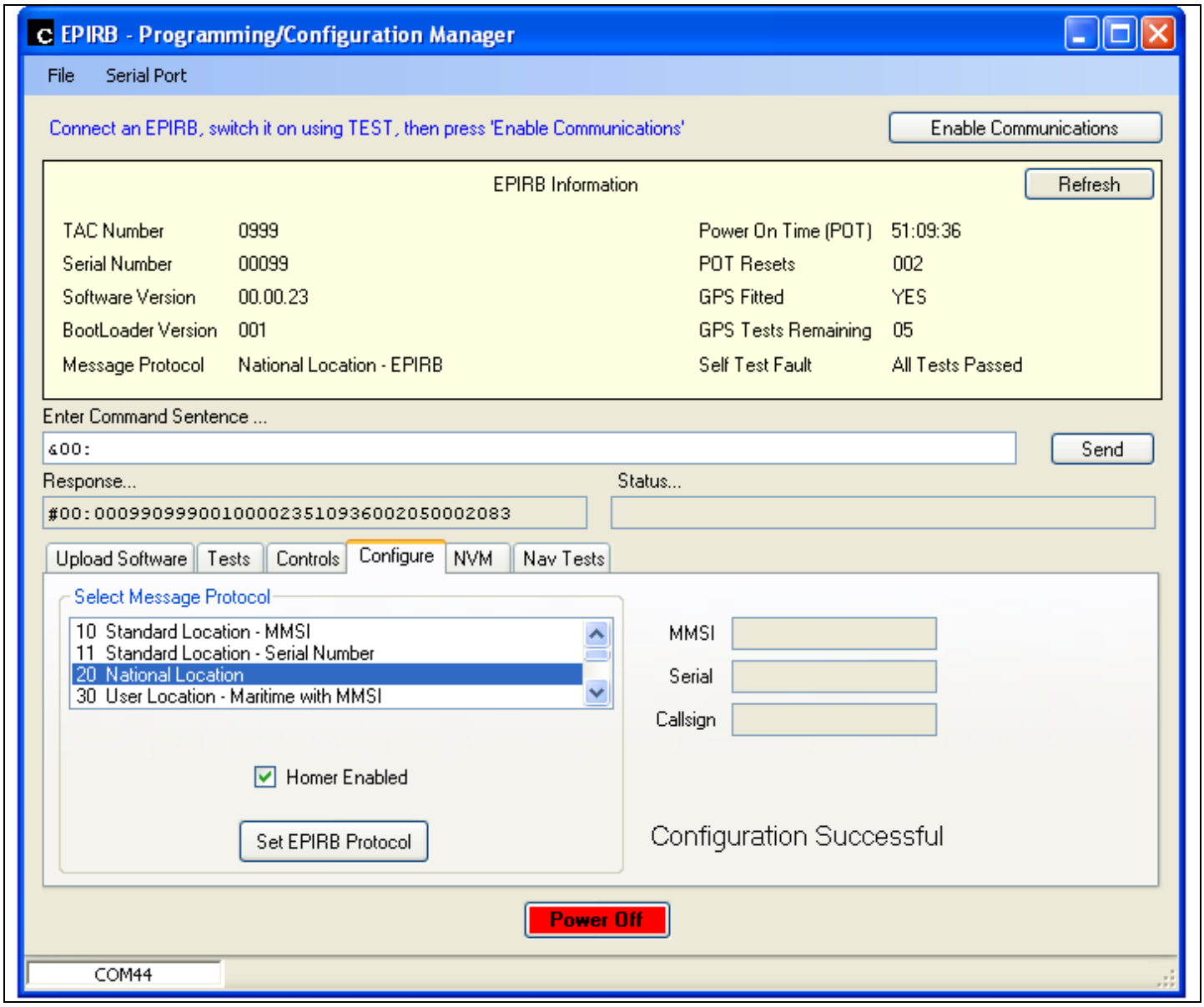
Protocol No. 34 — Self-Test Message Standard Location: EPIRB with Serial Number

Decoding Beacon ID

**Full message: FFFED08C96F9C0637FDFF992EF3783E0F66C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (Serial)** | **37-40** | **0110** |
| **Cospas-Sarsat #: 999** | **41-50** | **1111100111** |
| **Serial Number: 99** | **51-64** | **00000001100011** |
| **Latitude Sign: default** | **65** | **0** |
| **Latitude Degrees: default** | **66-72** | **1111111** |
| **Latitude Minutes: default** | **73-74** | **11** |
| **Longitude Sign: default** | **75** | **0** |
| **Longitude Degrees: default** | **76-83** | **11111111** |
| **Longitude Minutes: default** | **84-85** | **11** |
| **BCH 1 Encoded:** | **86-106** | **00110010010111011110 0** |
| **BCH 1 Calculated:** | **N/A** | **00110010010111011110 0** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: default** | **113** | **1** |
| **Latitude Offset Minutes: default** | **114-118** | **00000** |
| **Latitude Offset Seconds: default** | **119-122** | **1111** |
| **Longitude Offset Sign: default** | **123** | **1** |
| **Longitude Offset Minutes: default** | **124-128** | **00000** |
| **Longitude Offset Seconds: default** | **129-132** | **1111** |
| **BCH 2 Encoded:** | **133-144** | **011001101100** |
| **BCH 2 Calculated:** | **N/A** | **011001101100** |
| **Composite Latitude: default** | **N/A** | **Composite Longitude: default** |
| **15 Hex ID:** | **N/A** | **192DF380C6FFBFF** |

**Registration and identification card of protocol type No.3**



Protocol No. 35A — Operational Message National Location Protocol, Location “A”

Decoding Beacon ID

**Full message: FFFE2F8C9A0018CB242179A0E63716280201**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: National Location - EPIRB** | **37-40** | **1010** |
| **Serial Number: 99** | **41-58** | **000000000001100011** |
| **Latitude Flag: North** | **59** | **0** |
| **Latitude (Degrees): 44** | **60-66** | **0101100** |
| **Latitude (Minutes): 36** | **67-71** | **10010** |
| **Longitude Flag: East** | **72** | **0** |
| **Longitude (Degrees): 33** | **73-80** | **00100001** |
| **Longitude (Minutes): 30** | **81-85** | **01111** |
| **BCH 1 Encoded:** | **86-106** | **00110100000111001100 0** |
| **BCH 1 Calculated:** | **86-106** | **00110100000111001100 0** |
| **Fixed bits (110): Pass** | **107-109** | **110** |
| **Bits 113 - 132 provides offset data location** | **110** | **1** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Loc. Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: -** | **113** | **0** |
| **Latitude Offset Minutes: 0** | **114-115** | **00** |
| **Latitude Offset Seconds: 44** | **116-119** | **1011** |
| **Longitude Offset Sign: -** | **120** | **0** |
| **Longitude Offset Minutes: 0** | **121-122** | **00** |
| **Longitude Offset Seconds: 40** | **123-126** | **1010** |
| **Additional Id (Nat Use)** | **127-132** | **000000** |
| **BCH 2 Encoded:** | **133-144** | **001000000001** |
| **BCH 2 Calculated:** | **N/A** | **001000000001** |
| **Composite Latitude: 44.58777777777778 Degrees North** | **N/A** | **Composite Longitude: 33.48888888888889 Degrees East** |
| **15 Hex ID:** | **N/A** | **19340031BF81FE0** |

Protocol No. 35B — Operational Message National Location Protocol, Location “B”

Decoding Beacon ID

**Full message: FFFE2F8C9A0018CB282197B55177133409C8**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: National Location - EPIRB** | **37-40** | **1010** |
| **Serial Number: 99** | **41-58** | **000000000001100011** |
| **Latitude Flag: North** | **59** | **0** |
| **Latitude (Degrees): 44** | **60-66** | **0101100** |
| **Latitude (Minutes): 40** | **67-71** | **10100** |
| **Longitude Flag: East** | **72** | **0** |
| **Longitude (Degrees): 33** | **73-80** | **00100001** |
| **Longitude (Minutes): 36** | **81-85** | **10010** |
| **BCH 1 Encoded:** | **86-106** | **111101101010101000101** |
| **BCH 1 Calculated:** | **86-106** | **111101101010101000101** |
| **Fixed bits (110): Pass** | **107-109** | **110** |
| **Bits 113 - 132 provides offset data location** | **110** | **1** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Loc. Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: -** | **113** | **0** |
| **Latitude Offset Minutes: 0** | **114-115** | **00** |
| **Latitude Offset Seconds: 36** | **116-119** | **1001** |
| **Longitude Offset Sign: +** | **120** | **1** |
| **Longitude Offset Minutes: 0** | **121-122** | **00** |
| **Longitude Offset Seconds: 52** | **123-126** | **1101** |
| **Additional Id (Nat Use)** | **127-132** | **000000** |
| **BCH 2 Encoded:** | **133-144** | **100111001000** |
| **BCH 2 Calculated:** | **N/A** | **100111001000** |
| **Composite Latitude: 44.656666666666666 Degrees North** | **N/A** | **Composite Longitude: 33.614444444444445 Degrees East** |
| **15 Hex ID:** | **N/A** | **19340031BF81FE0** |

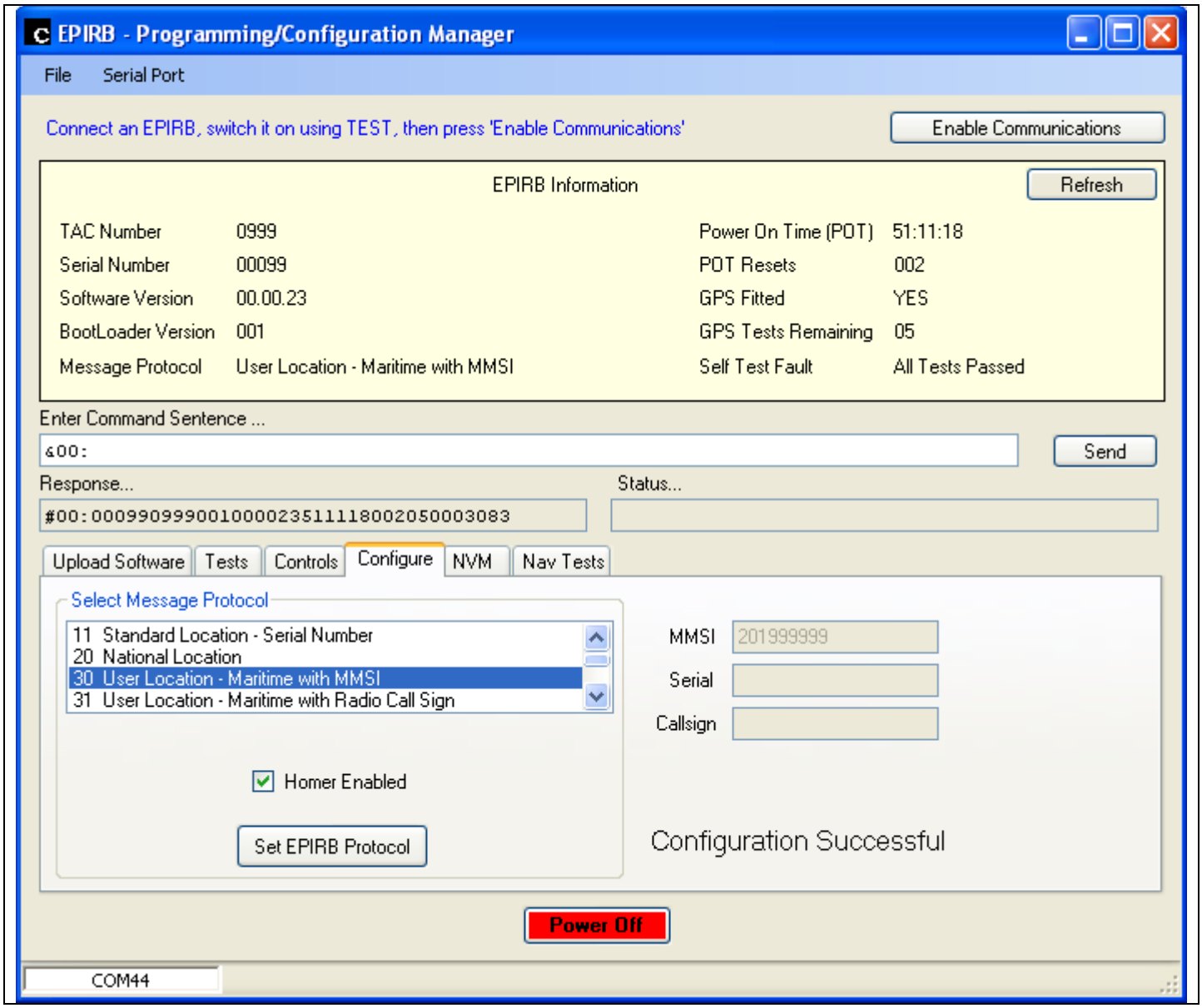
Protocol No. 36 — Self-Test Message National Location Protocol

Decoding Beacon ID

**Full message: FFFED08C9A0018DFC0FF02AD44779F3C0010**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: National Location - EPIRB** | **37-40** | **1010** |
| **Serial Number: 99** | **41-58** | **000000000001100011** |
| **Latitude Flag: default** | **59** | **0** |
| **Latitude (Degrees): default** | **60-66** | **1111111** |
| **Latitude (Minutes): default** | **67-71** | **00000** |
| **Longitude Flag: default** | **72** | **0** |
| **Longitude (Degrees): default** | **73-80** | **11111111** |
| **Longitude (Minutes): default** | **81-85** | **00000** |
| **BCH 1 Encoded:** | **86-106** | **01010101101010010001** |
| **BCH 1 Calculated:** | **86-106** | **01010101101010010001** |
| **Fixed bits (110): Pass** | **107-109** | **110** |
| **Bits 113 - 132 provides offset data location** | **110** | **1** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Loc. Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: default** | **113** | **1** |
| **Latitude Offset Minutes: default** | **114-115** | **00** |
| **Latitude Offset Seconds: default** | **116-119** | **1111** |
| **Longitude Offset Sign: default** | **120** | **1** |
| **Longitude Offset Minutes: default** | **121-122** | **00** |
| **Longitude Offset Seconds: default** | **123-126** | **1111** |
| **Additional Id (Nat Use)** | **127-132** | **000000** |
| **BCH 2 Encoded:** | **133-144** | **000000010000** |
| **BCH 2 Calculated:** | **N/A** | **000000010000** |
| **Composite Latitude: default** | **N/A** | **Composite Longitude: default** |
| **15 Hex ID:** | **N/A** | **19340031BF81FE0** |

**Registration and identification card of protocol type No.4**



Protocol No. 37A — Operational Message Maritime User Protocol with MMSI, Location “A”

Decoding Beacon ID

**Full message: FFFE2FCC94186186186689DE52A59221788C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Maritime User** | **37-39** | **010** |
| **Maritime MMSI (6 digits): 999999** | **40-75** | **0000110000110000110000110000110000011** |
| **Specific bcn: 0** | **76-81** | **001101** |
| **Spare** | **82-83** | **00** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **00111011110010100 1010** |
| **Calculated BCH 1:** | **N/A** | **00111011110010100 1010** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **North** | **108** | **0** |
| **Latitude (degrees): 44** | **109-115** | **0101100** |
| **Latitude (minutes): 36** | **116-119** | **1001** |
| **East** | **120** | **0** |
| **Longitude (degrees): 33** | **121-128** | **00100001** |
| **Longitude (minutes): 28** | **129-132** | **0111** |
| **Encoded BCH 2:** | **133-144** | **100010001100** |
| **Calculated BCH 2:** | **N/A** | **100010001100** |
| **15 Hex ID:** | **N/A** | **992830C30C30CD1** |

Protocol No. 37B — Operational Message Maritime User Protocol with MMSI, Location “B”

Decoding Beacon ID

**Full message: FFFE2FCC94186186186689DE52A594219798**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Maritime User** | **37-39** | **010** |
| **Maritime MMSI (6 digits): 999999** | **40-75** | **0000110000110000110000110000110000011** |
| **Specific bcn: 0** | **76-81** | **001101** |
| **Spare** | **82-83** | **00** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **00111011110010100 1010** |
| **Calculated BCH 1:** | **N/A** | **00111011110010100 1010** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **North** | **108** | **0** |
| **Latitude (degrees): 44** | **109-115** | **0101100** |
| **Latitude (minutes): 40** | **116-119** | **1010** |
| **East** | **120** | **0** |
| **Longitude (degrees): 33** | **121-128** | **00100001** |
| **Longitude (minutes): 36** | **129-132** | **1001** |
| **Encoded BCH 2:** | **133-144** | **011110011000** |
| **Calculated BCH 2:** | **N/A** | **011110011000** |
| **15 Hex ID:** | **N/A** | **992830C30C30CD1** |

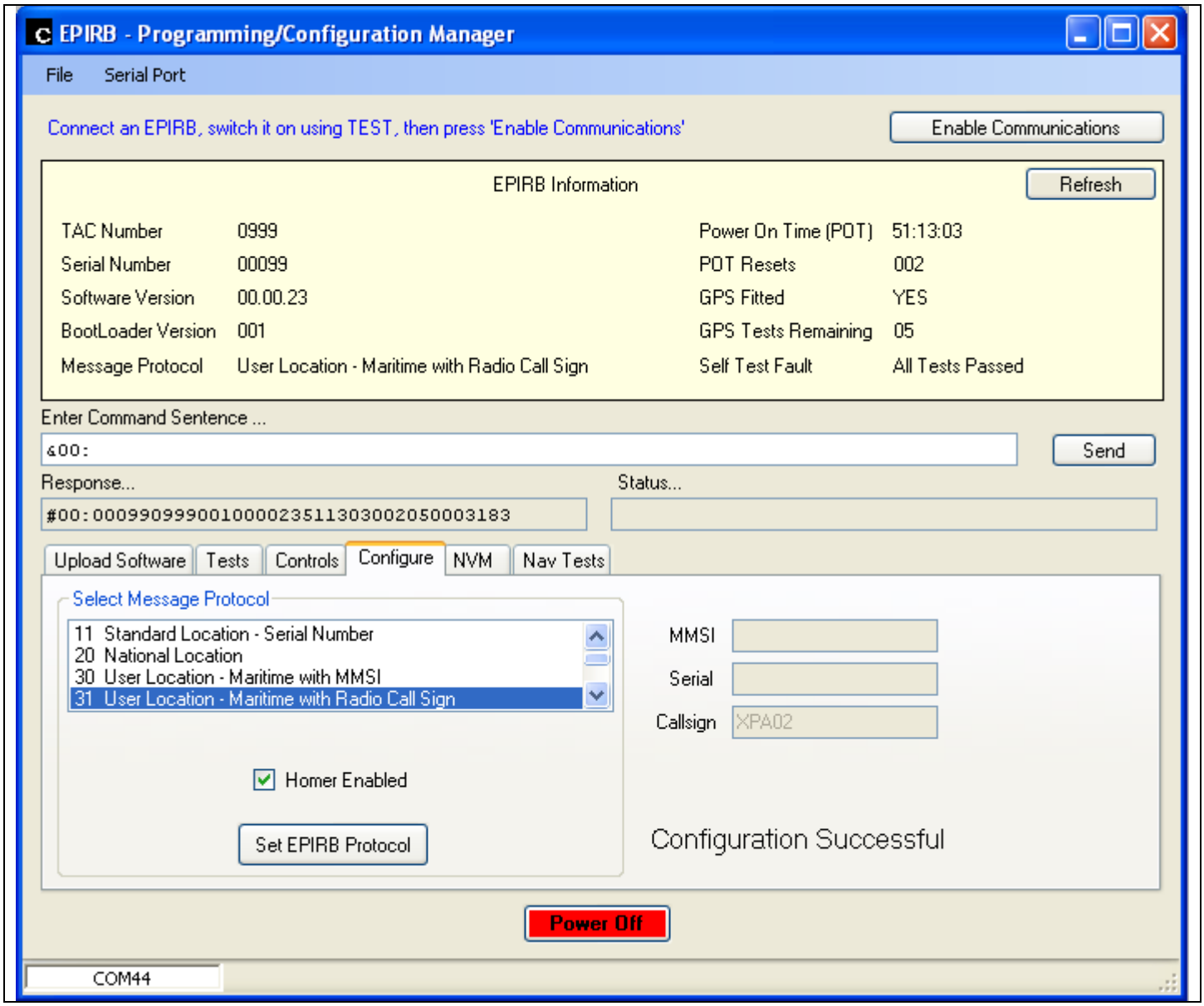
Protocol No. 38 — Self-Test Message Maritime User Protocol with MMSI

Decoding Beacon ID

**Full message: FFFED0CC94186186186689DE52AFE0FF0146**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Maritime User** | **37-39** | **010** |
| **Maritime MMSI (6 digits): 999999** | **40-75** | **0000110000110000110000110000110000011** |
| **Specific bcn: 0** | **76-81** | **001101** |
| **Spare** | **82-83** | **00** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **00111011110010100 1010** |
| **Calculated BCH 1:** | **N/A** | **00111011110010100 1010** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **default** | **108** | **0** |
| **Latitude (degrees): default** | **109-115** | **1111111** |
| **Latitude (minutes): default** | **116-119** | **0000** |
| **default** | **120** | **0** |
| **Longitude (degrees): default** | **121-128** | **11111111** |
| **Longitude (minutes): default** | **129-132** | **0000** |
| **Encoded BCH 2:** | **133-144** | **000101000110** |
| **Calculated BCH 2:** | **N/A** | **000101000110** |
| **15 Hex ID:** | **N/A** | **992830C30C30CD1** |

**Registration and identification card of protocol type No.5**



Protocol No. 39A — Operational Message Maritime User Protocol with Radio Call Sign, Location “A”

Decoding Beacon ID

**Full message: FFFE2FCC9526F6F06B268F9F32259221788C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Maritime User** | **37-39** | **010** |
| **Radio Call Sign (6 digits): XPA02** | **40-75** | **1001001101111011011110000011010110 01** |
| **Specific bcn: 0** | **76-81** | **001101** |
| **Spare** | **82-83** | **00** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **111100111110011001000** |
| **Calculated BCH 1:** | **N/A** | **111100111110011001000** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **North** | **108** | **0** |
| **Latitude (degrees): 44** | **109-115** | **0101100** |
| **Latitude (minutes): 36** | **116-119** | **1001** |
| **East** | **120** | **0** |
| **Longitude (degrees): 33** | **121-128** | **00100001** |
| **Longitude (minutes): 28** | **129-132** | **0111** |
| **Encoded BCH 2:** | **133-144** | **100010001100** |
| **Calculated BCH 2:** | **N/A** | **100010001100** |
| **15 Hex ID:** | **N/A** | **992A4DEDE0D64D1** |

Protocol No. 39B — Operational Message Maritime User Protocol with Radio Call Sign, Location “B”

Decoding Beacon ID

**Full message: FFFE2FCC9526F6F06B268F9F322594219798**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Maritime User** | **37-39** | **010** |
| **Radio Call Sign (6 digits): XPA02** | **40-75** | **1001001101111011011110000011010110 01** |
| **Specific bcn: 0** | **76-81** | **001101** |
| **Spare** | **82-83** | **00** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **111100111110011001000** |
| **Calculated BCH 1:** | **N/A** | **111100111110011001000** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **North** | **108** | **0** |
| **Latitude (degrees): 44** | **109-115** | **0101100** |
| **Latitude (minutes): 40** | **116-119** | **1010** |
| **East** | **120** | **0** |
| **Longitude (degrees): 33** | **121-128** | **00100001** |
| **Longitude (minutes): 36** | **129-132** | **1001** |
| **Encoded BCH 2:** | **133-144** | **011110011000** |
| **Calculated BCH 2:** | **N/A** | **011110011000** |
| **15 Hex ID:** | **N/A** | **992A4DEDE0D64D1** |

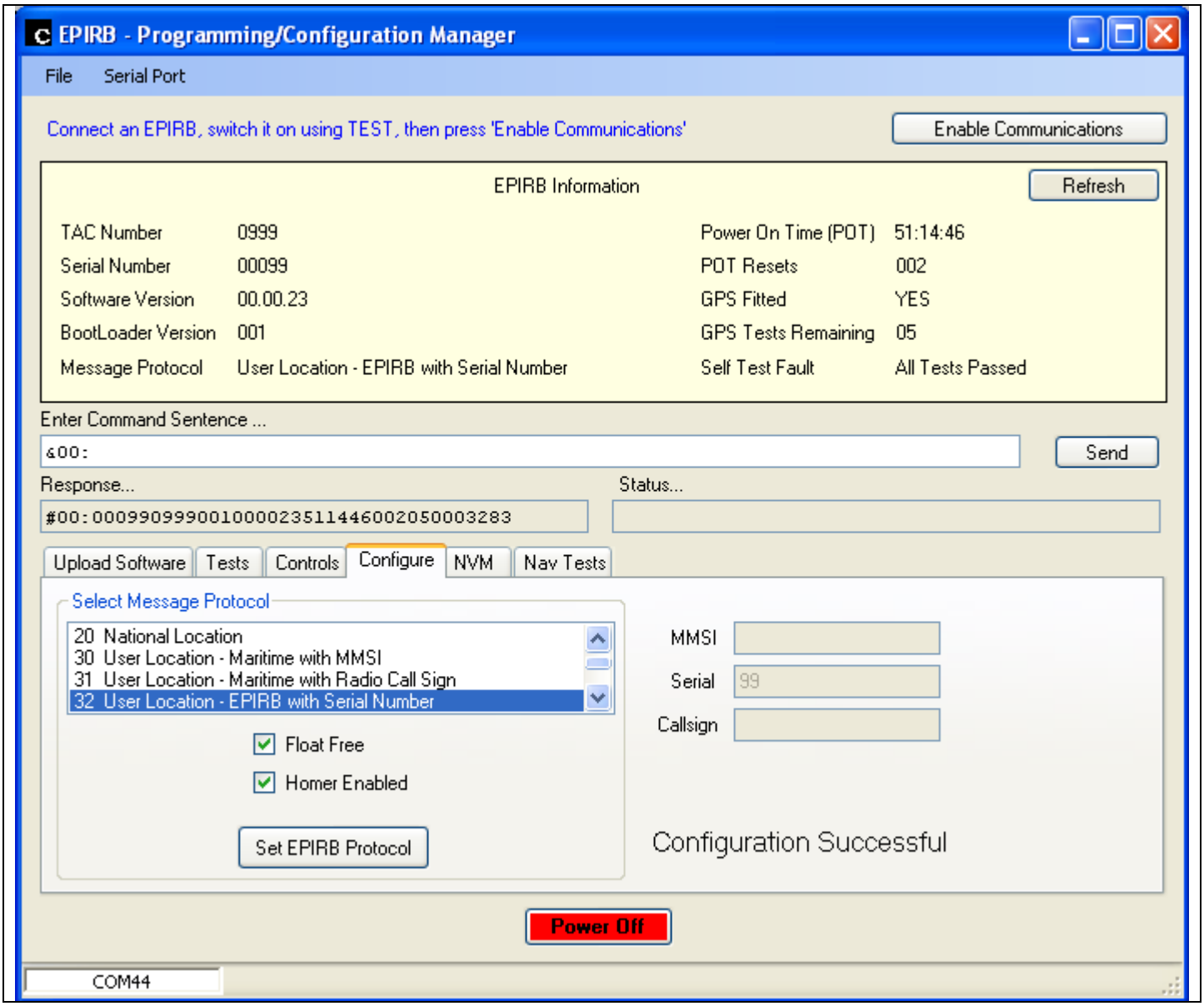
Protocol No. 40 — Self-Test Message Maritime User Protocol with Radio Call Sign

Decoding Beacon ID

**Full message: FFFED0CC9526F6F06B268F9F322FE0FF0146**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Maritime User** | **37-39** | **010** |
| **Radio Call Sign (6 digits): XPA02** | **40-75** | **1001001101111011011110000011010110 01** |
| **Specific bcn: 0** | **76-81** | **001101** |
| **Spare** | **82-83** | **00** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **111100111110011001000** |
| **Calculated BCH 1:** | **N/A** | **111100111110011001000** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **default** | **108** | **0** |
| **Latitude (degrees): default** | **109-115** | **1111111** |
| **Latitude (minutes): default** | **116-119** | **0000** |
| **default** | **120** | **0** |
| **Longitude (degrees): default** | **121-128** | **11111111** |
| **Longitude (minutes): default** | **129-132** | **0000** |
| **Encoded BCH 2:** | **133-144** | **000101000110** |
| **Calculated BCH 2:** | **N/A** | **000101000110** |
| **15 Hex ID:** | **N/A** | **992A4DEDE0D64D1** |

**Registration and identification card of protocol type No.6**



Protocol No. 41A — Operational Message Serial User: Float-Free EPIRB with Serial Number, Location “A”

Decoding Beacon ID

**Full message: FFFE2FCC96A000C6007CEEBD42E59221788C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Serial User** | **37-39** | **011** |
| **Serial Type: Float Free EPIRB with Serial Identification Number** | **40-42** | **010** |
| **Cospas-Sarsat Certificate Number in bits 74-83: Yes** | **43** | **1** |
| **Serial Number: 99** | **44-63** | **00000000000001100011** |
| **All 0s or National Use** | **64-73** | **0000000000** |
| **C/S Number or National Use (bit 43 refers): 999** | **74-83** | **1111100111** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **11010111101010000 1011** |
| **Calculated BCH 1:** | **N/A** | **11010111101010000 1011** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **North** | **108** | **0** |
| **Latitude (degrees): 44** | **109-115** | **0101100** |
| **Latitude (minutes): 36** | **116-119** | **1001** |
| **East** | **120** | **0** |
| **Longitude (degrees): 33** | **121-128** | **00100001** |
| **Longitude (minutes): 28** | **129-132** | **0111** |
| **Encoded BCH 2:** | **133-144** | **100010001100** |
| **Calculated BCH 2:** | **N/A** | **100010001100** |
| **15 Hex ID:** | **N/A** | **992D40018C00F9D** |

Protocol No. 41B — Operational Message Serial User: Float-Free EPIRB with Serial Number, Location “B”

Decoding Beacon ID

**Full message: FFFE2FCC96A000C6007CEEBD42E594219798**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Serial User** | **37-39** | **011** |
| **Serial Type: Float Free EPIRB with Serial Identification Number** | **40-42** | **010** |
| **Cospas-Sarsat Certificate Number in bits 74-83: Yes** | **43** | **1** |
| **Serial Number: 99** | **44-63** | **00000000000001100011** |
| **All 0s or National Use** | **64-73** | **0000000000** |
| **C/S Number or National Use (bit 43 refers): 999** | **74-83** | **1111100111** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **11010111101010000 1011** |
| **Calculated BCH 1:** | **N/A** | **11010111101010000 1011** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **North** | **108** | **0** |
| **Latitude (degrees): 44** | **109-115** | **0101100** |
| **Latitude (minutes): 40** | **116-119** | **1010** |
| **East** | **120** | **0** |
| **Longitude (degrees): 33** | **121-128** | **00100001** |
| **Longitude (minutes): 36** | **129-132** | **1001** |
| **Encoded BCH 2:** | **133-144** | **011110011000** |
| **Calculated BCH 2:** | **N/A** | **011110011000** |
| **15 Hex ID:** | **N/A** | **992D40018C00F9D** |

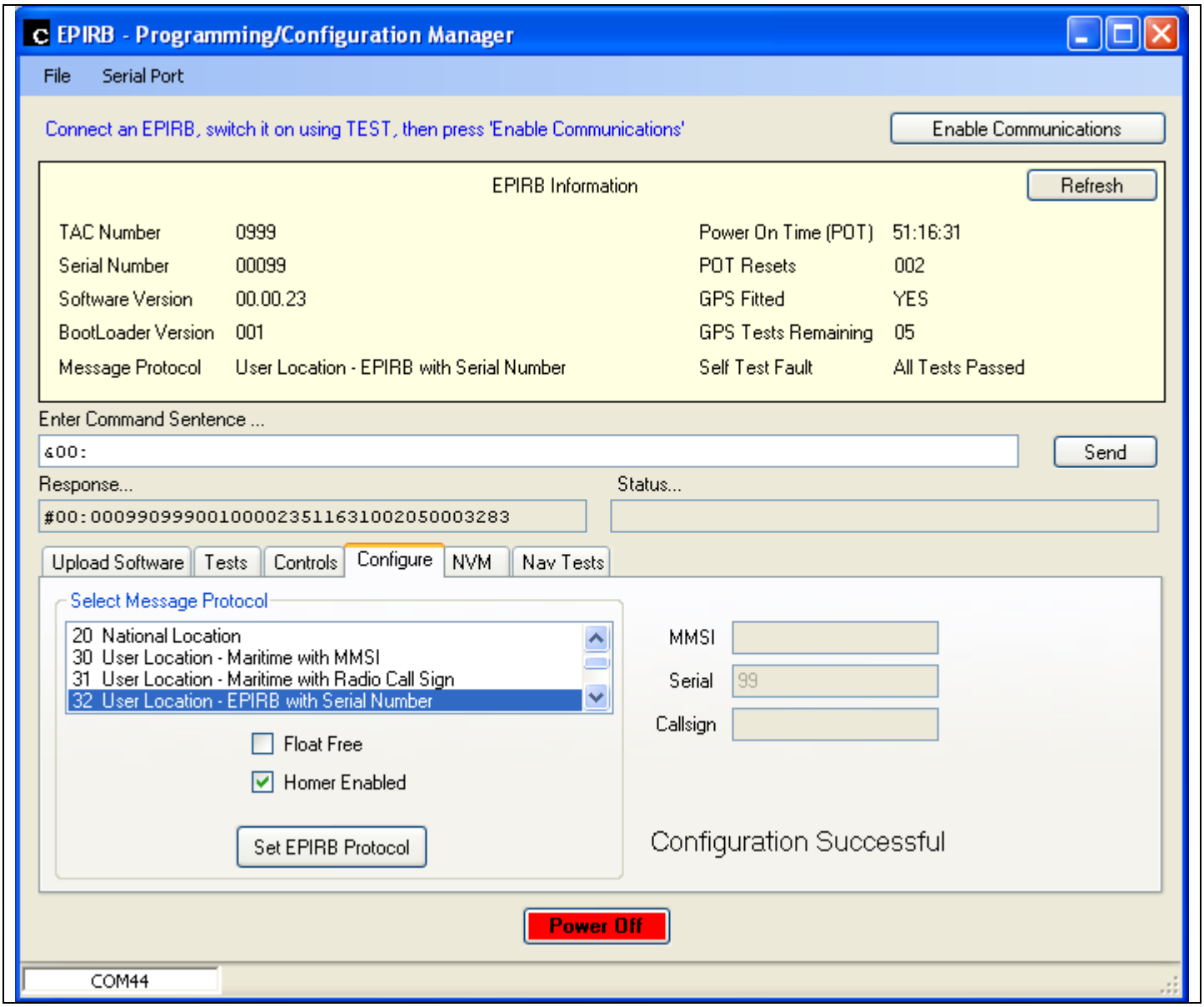
Protocol No. 42 — Self-Test Message Serial User: Float-Free EPIRB with Serial Number

Decoding Beacon ID

**Full message: FFFED0CC96A000C6007CEEBD42EFE0FF0146**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Serial User** | **37-39** | **011** |
| **Serial Type: Float Free EPIRB with Serial Identification Number** | **40-42** | **010** |
| **Cospas-Sarsat Certificate Number in bits 74-83: Yes** | **43** | **1** |
| **Serial Number: 99** | **44-63** | **00000000000001100011** |
| **All 0s or National Use** | **64-73** | **0000000000** |
| **C/S Number or National Use (bit 43 refers): 999** | **74-83** | **1111100111** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **11010111101010000 1011** |
| **Calculated BCH 1:** | **N/A** | **11010111101010000 1011** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **default** | **108** | **0** |
| **Latitude (degrees): default** | **109-115** | **1111111** |
| **Latitude (minutes): default** | **116-119** | **0000** |
| **default** | **120** | **0** |
| **Longitude (degrees): default** | **121-128** | **11111111** |
| **Longitude (minutes): default** | **129-132** | **0000** |
| **Encoded BCH 2:** | **133-144** | **000101000110** |
| **Calculated BCH 2:** | **N/A** | **000101000110** |
| **15 Hex ID:** | **N/A** | **992D40018C00F9D** |

**Registration and identification card of protocol type No.7**



Protocol No. 43A — Operational Message Serial User: Non Float-Free EPIRB with Serial Number, Location “A”

Decoding Beacon ID

**Full message: FFFE2FCC972000C6007CEB7FB1659221788C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Serial User** | **37-39** | **011** |
| **Serial Type: Non Float Free EPIRB with Serial Identification** | **40-42** | **100** |
| **Cospas-Sarsat Certificate Number in bits 74-83: Yes** | **43** | **1** |
| **Serial Number: 99** | **44-63** | **00000000000001100011** |
| **All 0s or National Use** | **64-73** | **0000000000** |
| **C/S Number or National Use (bit 43 refers): 999** | **74-83** | **1111100111** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **01101111111011000101** |
| **Calculated BCH 1:** | **N/A** | **01101111111011000101** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **North** | **108** | **0** |
| **Latitude (degrees): 44** | **109-115** | **0101100** |
| **Latitude (minutes): 36** | **116-119** | **1001** |
| **East** | **120** | **0** |
| **Longitude (degrees): 33** | **121-128** | **00100001** |
| **Longitude (minutes): 28** | **129-132** | **0111** |
| **Encoded BCH 2:** | **133-144** | **100010001100** |
| **Calculated BCH 2:** | **N/A** | **100010001100** |
| **15 Hex ID:** | **N/A** | **992E40018C00F9D** |

Protocol No. 43B — Operational Message Serial User: Non Float-Free EPIRB with Serial Number, Location “B”

Decoding Beacon ID

**Full message: FFFE2FCC972000C6007CEB7FB16594219798**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Serial User** | **37-39** | **011** |
| **Serial Type: Non Float Free EPIRB with Serial Identification** | **40-42** | **100** |
| **Cospas-Sarsat Certificate Number in bits 74-83: Yes** | **43** | **1** |
| **Serial Number: 99** | **44-63** | **00000000000001100011** |
| **All 0s or National Use** | **64-73** | **0000000000** |
| **C/S Number or National Use (bit 43 refers): 999** | **74-83** | **1111100111** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **01101111111011000101** |
| **Calculated BCH 1:** | **N/A** | **01101111111011000101** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **North** | **108** | **0** |
| **Latitude (degrees): 44** | **109-115** | **0101100** |
| **Latitude (minutes): 40** | **116-119** | **1010** |
| **East** | **120** | **0** |
| **Longitude (degrees): 33** | **121-128** | **00100001** |
| **Longitude (minutes): 36** | **129-132** | **1001** |
| **Encoded BCH 2:** | **133-144** | **011110011000** |
| **Calculated BCH 2:** | **N/A** | **011110011000** |
| **15 Hex ID:** | **N/A** | **992E40018C00F9D** |

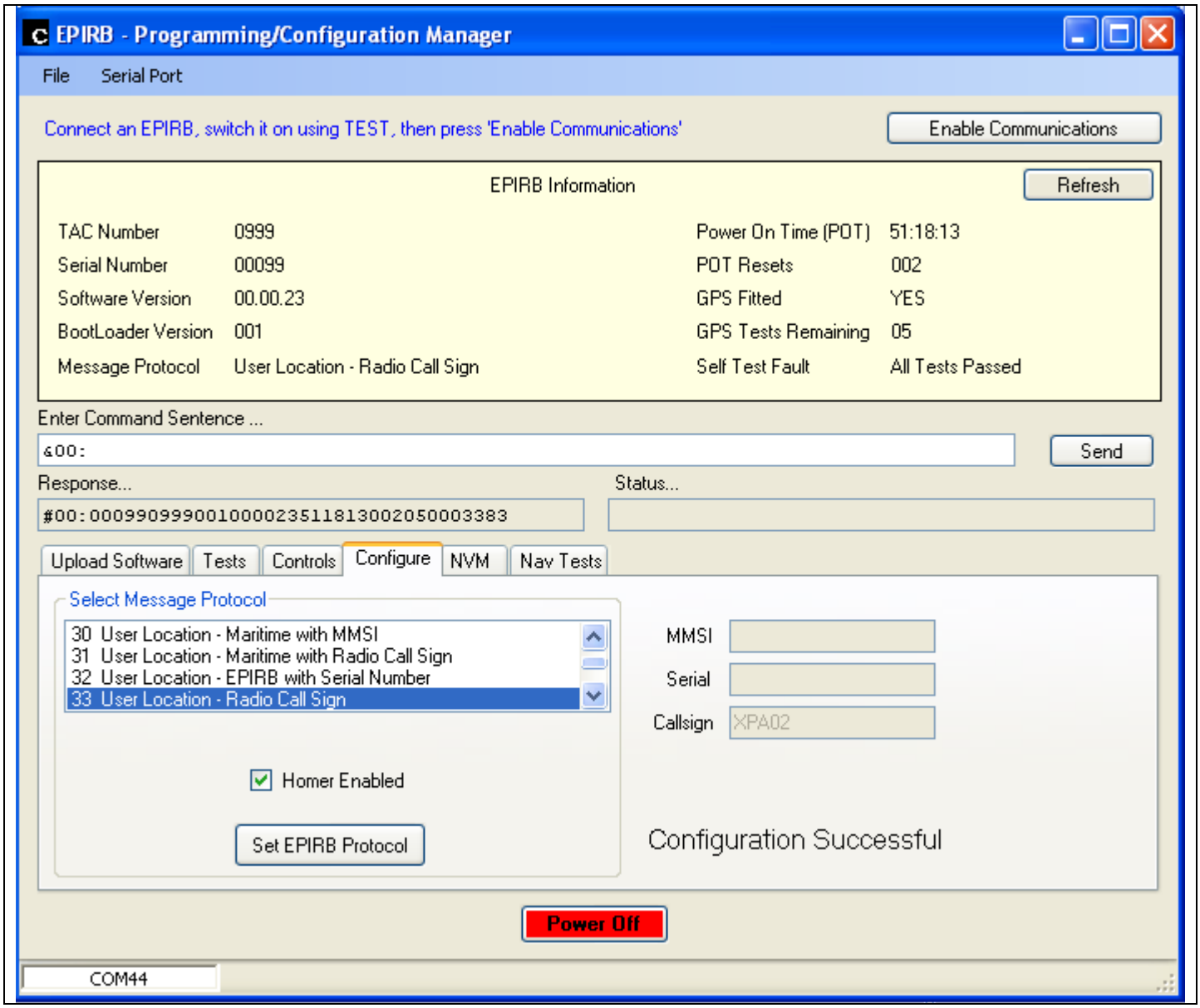
Protocol No. 44 — Self-Test Message Serial User: Non Float-Free EPIRB with Serial Number

Decoding Beacon ID

**Full message: FFFE2FCC972000C6007CEB7FB16FE0FF0146**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Serial User** | **37-39** | **011** |
| **Serial Type: Non Float Free EPIRB with Serial Identification** | **40-42** | **100** |
| **Cospas-Sarsat Certificate Number in bits 74-83: Yes** | **43** | **1** |
| **Serial Number: 99** | **44-63** | **00000000000001100011** |
| **All 0s or National Use** | **64-73** | **0000000000** |
| **C/S Number or National Use (bit 43 refers): 999** | **74-83** | **1111100111** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **01101111111011000101** |
| **Calculated BCH 1:** | **N/A** | **01101111111011000101** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **default** | **108** | **0** |
| **Latitude (degrees): default** | **109-115** | **1111111** |
| **Latitude (minutes): default** | **116-119** | **0000** |
| **default** | **120** | **0** |
| **Longitude (degrees): default** | **121-128** | **11111111** |
| **Longitude (minutes): default** | **129-132** | **0000** |
| **Encoded BCH 2:** | **133-144** | **000101000110** |
| **Calculated BCH 2:** | **N/A** | **000101000110** |
| **15 Hex ID:** | **N/A** | **992E40018C00F9D** |

**Registration and identification card of protocol type No.8**



Protocol No. 45A — Operational Message Radio Call Sign User Protocol, Location “A”

Decoding Beacon ID

**Full message: FFFE2FCC9DBDBC1A55468ED9F6259221788C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Radio Call Sign** | **37-39** | **110** |
| **Radio Call Sign Identification: XPA02** | **40-75** | **1101111011011110000011010010101010** |
| **Specific bcn: 0** | **76-81** | **001101** |
| **Spare** | **82-83** | **00** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **11011011001111011000** |
| **Calculated BCH 1:** | **N/A** | **11011011001111011000** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **North** | **108** | **0** |
| **Latitude (degrees): 44** | **109-115** | **0101100** |
| **Latitude (minutes): 36** | **116-119** | **1001** |
| **East** | **120** | **0** |
| **Longitude (degrees): 33** | **121-128** | **00100001** |
| **Longitude (minutes): 28** | **129-132** | **0111** |
| **Encoded BCH 2:** | **133-144** | **100010001100** |
| **Calculated BCH 2:** | **N/A** | **100010001100** |
| **15 Hex ID:** | **N/A** | **993B7B7834AA8D1** |

Protocol No. 45B — Operational Message Radio Call Sign User Protocol, Location “B”

Decoding Beacon ID

**Full message: FFFE2FCC9DBDBC1A55468ED9F62594219798**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Radio Call Sign** | **37-39** | **110** |
| **Radio Call Sign Identification: XPA02** | **40-75** | **1101111011011110000011010010101010** |
| **Specific bcn: 0** | **76-81** | **001101** |
| **Spare** | **82-83** | **00** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **11011011001111011000** |
| **Calculated BCH 1:** | **N/A** | **11011011001111011000** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **North** | **108** | **0** |
| **Latitude (degrees): 44** | **109-115** | **0101100** |
| **Latitude (minutes): 40** | **116-119** | **1010** |
| **East** | **120** | **0** |
| **Longitude (degrees): 33** | **121-128** | **00100001** |
| **Longitude (minutes): 36** | **129-132** | **1001** |
| **Encoded BCH 2:** | **133-144** | **011110011000** |
| **Calculated BCH 2:** | **N/A** | **011110011000** |
| **15 Hex ID:** | **N/A** | **993B7B7834AA8D1** |

Protocol No. 46 — Self-Test Message Radio Call Sign User Protocol

Decoding Beacon ID

**Full message: FFFED0CC9DBDBC1A55468ED9F62FE0FF0146**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Radio Call Sign** | **37-39** | **110** |
| **Radio Call Sign Identification: XPA02** | **40-75** | **1101111011011110000011010010101010** |
| **Specific bcn: 0** | **76-81** | **001101** |
| **Spare** | **82-83** | **00** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **11011010011111011000** |
| **Calculated BCH 1:** | **N/A** | **11011010011111011000** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **default** | **108** | **0** |
| **Latitude (degrees): default** | **109-115** | **1111111** |
| **Latitude (minutes): default** | **116-119** | **0000** |
| **default** | **120** | **0** |
| **Longitude (degrees): default** | **121-128** | **11111111** |
| **Longitude (minutes): default** | **129-132** | **0000** |
| **Encoded BCH 2:** | **133-144** | **000101000110** |
| **Calculated BCH 2:** | **N/A** | **000101000110** |
| **15 Hex ID:** | **N/A** | **993B7B7834AA8D1** |

**ANNEX 7**

**NAVIGATION SYSTEM TEST RESULTS**

**(APPENDIX C TO ANNEX F C/S T.007)**

**Position Data Default Values (A.3.8.1)**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 15.02.2010-16.02.2010

The time stamp of tests.

| Event | Time, GMT | Message | Comment |
|---|---|---|---|
| **User Location Protocol, point No 1, 15.02.2010-16.02.2010** | | | |
| Start of test | 19:00:00 15.02.2010 | | EPURB is in a shielded room |
| Activation | 08:00:00 16.02.2010 | | |
| Start time of measurement | 08:00:05 16.02.2010 | FFFE2FCC94186186186689DE52AFE0FF0146 | All operation messages have default coordinates |
| Deactivation | 08:30:05 16.02.2010 | | |

Protocol N 47
Date 16.02.2010 Conditions Normal temperature
Beacon Model E100G class 2 Beacon N 0001200014I

| Test duration 0 h 30 m | Bursts received 38 | BCH error 0 | Self-Test 0 |
|---|---|---|---|

| Message | |
|---|---|
| **Contents (full)** | : FFFE2FCC94186186186689DE52AFE0FF0146 |

Decoding Beacon ID

**Full message: FFFE2FCC94186186186689DE52AFE0FF0146**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Maritime User** | **37-39** | **010** |
| **Maritime MMSI (6 digits): 999999** | **40-75** | **0000110000110000110000110000110000011** |
| **Specific bcn: 0** | **76-81** | **001101** |
| **Spare** | **82-83** | **00** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **00111011110010100 1010** |
| **Calculated BCH 1:** | **N/A** | **00111011110010100 1010** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **default** | **108** | **0** |
| **Latitude (degrees): default** | **109-115** | **1111111** |
| **Latitude (minutes): default** | **116-119** | **0000** |
| **default** | **120** | **0** |
| **Longitude (degrees): default** | **121-128** | **11111111** |
| **Longitude (minutes): default** | **129-132** | **0000** |
| **Encoded BCH 2:** | **133-144** | **000101000110** |
| **Calculated BCH 2:** | **N/A** | **000101000110** |
| **15 Hex ID:** | **N/A** | **992830C30C30CD1** |

Начало формы

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 16.02.2010-17.02.2010

The time stamp of tests.

| Event | Time, GMT | Message | Comment |
|---|---|---|---|
| **Standart Location Protocol, point No 1, 16.02.2010-17.02.2010** | | | |
| Start of test | 19:00:00 16.02.2010 | | EPURB is in a shielded room |
| Activation | 08:05:00 17.02.2010 | | |
| Start time of measurement | 08:05:05 17.02.2010 | FFFE2F8C92F423F07FDFFB2BF03783E0F66C | All operation messages have default coordinates |
| Deactivation | 08:35:06 17.02.2010 | | |

Protocol N 48
Date 17.02.2010 Conditions Normal temperature
Beacon Model E100G class 2 Beacon N 0001200014I

| Test duration 0 h 30 m | Bursts received 38 | BCH error 0 | Self-Test 0 |
|---|---|---|---|

| Message | |
|---|---|
| **Contents (full)** | : FFFE2F8C92F423F07FDFFB2BF03783E0F66C |

Decoding Beacon ID

**Full message: FFFE2F8C92F423F07FDFFB2BF03783E0F66C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (MMSI)** | **37-40** | **0010** |
| **MID: 999999** | **41-60** | **11110100001000111111** |
| **Specific Beacon: 0** | **61-64** | **0000** |
| **Latitude Sign: default** | **65** | **0** |
| **Latitude Degrees: default** | **66-72** | **1111111** |
| **Latitude Minutes: default** | **73-74** | **11** |
| **Longitude Sign: default** | **75** | **0** |
| **Longitude Degrees: default** | **76-83** | **11111111** |
| **Longitude Minutes: default** | **84-85** | **11** |
| **BCH 1 Encoded:** | **86-106** | **01100101011111000000** |
| **BCH 1 Calculated:** | **N/A** | **01100101011111000000** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: default** | **113** | **1** |
| **Latitude Offset Minutes: default** | **114-118** | **00000** |
| **Latitude Offset Seconds: default** | **119-122** | **1111** |
| **Longitude Offset Sign: default** | **123** | **1** |
| **Longitude Offset Minutes: default** | **124-128** | **00000** |
| **Longitude Offset Seconds: default** | **129-132** | **1111** |
| **BCH 2 Encoded:** | **133-144** | **011001101100** |
| **BCH 2 Calculated:** | **N/A** | **011001101100** |
| **Composite Latitude: default** | **N/A** | **Composite Longitude: default** |
| **15 Hex ID:** | **N/A** | **1925E847E0FFBFF** |

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 17.02.2010-18.02.2010

The time stamp of tests.

| Event | Time, GMT | Message | Comment |
|---|---|---|---|
| **National Location Protocol, point No 1, 17.02.2010-18.02.2010** | | | |
| Start of test | 19:00:00 17.02.2010 | | EPURB is in a shielded room |
| Activation | 08:07:20 18.02.2010 | | |
| Start time of measurement | 08:07:25 18.02.2010 | FFFE2F8C9A0018DFC0FF02AD44779F3C0010 | All operation messages have default coordinates |
| Deactivation | 08:37:27 18.02.2010 | | |

Protocol N 49
Date 18.02.2010 Conditions Normal temperature
Beacon Model E100G class 2 Beacon N 0001200014I

| Test duration 0 h 30 m | Bursts received 38 | BCH error 0 | Self-Test 0 |
|---|---|---|---|

| Message | |
|---|---|
| **Contents (full)** | : FFFE2F8C9A0018DFC0FF02AD44779F3C0010 |

Decoding Beacon ID

**Full message: FFFE2F8C9A0018DFC0FF02AD44779F3C0010**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: National Location - EPIRB** | **37-40** | **1010** |
| **Serial Number: 99** | **41-58** | **000000000001100011** |
| **Latitude Flag: default** | **59** | **0** |
| **Latitude (Degrees): default** | **60-66** | **1111111** |
| **Latitude (Minutes): default** | **67-71** | **00000** |
| **Longitude Flag: default** | **72** | **0** |
| **Longitude (Degrees): default** | **73-80** | **11111111** |
| **Longitude (Minutes): default** | **81-85** | **00000** |
| **BCH 1 Encoded:** | **86-106** | **01010110110100010001** |
| **BCH 1 Calculated:** | **86-106** | **01010110110100010001** |
| **Fixed bits (110): Pass** | **107-109** | **110** |
| **Bits 113 - 132 provides offset data location** | **110** | **1** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Loc. Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: default** | **113** | **1** |
| **Latitude Offset Minutes: default** | **114-115** | **00** |
| **Latitude Offset Seconds: default** | **116-119** | **1111** |
| **Longitude Offset Sign: default** | **120** | **1** |
| **Longitude Offset Minutes: default** | **121-122** | **00** |
| **Longitude Offset Seconds: default** | **123-126** | **1111** |
| **Additional Id (Nat Use)** | **127-132** | **000000** |
| **BCH 2 Encoded:** | **133-144** | **000000010000** |
| **BCH 2 Calculated:** | **N/A** | **000000010000** |
| **Composite Latitude: default** | **N/A** | **Composite Longitude: default** |
| **15 Hex ID:** | **N/A** | **19340031BF81FE0** |

**Position Acquisition Time and Position Accuracy (A.3.8.2)**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 16.02.2010-17.02.2010

The radio beacon is fitted with the internal GPS receiver.
The conformity test according to A.3.8.2 C/S T.007of the radio beacon was performed in Sevastopol at the geodesic points, having known geographical coordinates:
- point 1 - N 44°35′15,1″ , E 33°29′19,0″
- point 2 - N 44°39′24,8″ , E 33°36′52,1″

**Test conditions:**
- Ambient temperature at open area test site: 22..27 °C.
- Relative air humidity: 78 %.
- Atmospheric pressure: 755 mm/Hg.
- Homing transmitter operating on the shifted distress frequency 121.5 MHz.
- Tests were conducted with the beacon in the next configurations accordance section 4.5 T.007:
  1. Configuration 5 – Water ground plane.
     - The beacon was completely submerged in salt water [composition 5% salt solution by weight].
     - The beacon was maintained at or near the centre of the container for the duration of the test.
     - The container holding the salt water was placed on a flat surface in an area with a good all round view of the sky.
     - The container is made from a non-conductive material (PVC plastic) and there is 30 cm of salt water under the base of the beacon when it is floating in the container and 10 cm of salt water between the beacon and the sides of the container.
  2. Configuration 7 – Beacon on ground plane.
     - The beacon was placed in the centre of a thin 27 cm diameter conductive metal disc (made of aluminium) which was placed directly on level dry ground (dirt) in an area with a good all round view of the sky, in the vertical orientation.
  3. Configuration 8 – Beacon above ground plane.
     - The beacon was placed on an electrically insulating support so that its base is 0.45 m above level dry ground (dirt) in an area with a good all round view of the sky, in the vertical orientation.

**Performance measurements on accordance requirements item A.3.8.2 T.007-2008 – Position Acquisition Time and Position Accuracy**

| No | Test Name | C/S T.007 Standard Section | Test procedure description | Obtained results | Comments |
|---|---|---|---|---|---|
| 1 | | | Beacon is coded at Standard Location Protocol - EPIRB (MMSI) | | |
| 2 | Position Acquisition Time and Position Accuracy at point No 1 | A.3.8.2.1 | a. EPIRB is placed in the container with water (configuration 5).<br><br>b. Activate the beacon at the location with coordinate:<br>- N 44°35′15,1″<br>- E 33°29′19,0″<br><br>c. Deactivate the beacon. | Time to Acquire Position:<br>0 min 51 sec<br><br>Encoded location data:<br>- N 44°35'16"<br>- E 33°29'20"<br><br>Position accuracy<br>0.038 kilometers | Protocol 50 |
| 3 | Position Acquisition Time and Position Accuracy at point No 1 | A.3.8.2.1 | a. EPIRB placed on the metal disk (configuration 7).<br><br>b. Activate the beacon at the location with coordinate:<br>- N 44°35′15,1"<br>- E 33°29′19,0″<br><br>c. Deactivate the beacon. | Time to Acquire Position:<br>0 min 50 sec<br><br>Encoded location data:<br>- N 44°35'16"<br>- E 33°29'20"<br><br>Position accuracy<br>0.038 kilometers | Protocol 51 |
| 4 | Position Acquisition Time and Position Accuracy at point No 1 | A.3.8.2.1 | a. EPIRB placed on above ground plane (configuration 8).<br><br>b. Activate the beacon at the location with coordinate:<br>- N 44°35′15,1″<br>- E 33°29′19,0″<br><br>c. Deactivate the beacon. | Time to Acquire Position:<br>0 min 51 sec<br><br>Encoded location data :<br>- N 44°35'16"<br>- E 33°29'20<br><br>Position accuracy<br>0.038 kilometers | Protocol 52 |
| 5 | Position Acquisition Time and Position Accuracy at point No 2 | A.3.8.2.2 | a. Change location to Point 2.<br>The distance between Point 1 and Point 2 is 12,63 km.<br><br>b. EPIRB placed in the container with water (configuration 5).<br><br>c. Activate the beacon at the location with coordinate: | Time to Acquire Position:<br>0 min 50 sec<br><br>Encoded location data:<br>- N 44°39'24"<br>- E 33°36'52"<br><br>Position accuracy<br>0.025 kilometers | Protocol 53 |

| | | | | | |
|---|---|---|---|---|---|
| | | | - N 44°39′24,8″<br>- E 33°36′52,1″<br>d. Deactivate the beacon. | | |
| 6 | Position Acquisition Time and Position Accuracy at point No 2 | A.3.8.2.2 | a. EPIRB placed on the metal disk (configuration 7).<br><br>b. Activate the beacon at the location with coordinate:<br>- N 44°39′24,8″<br>- E 33°36′52,1″<br><br>c. Deactivate the beacon. | Time to Acquire Position:<br>0 min 51 sec<br><br>Encoded location data:<br>- N 44°39'24"<br>- E 33°36'52"<br><br>Position accuracy<br>0.025 kilometers | Protocol 54 |
| 7 | Position Acquisition Time and Position Accuracy at point No 2 | A.3.8.2.2 | a. EPIRB placed on above ground plane (configuration 8).<br><br>b. Activate the beacon at the location with coordinate:<br>- N 44°39′24,8″<br>- E 33°36′52,1″<br><br>c. Deactivate the beacon. | Time to Acquire Position:<br>0 min 50 sec<br><br>Encoded location data:<br>- N 44°39'24"<br>- E 33°36'52"<br><br>Position accuracy<br>0.025 kilometers | Protocol 55 |

**Position Acquisition Time and Position Accuracy (Internal Navigation Devices)**
**(Table F-C.4 T.007)**

| Protocol | Operational Configuration | C/S T.007 Section A.3.8.2.1 | | C/S T.007 Section A.3.8.2.2 | |
|---|---|---|---|---|---|
| | | Time to Acquire Position (sec) | Location Error in meters | Time to Acquire Position (sec) | Location Error in meters |
| Standard Location Protocol - EPIRB (MMSI) | Floating in Water - configuration 5 | 51 | 38 | 50 | 25 |
| | | Protocol 50 | | Protocol 53 | |
| Standard Location Protocol- EPIRB (MMSI) | Resting on metal disk - configuration 7 | 50 | 38 | 51 | 25 |
| | | Protocol 51 | | Protocol 54 | |
| Standard Location Protocol- EPIRB (MMSI) | Resting on above ground plane - configuration 8 | 51 | 38 | 50 | 25 |
| | | Protocol 52 | | Protocol 55 | |

**The test time stamp.**

| Event | Time | Message | Comment |
|---|---|---|---|
| **Standard Location Protocol - EPIRB (MMSI), point No 1, 16.02.2010** | | | |
| Activation | 13:44:00 | | configuration 5 |
| Get message with location date | 13:44:51 | FFFE2F8C92F423F02C8431CF8AB79500A39A | Protocol 50 |
| Deactivation | 13:45:00 | | |
| Activation | 13:40:00 | | configuration 7 |
| Get message with location date | 13:40:50 | FFFE2F8C92F423F02C8431CF8AB79500A39A | Protocol 51 |
| Deactivation | 13:41:00 | | |
| Activation | 13:42:00 | | configuration 8 |
| Get message with location date | 13:42:51 | FFFE2F8C92F423F02C8431CF8AB79500A39A | Protocol 52 |
| Deactivation | 13:43:00 | | |
| Change location | | | |
| **Standard Location Protocol - EPIRB (MMSI), point No 2, 17.02.2010** | | | |
| Activation | 12:30:00 | | configuration 5 |
| Get message with location date | 12:30:50 | FFFE2F8C92F423F02CC4302F18771666DA9F | Protocol 53 |
| Deactivation | 12:31:02 | | |
| Activation | 12:23:00 | | configuration 7 |
| Get message with location date | 12:23:51 | FFFE2F8C92F423F02CC4302F18771666DA9F | Protocol 54 |
| Deactivation | 12:24:10 | | |
| Activation | 12:25:00 | | configuration 8 |
| Get message with location date | 12:25:50 | FFFE2F8C92F423F02CC4302F18771666DA9F | Protocol 55 |
| Deactivation | 12:26:20 | | |

Protocol 50

Decoding Beacon ID

**Full message: FFFE2F8C92F423F02C8431CF8AB79500A39A**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (MMSI)** | **37-40** | **0010** |
| **MID: 999999** | **41-60** | **11110100001000111111** |
| **Specific Beacon: 0** | **61-64** | **0000** |
| **Latitude Sign: North** | **65** | **0** |
| **Latitude Degrees: 44** | **66-72** | **0101100** |
| **Latitude Minutes: 30** | **73-74** | **10** |
| **Longitude Sign: East** | **75** | **0** |
| **Longitude Degrees: 33** | **76-83** | **00100001** |
| **Longitude Minutes: 30** | **84-85** | **10** |
| **BCH 1 Encoded:** | **86-106** | **00111001111100010101O** |
| **BCH 1 Calculated:** | **N/A** | **00111001111100010101O** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: +** | **113** | **1** |
| **Latitude Offset Minutes: 5** | **114-118** | **00101** |
| **Latitude Offset Seconds: 16** | **119-122** | **0100** |
| **Longitude Offset Sign: -** | **123** | **0** |
| **Longitude Offset Minutes: 0** | **124-128** | **00000** |
| **Longitude Offset Seconds: 40** | **129-132** | **1010** |
| **BCH 2 Encoded:** | **133-144** | **001110011010** |
| **BCH 2 Calculated:** | **N/A** | **001110011010** |
| **Composite Latitude: 44.58777777777778 Degrees North** | **N/A** | **Composite Longitude: 33.48888888888889 Degrees East** |
| **15 Hex ID:** | **N/A** | **1925E847E0FFBFF** |

Protocol 51

Decoding Beacon ID

**Full message: FFFE2F8C92F423F02C8431CF8AB79500A39A**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (MMSI)** | **37-40** | **0010** |
| **MID: 999999** | **41-60** | **11110100001000111111** |
| **Specific Beacon: 0** | **61-64** | **0000** |
| **Latitude Sign: North** | **65** | **0** |
| **Latitude Degrees: 44** | **66-72** | **0101100** |
| **Latitude Minutes: 30** | **73-74** | **10** |
| **Longitude Sign: East** | **75** | **0** |
| **Longitude Degrees: 33** | **76-83** | **00100001** |
| **Longitude Minutes: 30** | **84-85** | **10** |
| **BCH 1 Encoded:** | **86-106** | **00111001111100010101O** |
| **BCH 1 Calculated:** | **N/A** | **00111001111100010101O** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: +** | **113** | **1** |
| **Latitude Offset Minutes: 5** | **114-118** | **00101** |
| **Latitude Offset Seconds: 16** | **119-122** | **0100** |
| **Longitude Offset Sign: -** | **123** | **0** |
| **Longitude Offset Minutes: 0** | **124-128** | **00000** |
| **Longitude Offset Seconds: 40** | **129-132** | **1010** |
| **BCH 2 Encoded:** | **133-144** | **001110011010** |
| **BCH 2 Calculated:** | **N/A** | **001110011010** |
| **Composite Latitude: 44.58777777777778 Degrees North** | **N/A** | **Composite Longitude: 33.48888888888889 Degrees East** |
| **15 Hex ID:** | **N/A** | **1925E847E0FFBFF** |

Protocol 52

Decoding Beacon ID

**Full message: FFFE2F8C92F423F02C8431CF8AB79500A39A**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (MMSI)** | **37-40** | **0010** |
| **MID: 999999** | **41-60** | **11110100001000111111** |
| **Specific Beacon: 0** | **61-64** | **0000** |
| **Latitude Sign: North** | **65** | **0** |
| **Latitude Degrees: 44** | **66-72** | **0101100** |
| **Latitude Minutes: 30** | **73-74** | **10** |
| **Longitude Sign: East** | **75** | **0** |
| **Longitude Degrees: 33** | **76-83** | **00100001** |
| **Longitude Minutes: 30** | **84-85** | **10** |
| **BCH 1 Encoded:** | **86-106** | **00111001111100010101O** |
| **BCH 1 Calculated:** | **N/A** | **00111001111100010101O** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: +** | **113** | **1** |
| **Latitude Offset Minutes: 5** | **114-118** | **00101** |
| **Latitude Offset Seconds: 16** | **119-122** | **0100** |
| **Longitude Offset Sign: -** | **123** | **0** |
| **Longitude Offset Minutes: 0** | **124-128** | **00000** |
| **Longitude Offset Seconds: 40** | **129-132** | **1010** |
| **BCH 2 Encoded:** | **133-144** | **001110011010** |
| **BCH 2 Calculated:** | **N/A** | **001110011010** |
| **Composite Latitude: 44.58777777777778 Degrees North** | **N/A** | **Composite Longitude: 33.48888888888889 Degrees East** |
| **15 Hex ID:** | **N/A** | **1925E847E0FFBFF** |

Protocol 53

Decoding Beacon ID

**Full message: FFFE2F8C92F423F02CC4302F18771666DA9F**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (MMSI)** | **37-40** | **0010** |
| **MID: 999999** | **41-60** | **11110100001000111111** |
| **Specific Beacon: 0** | **61-64** | **0000** |
| **Latitude Sign: North** | **65** | **0** |
| **Latitude Degrees: 44** | **66-72** | **0101100** |
| **Latitude Minutes: 45** | **73-74** | **11** |
| **Longitude Sign: East** | **75** | **0** |
| **Longitude Degrees: 33** | **76-83** | **00100001** |
| **Longitude Minutes: 30** | **84-85** | **10** |
| **BCH 1 Encoded:** | **86-106** | **00000101111000110000 1** |
| **BCH 1 Calculated:** | **N/A** | **00000101111000110000 1** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: -** | **113** | **0** |
| **Latitude Offset Minutes: 5** | **114-118** | **00101** |
| **Latitude Offset Seconds: 36** | **119-122** | **1001** |
| **Longitude Offset Sign: +** | **123** | **1** |
| **Longitude Offset Minutes: 6** | **124-128** | **00110** |
| **Longitude Offset Seconds: 52** | **129-132** | **1101** |
| **BCH 2 Encoded:** | **133-144** | **101010011111** |
| **BCH 2 Calculated:** | **N/A** | **101010011111** |
| **Composite Latitude: 44.656666666666666 Degrees North** | **N/A** | **Composite Longitude: 33.614444444444445 Degrees East** |
| **15 Hex ID:** | **N/A** | **1925E847E0FFBFF** |

Protocol 54

Decoding Beacon ID

**Full message: FFFE2F8C92F423F02CC4302F18771666DA9F**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (MMSI)** | **37-40** | **0010** |
| **MID: 999999** | **41-60** | **11110100001000111111** |
| **Specific Beacon: 0** | **61-64** | **0000** |
| **Latitude Sign: North** | **65** | **0** |
| **Latitude Degrees: 44** | **66-72** | **0101100** |
| **Latitude Minutes: 45** | **73-74** | **11** |
| **Longitude Sign: East** | **75** | **0** |
| **Longitude Degrees: 33** | **76-83** | **00100001** |
| **Longitude Minutes: 30** | **84-85** | **10** |
| **BCH 1 Encoded:** | **86-106** | **00000101111000110000 1** |
| **BCH 1 Calculated:** | **N/A** | **00000101111000110000 1** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: -** | **113** | **0** |
| **Latitude Offset Minutes: 5** | **114-118** | **00101** |
| **Latitude Offset Seconds: 36** | **119-122** | **1001** |
| **Longitude Offset Sign: +** | **123** | **1** |
| **Longitude Offset Minutes: 6** | **124-128** | **00110** |
| **Longitude Offset Seconds: 52** | **129-132** | **1101** |
| **BCH 2 Encoded:** | **133-144** | **101010011111** |
| **BCH 2 Calculated:** | **N/A** | **101010011111** |
| **Composite Latitude: 44.656666666666666 Degrees North** | **N/A** | **Composite Longitude: 33.614444444444445 Degrees East** |
| **15 Hex ID:** | **N/A** | **1925E847E0FFBFF** |

Protocol 55

Decoding Beacon ID

**Full message: FFFE2F8C92F423F02CC4302F18771666DA9F**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (MMSI)** | **37-40** | **0010** |
| **MID: 999999** | **41-60** | **11110100001000111111** |
| **Specific Beacon: 0** | **61-64** | **0000** |
| **Latitude Sign: North** | **65** | **0** |
| **Latitude Degrees: 44** | **66-72** | **0101100** |
| **Latitude Minutes: 45** | **73-74** | **11** |
| **Longitude Sign: East** | **75** | **0** |
| **Longitude Degrees: 33** | **76-83** | **00100001** |
| **Longitude Minutes: 30** | **84-85** | **10** |
| **BCH 1 Encoded:** | **86-106** | **00000101111000110000 1** |
| **BCH 1 Calculated:** | **N/A** | **00000101111000110000 1** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: -** | **113** | **0** |
| **Latitude Offset Minutes: 5** | **114-118** | **00101** |
| **Latitude Offset Seconds: 36** | **119-122** | **1001** |
| **Longitude Offset Sign: +** | **123** | **1** |
| **Longitude Offset Minutes: 6** | **124-128** | **00110** |
| **Longitude Offset Seconds: 52** | **129-132** | **1101** |
| **BCH 2 Encoded:** | **133-144** | **101010011111** |
| **BCH 2 Calculated:** | **N/A** | **101010011111** |
| **Composite Latitude: 44.656666666666666 Degrees North** | **N/A** | **Composite Longitude: 33.614444444444445 Degrees East** |
| **15 Hex ID:** | **N/A** | **1925E847E0FFBFF** |

**Performance measurements on accordance requirements item A.3.8.2 T.007-2008 – Position Acquisition Time and Position Accuracy**

| No | Test Name | C/S T.007 Standard Section | Test procedure description | Obtained results | Comments |
|---|---|---|---|---|---|
| 1 | | | Beacon is coded at National Location Protocol - EPIRB | | |
| 2 | Position Acquisition Time and Position Accuracy at point No 1 | A.3.8.2.1 | a. EPIRB is placed in the container with water (configuration 5).<br><br>b. Activate the beacon at the location with coordinate:<br>- N 44°35′15,1″<br>- E 33°29′19,0″<br><br>c. Deactivate the beacon. | Time to Acquire Position:<br>0 min 49 sec<br><br>Encoded location data:<br>- N 44°35'16"<br>- E 33°29'20"<br><br>Position accuracy<br>0.038 kilometers | Protocol 56 |
| 3 | Position Acquisition Time and Position Accuracy at point No 1 | A.3.8.2.1 | a. EPIRB placed on the metal disk (configuration 7).<br><br>b. Activate the beacon at the location with coordinate:<br>- N 44°35′15,1″<br>- E 33°29′19,0″<br><br>c. Deactivate the beacon. | Time to Acquire Position:<br>0 min 51 sec<br><br>Encoded location data:<br>- N 44°35'16"<br>- E 33°29'20"<br><br>Position accuracy<br>0.038 kilometers | Protocol 57 |
| 4 | Position Acquisition Time and Position Accuracy at point No 1 | A.3.8.2.1 | a. EPIRB placed on above ground plane (configuration 8).<br><br>b. Activate the beacon at the location with coordinate:<br>- N 44°35′15,1″<br>- E 33°29′19,0″<br><br>c. Deactivate the beacon. | Time to Acquire Position:<br>0 min 51 sec<br><br>Encoded location data :<br>- N 44°35'16"<br>- E 33°29'20"<br><br>Position accuracy<br>0.038 kilometers | Protocol 58 |
| 5 | Position Acquisition Time and Position Accuracy at point No 2 | A.3.8.2.2 | a. Change location to Point 2.<br>The distance between Point 1 and Point 2 is 12.63 km.<br><br>b. EPIRB placed in the container with water (configuration 5).<br><br>c. Activate the beacon at the location with coordinate: | Time to Acquire Position:<br>0 min 49 sec<br><br>Encoded location data:<br>- N 44°39'24"<br>- E 33°36'52"<br><br>Position accuracy<br>0.025 kilometers | Protocol 59 |

| | | | | | |
|---|---|---|---|---|---|
| | | | - N 44°39′24,8″<br>- E 33°36′52,1″<br><br>d. Deactivate the beacon. | | |
| 6 | Position Acquisition Time and Position Accuracy at point No 2 | A.3.8.2.2 | a. EPIRB placed on the metal disk (configuration 7).<br><br>b. Activate the beacon at the location with coordinate:<br>- N 44°39′24,8″<br>- E 33°36′52,1″<br><br>c. Deactivate the beacon. | Time to Acquire Position:<br>0 min 50 sec<br><br>Encoded location data:<br>- N 44°39'24"<br>- E 33°36'52"<br><br>Position accuracy<br>0.025 kilometers | Protocol 60 |
| 7 | Position Acquisition Time and Position Accuracy at point No 2 | A.3.8.2.2 | a. EPIRB placed on above ground plane (configuration 8).<br><br>b. Activate the beacon at the location with coordinate:<br>- N 44°39′24,8″<br>- E 33°36′52,1″<br><br>c. Deactivate the beacon. | Time to Acquire Position:<br>0 min 50 sec<br><br>Encoded location data:<br>- N 44°39'24"<br>- E 33°36'52"<br><br>Position accuracy<br>0.025 kilometers | Protocol 61 |

**Position Acquisition Time and Position Accuracy (Internal Navigation Devices)**
**(Table F-C.4 T.007)**

| Protocol | Operational Configuration | C/S T.007 Section A.3.8.2.1 | | C/S T.007 Section A.3.8.2.2 | |
|---|---|---|---|---|---|
| | | Time to Acquire Position (sec) | Location Error in meters | Time to Acquire Position (sec) | Location Error in meters |
| National Location Protocol - EPIRB | Floating in Water - configuration 5 | 49 | 38 | 49 | 25 |
| | | Protocol 56 | | Protocol 59 | |
| National Location Protocol - EPIRB | Resting on metal disk - configuration 7 | 51 | 38 | 50 | 25 |
| | | Protocol 57 | | Protocol 60 | |
| National Location Protocol - EPIRB | Resting on above ground plane - configuration 8 | 51 | 38 | 50 | 25 |
| | | Protocol 58 | | Protocol 61 | |

**The test time stamp.**

| Event | Time | Message | Comment |
|---|---|---|---|
| **National Location Protocol (EPIRB), point No 1, 16.02.2010** | | | |
| Activation | 13:27:00 | | configuration 5 |
| Get message with location date | 13:27:49 | FFFE2F8C9A0018CB242179A0E63716280201 | Protocol 56 |
| Deactivation | 13:28:00 | | |
| Activation | 13:30:00 | | configuration 7 |
| Get message with location date | 13:30:51 | FFFE2F8C9A0018CB242179A0E63716280201 | Protocol 57 |
| Deactivation | 13:31:00 | | |
| Activation | 13:32:00 | | configuration 8 |
| Get message with location date | 13:32:51 | FFFE2F8C9A0018CB242179A0E63716280201 | Protocol 58 |
| Deactivation | 13:33:00 | | |
| Change location | | | |
| **National Location Protocol (EPIRB), point No 2, 17.02.2010** | | | |
| Activation | 12:38:00 | | configuration 5 |
| Get message with location date | 12:38:49 | FFFE2F8C9A0018CB282197B55177133409C8 | Protocol 59 |
| Deactivation | 12:39:09 | | |
| Activation | 12:41:00 | | configuration 7 |
| Get message with location date | 12:41:50 | FFFE2F8C9A0018CB282197B55177133409C8 | Protocol 60 |
| Deactivation | 12:42:06 | | |
| Activation | 12:43:00 | | configuration 8 |
| Get message with location date | 12:43:50 | FFFE2F8C9A0018CB282197B55177133409C8 | Protocol 61 |
| Deactivation | 12:44:12 | | |

Protocol 56

Decoding Beacon ID

**Full message: FFFE2F8C9A0018CB242179A0E63716280201**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: National Location - EPIRB** | **37-40** | **1010** |
| **Serial Number: 99** | **41-58** | **000000000001100011** |
| **Latitude Flag: North** | **59** | **0** |
| **Latitude (Degrees): 44** | **60-66** | **0101100** |
| **Latitude (Minutes): 36** | **67-71** | **10010** |
| **Longitude Flag: East** | **72** | **0** |
| **Longitude (Degrees): 33** | **73-80** | **00100001** |
| **Longitude (Minutes): 30** | **81-85** | **01111** |
| **BCH 1 Encoded:** | **86-106** | **00110100000111001 1000** |
| **BCH 1 Calculated:** | **86-106** | **00110100000111001 1000** |
| **Fixed bits (110): Pass** | **107-109** | **110** |
| **Bits 113 - 132 provides offset data location** | **110** | **1** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Loc. Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: -** | **113** | **0** |
| **Latitude Offset Minutes: 0** | **114-115** | **00** |
| **Latitude Offset Seconds: 44** | **116-119** | **1011** |
| **Longitude Offset Sign: -** | **120** | **0** |
| **Longitude Offset Minutes: 0** | **121-122** | **00** |
| **Longitude Offset Seconds: 40** | **123-126** | **1010** |
| **Additional Id (Nat Use)** | **127-132** | **000000** |
| **BCH 2 Encoded:** | **133-144** | **001000000001** |
| **BCH 2 Calculated:** | **N/A** | **001000000001** |
| **Composite Latitude: 44.58777777777778 Degrees North** | **N/A** | **Composite Longitude: 33.48888888888889 Degrees East** |
| **15 Hex ID:** | **N/A** | **19340031BF81FE0** |

Protocol 57

Decoding Beacon ID

**Full message: FFFE2F8C9A0018CB242179A0E63716280201**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: National Location - EPIRB** | **37-40** | **1010** |
| **Serial Number: 99** | **41-58** | **000000000001100011** |
| **Latitude Flag: North** | **59** | **0** |
| **Latitude (Degrees): 44** | **60-66** | **0101100** |
| **Latitude (Minutes): 36** | **67-71** | **10010** |
| **Longitude Flag: East** | **72** | **0** |
| **Longitude (Degrees): 33** | **73-80** | **00100001** |
| **Longitude (Minutes): 30** | **81-85** | **01111** |
| **BCH 1 Encoded:** | **86-106** | **00110100001110011000** |
| **BCH 1 Calculated:** | **86-106** | **00110100001110011000** |
| **Fixed bits (110): Pass** | **107-109** | **110** |
| **Bits 113 - 132 provides offset data location** | **110** | **1** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Loc. Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: -** | **113** | **0** |
| **Latitude Offset Minutes: 0** | **114-115** | **00** |
| **Latitude Offset Seconds: 44** | **116-119** | **1011** |
| **Longitude Offset Sign: -** | **120** | **0** |
| **Longitude Offset Minutes: 0** | **121-122** | **00** |
| **Longitude Offset Seconds: 40** | **123-126** | **1010** |
| **Additional Id (Nat Use)** | **127-132** | **000000** |
| **BCH 2 Encoded:** | **133-144** | **001000000001** |
| **BCH 2 Calculated:** | **N/A** | **001000000001** |
| **Composite Latitude: 44.58777777777778 Degrees North** | **N/A** | **Composite Longitude: 33.48888888888889 Degrees East** |
| **15 Hex ID:** | **N/A** | **19340031BF81FE0** |

Protocol 58

Decoding Beacon ID

**Full message: FFFE2F8C9A0018CB242179A0E63716280201**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: National Location - EPIRB** | **37-40** | **1010** |
| **Serial Number: 99** | **41-58** | **000000000001100011** |
| **Latitude Flag: North** | **59** | **0** |
| **Latitude (Degrees): 44** | **60-66** | **0101100** |
| **Latitude (Minutes): 36** | **67-71** | **10010** |
| **Longitude Flag: East** | **72** | **0** |
| **Longitude (Degrees): 33** | **73-80** | **00100001** |
| **Longitude (Minutes): 30** | **81-85** | **01111** |
| **BCH 1 Encoded:** | **86-106** | **00110100001110011000** |
| **BCH 1 Calculated:** | **86-106** | **00110100001110011000** |
| **Fixed bits (110): Pass** | **107-109** | **110** |
| **Bits 113 - 132 provides offset data location** | **110** | **1** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Loc. Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: -** | **113** | **0** |
| **Latitude Offset Minutes: 0** | **114-115** | **00** |
| **Latitude Offset Seconds: 44** | **116-119** | **1011** |
| **Longitude Offset Sign: -** | **120** | **0** |
| **Longitude Offset Minutes: 0** | **121-122** | **00** |
| **Longitude Offset Seconds: 40** | **123-126** | **1010** |
| **Additional Id (Nat Use)** | **127-132** | **000000** |
| **BCH 2 Encoded:** | **133-144** | **001000000001** |
| **BCH 2 Calculated:** | **N/A** | **001000000001** |
| **Composite Latitude: 44.58777777777778 Degrees North** | **N/A** | **Composite Longitude: 33.48888888888889 Degrees East** |
| **15 Hex ID:** | **N/A** | **19340031BF81FE0** |

Protocol 59

Decoding Beacon ID

**Full message: FFFE2F8C9A0018CB282197B55177133409C8**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: National Location - EPIRB** | **37-40** | **1010** |
| **Serial Number: 99** | **41-58** | **000000000001100011** |
| **Latitude Flag: North** | **59** | **0** |
| **Latitude (Degrees): 44** | **60-66** | **0101100** |
| **Latitude (Minutes): 40** | **67-71** | **10100** |
| **Longitude Flag: East** | **72** | **0** |
| **Longitude (Degrees): 33** | **73-80** | **00100001** |
| **Longitude (Minutes): 36** | **81-85** | **10010** |
| **BCH 1 Encoded:** | **86-106** | **111101101010101000101** |
| **BCH 1 Calculated:** | **86-106** | **111101101010101000101** |
| **Fixed bits (110): Pass** | **107-109** | **110** |
| **Bits 113 - 132 provides offset data location** | **110** | **1** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Loc. Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: -** | **113** | **0** |
| **Latitude Offset Minutes: 0** | **114-115** | **00** |
| **Latitude Offset Seconds: 36** | **116-119** | **1001** |
| **Longitude Offset Sign: +** | **120** | **1** |
| **Longitude Offset Minutes: 0** | **121-122** | **00** |
| **Longitude Offset Seconds: 52** | **123-126** | **1101** |
| **Additional Id (Nat Use)** | **127-132** | **000000** |
| **BCH 2 Encoded:** | **133-144** | **100111001000** |
| **BCH 2 Calculated:** | **N/A** | **100111001000** |
| **Composite Latitude: 44.656666666666666 Degrees North** | **N/A** | **Composite Longitude: 33.614444444444445 Degrees East** |
| **15 Hex ID:** | **N/A** | **19340031BF81FE0** |

Protocol 60

Decoding Beacon ID

**Full message: FFFE2F8C9A0018CB282197B55177133409C8**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: National Location - EPIRB** | **37-40** | **1010** |
| **Serial Number: 99** | **41-58** | **000000000001100011** |
| **Latitude Flag: North** | **59** | **0** |
| **Latitude (Degrees): 44** | **60-66** | **0101100** |
| **Latitude (Minutes): 40** | **67-71** | **10100** |
| **Longitude Flag: East** | **72** | **0** |
| **Longitude (Degrees): 33** | **73-80** | **00100001** |
| **Longitude (Minutes): 36** | **81-85** | **10010** |
| **BCH 1 Encoded:** | **86-106** | **111101101010101000101** |
| **BCH 1 Calculated:** | **86-106** | **111101101010101000101** |
| **Fixed bits (110): Pass** | **107-109** | **110** |
| **Bits 113 - 132 provides offset data location** | **110** | **1** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Loc. Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: -** | **113** | **0** |
| **Latitude Offset Minutes: 0** | **114-115** | **00** |
| **Latitude Offset Seconds: 36** | **116-119** | **1001** |
| **Longitude Offset Sign: +** | **120** | **1** |
| **Longitude Offset Minutes: 0** | **121-122** | **00** |
| **Longitude Offset Seconds: 52** | **123-126** | **1101** |
| **Additional Id (Nat Use)** | **127-132** | **000000** |
| **BCH 2 Encoded:** | **133-144** | **100111001000** |
| **BCH 2 Calculated:** | **N/A** | **100111001000** |
| **Composite Latitude: 44.656666666666666 Degrees North** | **N/A** | **Composite Longitude: 33.614444444444445 Degrees East** |
| **15 Hex ID:** | **N/A** | **19340031BF81FE0** |

Protocol 61

Decoding Beacon ID

**Full message: FFFE2F8C9A0018CB282197B55177133409C8**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: National Location - EPIRB** | **37-40** | **1010** |
| **Serial Number: 99** | **41-58** | **000000000001100011** |
| **Latitude Flag: North** | **59** | **0** |
| **Latitude (Degrees): 44** | **60-66** | **0101100** |
| **Latitude (Minutes): 40** | **67-71** | **10100** |
| **Longitude Flag: East** | **72** | **0** |
| **Longitude (Degrees): 33** | **73-80** | **00100001** |
| **Longitude (Minutes): 36** | **81-85** | **10010** |
| **BCH 1 Encoded:** | **86-106** | **111101101010101000101** |
| **BCH 1 Calculated:** | **86-106** | **111101101010101000101** |
| **Fixed bits (110): Pass** | **107-109** | **110** |
| **Bits 113 - 132 provides offset data location** | **110** | **1** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Loc. Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: -** | **113** | **0** |
| **Latitude Offset Minutes: 0** | **114-115** | **00** |
| **Latitude Offset Seconds: 36** | **116-119** | **1001** |
| **Longitude Offset Sign: +** | **120** | **1** |
| **Longitude Offset Minutes: 0** | **121-122** | **00** |
| **Longitude Offset Seconds: 52** | **123-126** | **1101** |
| **Additional Id (Nat Use)** | **127-132** | **000000** |
| **BCH 2 Encoded:** | **133-144** | **100111001000** |
| **BCH 2 Calculated:** | **N/A** | **100111001000** |
| **Composite Latitude: 44.656666666666666 Degrees North** | **N/A** | **Composite Longitude: 33.614444444444445 Degrees East** |
| **15 Hex ID:** | **N/A** | **19340031BF81FE0** |

**Performance measurements on accordance requirements item A.3.8.2 T.007-2008 – Position Acquisition Time and Position Accuracy**

| No | Test Name | C/S T.007 Standard Section | Test procedure description | Obtained results | Comments |
|---|---|---|---|---|---|
| 1 | | | Beacon is coded at User Location Protocol - (Maritime with MMSI) | | |
| 2 | Position Acquisition Time and Position Accuracy at point No 1 | A.3.8.2.1 | a. EPIRB is placed in the container with water (configuration 5).<br><br>b. Activate the beacon at the location with coordinate:<br>- N 44°35′15,1″<br>- E 33°29′19,0″<br><br>c. Deactivate the beacon. | Time to Acquire Position:<br>1 min 41 sec<br><br>Encoded location data:<br>- N 44°36'00"<br>- E 33°28'00"<br><br>Position accuracy 2.22 kilometers | Protocol 62 |
| 3 | Position Acquisition Time and Position Accuracy at point No 1 | A.3.8.2.1 | a. EPIRB placed on the metal disk (configuration 7).<br><br>b. Activate the beacon at the location with coordinate:<br>- N 44°35′15,1″<br>- E 33°29′19,0″<br><br>c. Deactivate the beacon. | Time to Acquire Position:<br>0 min 51 sec<br><br>Encoded location data:<br>- N 44°36'00"<br>- E 33°28'00"<br><br>Position accuracy 2.22 kilometers | Protocol 63 |
| 4 | Position Acquisition Time and Position Accuracy at point No 1 | A.3.8.2.1 | a. EPIRB placed on above ground plane (configuration 8).<br><br>b. Activate the beacon at the location with coordinate:<br>- N 44°35′15,1″<br>- E 33°29′19,0″<br><br>c. Deactivate the beacon. | Time to Acquire Position:<br>0 min 51 sec<br><br>Encoded location data :<br>- N 44°36'00"<br>- E 33°28'00"<br><br>Position accuracy 2.22 kilometers | Protocol 64 |
| 5 | Position Acquisition Time and Position Accuracy at point No 2 | A.3.8.2.2 | a. Change location to Point 2.<br>The distance between Point 1 and Point 2 is 12,63 km.<br><br>b. EPIRB placed in the container with water (configuration 5).<br><br>c. Activate the beacon at the location with coordinate: | Time to Acquire Position:<br>0 min 50 sec<br><br>Encoded location data:<br>- N 44°40'00"<br>- E 33°36'00"<br><br>Position accuracy 1.58 kilometers | Protocol 65 |

| | | | | | |
|---|---|---|---|---|---|
| | | | - N 44°39′24,8″<br>- E 33°36′52,1″<br><br>d. Deactivate the beacon. | | |
| 6 | Position Acquisition Time and Position Accuracy at point No 2 | A.3.8.2.2 | a. EPIRB placed on the metal disk (configuration 7).<br><br>b. Activate the beacon at the location with coordinate:<br>- N 44°39′24,8″<br>- E 33°36′52,1″<br><br>c. Deactivate the beacon. | Time to Acquire Position:<br>0 min 51 sec<br><br>Encoded location data:<br>- N 44°40'00"<br>- E 33°36'00"<br><br>Position accuracy 1.58 kilometers | Protocol 66 |
| 7 | Position Acquisition Time and Position Accuracy at point No 2 | A.3.8.2.2 | a. EPIRB placed on above ground plane (configuration 8).<br><br>b. Activate the beacon at the location with coordinate:<br>- N 44°39′24,8″<br>- E 33°36′52,1″<br><br>c. Deactivate the beacon. | Time to Acquire Position:<br>0 min 50 sec<br><br>Encoded location data:<br>- N 44°40'00"<br>- E 33°36'00"<br><br>Position accuracy 1.58 kilometers | Protocol 67 |

**Position Acquisition Time and Position Accuracy (Internal Navigation Devices)**
**(Table F-C.4 T.007)**

| Protocol | Operational Configuration | C/S T.007 Section A.3.8.2.1 | | C/S T.007 Section A.3.8.2.2 | |
|---|---|---|---|---|---|
| | | Time to Acquire Position (sec) | Location Error in meters | Time to Acquire Position (sec) | Location Error in meters |
| User Location Protocol - Maritime with MMSI | Floating in Water - configuration 5 | 101 | 2220 | 50 | 1580 |
| | | Protocol 62 | | Protocol 65 | |
| User Location Protocol - Maritime with MMSI | Resting on metal disk - configuration 7 | 51 | 2220 | 51 | 1580 |
| | | Protocol 63 | | Protocol 66 | |
| User Location Protocol - Maritime with MMSI | Resting on above ground plane - configuration 8 | 51 | 2220 | 50 | 1580 |
| | | Protocol 64 | | Protocol 67 | |

**The test time stamp.**

| Event | Time | Message | Comment |
|---|---|---|---|
| **User Location Protocol (Maritime with MMSI), point No 1, 16.02.2010** | | | |
| Activation | 13:17:00 | | configuration 5 |
| Get message with location date | 13:18:41 | FFFE2FCC94186186186689DE52A59221788C | Protocol 62 |
| Deactivation | 13:19:00 | | |
| Activation | 13:03:00 | | configuration 7 |
| Get message with location date | 13:03:51 | FFFE2FCC94186186186689DE52A59221788C | Protocol 63 |
| Deactivation | 13:04:00 | | |
| Activation | 13:05:00 | | configuration 8 |
| Get message with location date | 13:05:51 | FFFE2FCC94186186186689DE52A59221788C | Protocol 64 |
| Deactivation | 13:06:00 | | |
| Change location | | | |
| **User Location Protocol (Maritime with MMSI), point No 2, 17.02.2010** | | | |
| Activation | 12:55:00 | | configuration 5 |
| Get message with location date | 12:55:50 | FFFE2FCC94186186186689DE52A594219798 | Protocol 65 |
| Deactivation | 12:56:21 | | |
| Activation | 12:52:00 | | configuration 7 |
| Get message with location date | 12:52:51 | FFFE2FCC94186186186689DE52A594219798 | Protocol 66 |
| Deactivation | 12:53:09 | | |
| Activation | 12:50:00 | | configuration 8 |
| Get message with location date | 12:50:50 | FFFE2FCC94186186186689DE52A594219798 | Protocol 67 |
| Deactivation | 12:51:17 | | |

Protocol 62

Decoding Beacon ID

**Full message: FFFE2FCC94186186186689DE52A59221788C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Maritime User** | **37-39** | **010** |
| **Maritime MMSI (6 digits): 999999** | **40-75** | **0000110000110000110000110000110000011** |
| **Specific bcn: 0** | **76-81** | **001101** |
| **Spare** | **82-83** | **00** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **00111011110010100 1010** |
| **Calculated BCH 1:** | **N/A** | **00111011110010100 1010** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **North** | **108** | **0** |
| **Latitude (degrees): 44** | **109-115** | **0101100** |
| **Latitude (minutes): 36** | **116-119** | **1001** |
| **East** | **120** | **0** |
| **Longitude (degrees): 33** | **121-128** | **00100001** |
| **Longitude (minutes): 28** | **129-132** | **0111** |
| **Encoded BCH 2:** | **133-144** | **100010001100** |
| **Calculated BCH 2:** | **N/A** | **100010001100** |
| **15 Hex ID:** | **N/A** | **992830C30C30CD1** |

Protocol 63

Decoding Beacon ID

**Full message: FFFE2FCC94186186186689DE52A59221788C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Maritime User** | **37-39** | **010** |
| **Maritime MMSI (6 digits): 999999** | **40-75** | **0000110000110000110000110000110000011** |
| **Specific bcn: 0** | **76-81** | **001101** |
| **Spare** | **82-83** | **00** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **00111011110010100 1010** |
| **Calculated BCH 1:** | **N/A** | **00111011110010100 1010** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **North** | **108** | **0** |
| **Latitude (degrees): 44** | **109-115** | **0101100** |
| **Latitude (minutes): 36** | **116-119** | **1001** |
| **East** | **120** | **0** |
| **Longitude (degrees): 33** | **121-128** | **00100001** |
| **Longitude (minutes): 28** | **129-132** | **0111** |
| **Encoded BCH 2:** | **133-144** | **100010001100** |
| **Calculated BCH 2:** | **N/A** | **100010001100** |
| **15 Hex ID:** | **N/A** | **992830C30C30CD1** |

Protocol 64

Decoding Beacon ID

**Full message: FFFE2FCC94186186186689DE52A59221788C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Maritime User** | **37-39** | **010** |
| **Maritime MMSI (6 digits): 999999** | **40-75** | **0000110000110000110000110000110000011** |
| **Specific bcn: 0** | **76-81** | **001101** |
| **Spare** | **82-83** | **00** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **00111011100101001010** |
| **Calculated BCH 1:** | **N/A** | **00111011100101001010** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **North** | **108** | **0** |
| **Latitude (degrees): 44** | **109-115** | **0101100** |
| **Latitude (minutes): 36** | **116-119** | **1001** |
| **East** | **120** | **0** |
| **Longitude (degrees): 33** | **121-128** | **00100001** |
| **Longitude (minutes): 28** | **129-132** | **0111** |
| **Encoded BCH 2:** | **133-144** | **100010001100** |
| **Calculated BCH 2:** | **N/A** | **100010001100** |
| **15 Hex ID:** | **N/A** | **992830C30C30CD1** |

Protocol 65

Decoding Beacon ID

**Full message: FFFE2FCC94186186186689DE52A594219798**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Maritime User** | **37-39** | **010** |
| **Maritime MMSI (6 digits): 999999** | **40-75** | **0000110000110000110000110000110000011** |
| **Specific bcn: 0** | **76-81** | **001101** |
| **Spare** | **82-83** | **00** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **00111011100101001010** |
| **Calculated BCH 1:** | **N/A** | **00111011100101001010** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **North** | **108** | **0** |
| **Latitude (degrees): 44** | **109-115** | **0101100** |
| **Latitude (minutes): 40** | **116-119** | **1010** |
| **East** | **120** | **0** |
| **Longitude (degrees): 33** | **121-128** | **00100001** |
| **Longitude (minutes): 36** | **129-132** | **1001** |
| **Encoded BCH 2:** | **133-144** | **011110011000** |
| **Calculated BCH 2:** | **N/A** | **011110011000** |
| **15 Hex ID:** | **N/A** | **992830C30C30CD1** |

Protocol 66

Decoding Beacon ID

**Full message: FFFE2FCC94186186186689DE52A594219798**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Maritime User** | **37-39** | **010** |
| **Maritime MMSI (6 digits): 999999** | **40-75** | **0000110000110000110000110000110000011** |
| **Specific bcn: 0** | **76-81** | **001101** |
| **Spare** | **82-83** | **00** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **00111011100101001010** |
| **Calculated BCH 1:** | **N/A** | **00111011100101001010** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **North** | **108** | **0** |
| **Latitude (degrees): 44** | **109-115** | **0101100** |
| **Latitude (minutes): 40** | **116-119** | **1010** |
| **East** | **120** | **0** |
| **Longitude (degrees): 33** | **121-128** | **00100001** |
| **Longitude (minutes): 36** | **129-132** | **1001** |
| **Encoded BCH 2:** | **133-144** | **011110011000** |
| **Calculated BCH 2:** | **N/A** | **011110011000** |
| **15 Hex ID:** | **N/A** | **992830C30C30CD1** |

Protocol 67

Decoding Beacon ID

**Full message: FFFE2FCC94186186186689DE52A594219798**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Maritime User** | **37-39** | **010** |
| **Maritime MMSI (6 digits): 999999** | **40-75** | **0000110000110000110000110000110000011** |
| **Specific bcn: 0** | **76-81** | **001101** |
| **Spare** | **82-83** | **00** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **00111011100101001010** |
| **Calculated BCH 1:** | **N/A** | **00111011100101001010** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **North** | **108** | **0** |
| **Latitude (degrees): 44** | **109-115** | **0101100** |
| **Latitude (minutes): 40** | **116-119** | **1010** |
| **East** | **120** | **0** |
| **Longitude (degrees): 33** | **121-128** | **00100001** |
| **Longitude (minutes): 36** | **129-132** | **1001** |
| **Encoded BCH 2:** | **133-144** | **011110011000** |
| **Calculated BCH 2:** | **N/A** | **011110011000** |
| **15 Hex ID:** | **N/A** | **992830C30C30CD1** |

**Encoded Position Data Update Interval (A.3.8.3)**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 18.02.2010

**Standart Location Protocol**

| № | Time | Coordinats | Full message | Protocol | Comment |
|---|---|---|---|---|---|
| 1 | 11:39:00 | | | | time of beacon activation in Location 1 |
| 2 | 11:39:51 | N 44°35'28<br>E 33°29'28" | FFFE2F<br>8C92F423F02C8431CF8AB795C08BAF | 68 | time of the first message with position encoded |
| 3 | 11:44:10 | | | | time of location change to location 2 |
| 4 | 12:00:00 | N 44°35'00"<br>E 33°29'32" | FFFE2F<br>8C92F423F02C8431CF8AB794007F27 | 69 | time of update message with position encoded in location 2 |
| 5 | 12:01:08 | | | | time of beacon deactivation in location 2 |

Protocol 68

Decoding Beacon ID

**Full message: FFFE2F8C92F423F02C8431CF8AB795C08BAF**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (MMSI)** | **37-40** | **0010** |
| **MID: 999999** | **41-60** | **11110100001000111111** |
| **Specific Beacon: 0** | **61-64** | **0000** |
| **Latitude Sign: North** | **65** | **0** |
| **Latitude Degrees: 44** | **66-72** | **0101100** |
| **Latitude Minutes: 30** | **73-74** | **10** |
| **Longitude Sign: East** | **75** | **0** |
| **Longitude Degrees: 33** | **76-83** | **00100001** |
| **Longitude Minutes: 30** | **84-85** | **10** |
| **BCH 1 Encoded:** | **86-106** | **00111001111000101010** |
| **BCH 1 Calculated:** | **N/A** | **00111001111000101010** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: +** | **113** | **1** |
| **Latitude Offset Minutes: 5** | **114-118** | **00101** |
| **Latitude Offset Seconds: 28** | **119-122** | **0111** |
| **Longitude Offset Sign: -** | **123** | **0** |
| **Longitude Offset Minutes: 0** | **124-128** | **00000** |
| **Longitude Offset Seconds: 32** | **129-132** | **1000** |
| **BCH 2 Encoded:** | **133-144** | **101110101111** |
| **BCH 2 Calculated:** | **N/A** | **101110101111** |
| **Composite Latitude: 44.59111111111111 Degrees North** | **N/A** | **Composite Longitude: 33.49111111111111 Degrees East** |
| **15 Hex ID:** | **N/A** | **1925E847E0FFBFF** |

Protocol 69

Decoding Beacon ID

**Full message: FFFE2F8C92F423F02C8431CF8AB794007F27**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (MMSI)** | **37-40** | **0010** |
| **MID: 999999** | **41-60** | **11110100001000111111** |
| **Specific Beacon: 0** | **61-64** | **0000** |
| **Latitude Sign: North** | **65** | **0** |
| **Latitude Degrees: 44** | **66-72** | **0101100** |
| **Latitude Minutes: 30** | **73-74** | **10** |
| **Longitude Sign: East** | **75** | **0** |
| **Longitude Degrees: 33** | **76-83** | **00100001** |
| **Longitude Minutes: 30** | **84-85** | **10** |
| **BCH 1 Encoded:** | **86-106** | **00111001111000101010** |
| **BCH 1 Calculated:** | **N/A** | **00111001111000101010** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: +** | **113** | **1** |
| **Latitude Offset Minutes: 5** | **114-118** | **00101** |
| **Latitude Offset Seconds: 0** | **119-122** | **0000** |
| **Longitude Offset Sign: -** | **123** | **0** |
| **Longitude Offset Minutes: 0** | **124-128** | **00000** |
| **Longitude Offset Seconds: 28** | **129-132** | **0111** |
| **BCH 2 Encoded:** | **133-144** | **111100100111** |
| **BCH 2 Calculated:** | **N/A** | **111100100111** |
| **Composite Latitude: 44.583333333333336 Degrees North** | **N/A** | **Composite Longitude: 33.492222222222225 Degrees East** |
| **15 Hex ID:** | **N/A** | **1925E847E0FFBFF** |

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 18.02.2010

**User Location Protocol**

| № | Time | Coordinats | Full message | Protocol | Comment |
|---|---|---|---|---|---|
| 1 | 13:04:03 | | | | time of beacon activation in Location 1 |
| 2 | 13:04:53 | N 44°32'00"<br>E 33°32'00" | FFFE2F<br>CC94186186186689DE52A59021875F | 70 | time of the first message with position encoded |
| 3 | 13:18:15 | | | | time of location change to location 2 |
| 4 | 13:25:31 | N 44°32'00"<br>E 33°40'00" | FFFE2F<br>CC94186186186689DE52A59021AD2D | 71 | time of update message with position encoded in location 2 |
| 5 | 13:26:00 | | | | time of beacon deactivation in location 2 |

Protocol 70

Decoding Beacon ID

**Full message: FFFE2FCC94186186186689DE52A59021875F**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Maritime User** | **37-39** | **010** |
| **Maritime MMSI (6 digits): 999999** | **40-75** | **0000110000110000110000110000110000011** |
| **Specific bcn: 0** | **76-81** | **001101** |
| **Spare** | **82-83** | **00** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **00111011100101001010** |
| **Calculated BCH 1:** | **N/A** | **00111011100101001010** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **North** | **108** | **0** |
| **Latitude (degrees): 44** | **109-115** | **0101100** |
| **Latitude (minutes): 32** | **116-119** | **1000** |
| **East** | **120** | **0** |
| **Longitude (degrees): 33** | **121-128** | **00100001** |
| **Longitude (minutes): 32** | **129-132** | **1000** |
| **Encoded BCH 2:** | **133-144** | **011101011111** |
| **Calculated BCH 2:** | **N/A** | **011101011111** |
| **15 Hex ID:** | **N/A** | **992830C30C30CD1** |

Protocol 71

Decoding Beacon ID

**Full message: FFFE2FCC94186186186689DE52A59021AD2D**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Maritime User** | **37-39** | **010** |
| **Maritime MMSI (6 digits): 999999** | **40-75** | **0000110000110000110000110000110000011** |
| **Specific bcn: 0** | **76-81** | **001101** |
| **Spare** | **82-83** | **00** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **00111011100101001010** |
| **Calculated BCH 1:** | **N/A** | **00111011100101001010** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **North** | **108** | **0** |
| **Latitude (degrees): 44** | **109-115** | **0101100** |
| **Latitude (minutes): 32** | **116-119** | **1000** |
| **East** | **120** | **0** |
| **Longitude (degrees): 33** | **121-128** | **00100001** |
| **Longitude (minutes): 40** | **129-132** | **1010** |
| **Encoded BCH 2:** | **133-144** | **110100101101** |
| **Calculated BCH 2:** | **N/A** | **110100101101** |
| **15 Hex ID:** | **N/A** | **992830C30C30CD1** |

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 18.02.2010

**National Location Protocol**

| № | Time | Coordinats | Full message | Protocol | Comment |
|---|---|---|---|---|---|
| 1 | 12:14:23 | | | | time of beacon activation in Location 1 |
| 3 | 12:15:12 | N 44°35'00" E 33°29'32" | FFFE2F 8C9A0018CB242179A0E6371E1C0E57 | 72 | time of the first message with position encoded |
| 4 | 12:20:22 | | | | time of location change to location 2 |
| 5 | 12:35:49 | N 44°35'24" E 33°29'32" | FFFE2F 8C9A0018CB242179A0E637121C0055 | 73 | time of update message with position encoded in location 2 |
| 6 | 12:36:04 | | | | time of beacon deactivation in location 2 |

Protocol 72

Decoding Beacon ID

**Full message: FFFE2F8C9A0018CB242179A0E6371E1C0E57**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: National Location - EPIRB** | **37-40** | **1010** |
| **Serial Number: 99** | **41-58** | **000000000001100011** |
| **Latitude Flag: North** | **59** | **0** |
| **Latitude (Degrees): 44** | **60-66** | **0101100** |
| **Latitude (Minutes): 36** | **67-71** | **10010** |
| **Longitude Flag: East** | **72** | **0** |
| **Longitude (Degrees): 33** | **73-80** | **00100001** |
| **Longitude (Minutes): 30** | **81-85** | **01111** |
| **BCH 1 Encoded:** | **86-106** | **00110100000111001 1000** |
| **BCH 1 Calculated:** | **86-106** | **00110100000111001 1000** |
| **Fixed bits (110): Pass** | **107-109** | **110** |
| **Bits 113 - 132 provides offset data location** | **110** | **1** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Loc. Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: -** | **113** | **0** |
| **Latitude Offset Minutes: 0** | **114-115** | **00** |
| **Latitude Offset Seconds: 60** | **116-119** | **1111** |
| **Longitude Offset Sign: -** | **120** | **0** |
| **Longitude Offset Minutes: 0** | **121-122** | **00** |
| **Longitude Offset Seconds: 28** | **123-126** | **0111** |
| **Additional Id (Nat Use)** | **127-132** | **000000** |
| **BCH 2 Encoded:** | **133-144** | **111001010111** |
| **BCH 2 Calculated:** | **N/A** | **111001010111** |
| **Composite Latitude: 44.583333333333336 Degrees North** | **N/A** | **Composite Longitude: 33.492222222222225 Degrees East** |
| **15 Hex ID:** | **N/A** | **19340031BF81FE0** |

Protocol 73

Decoding Beacon ID

**Full message: FFFE2F8C9A0018CB242179A0E637121C0055**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: National Location - EPIRB** | **37-40** | **1010** |
| **Serial Number: 99** | **41-58** | **000000000001100011** |
| **Latitude Flag: North** | **59** | **0** |
| **Latitude (Degrees): 44** | **60-66** | **0101100** |
| **Latitude (Minutes): 36** | **67-71** | **10010** |
| **Longitude Flag: East** | **72** | **0** |
| **Longitude (Degrees): 33** | **73-80** | **00100001** |
| **Longitude (Minutes): 30** | **81-85** | **01111** |
| **BCH 1 Encoded:** | **86-106** | **00110100001110011000** |
| **BCH 1 Calculated:** | **86-106** | **00110100001110011000** |
| **Fixed bits (110): Pass** | **107-109** | **110** |
| **Bits 113 - 132 provides offset data location** | **110** | **1** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Loc. Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: -** | **113** | **0** |
| **Latitude Offset Minutes: 0** | **114-115** | **00** |
| **Latitude Offset Seconds: 36** | **116-119** | **1001** |
| **Longitude Offset Sign: -** | **120** | **0** |
| **Longitude Offset Minutes: 0** | **121-122** | **00** |
| **Longitude Offset Seconds: 28** | **123-126** | **0111** |
| **Additional Id (Nat Use)** | **127-132** | **000000** |
| **BCH 2 Encoded:** | **133-144** | **000001010101** |
| **BCH 2 Calculated:** | **N/A** | **000001010101** |
| **Composite Latitude: 44.59 Degrees North** | **N/A** | **Composite Longitude: 33.492222222222225 Degrees East** |
| **15 Hex ID:** | **N/A** | **19340031BF81FE0** |

**Position Clearance after Deactivation (A.3.8.4)**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 18.02.2010

**Standart Location Protocol**

| № | Time | Coordinats | Full message | Protocol | Comment |
|---|---|---|---|---|---|
| 1 | 12:04:15 | | | | time of beacon activation in Location 2 |
| 2 | 12:05:04 | N 44°35'00"<br>E 33°29'32" | FFFE2F<br>8C92F423F02C8431CF8AB794007F27 | 74 | Time of the first message with the encoded position. The first operation message after beacon activation had the location data. |
| 3 | 12:05:16 | | | | time of beacon deactivation |
| 4 | 12:06:04 | | | | time of beacon re-activation |
| 5 | 12:06:55 | Default value | FFFE2F<br>8C92F423F07FDFFB2BF03783E0F66C | 75 | time of the first message after beacon re-activation |

Protocol 74

Decoding Beacon ID

**Full message: FFFE2F8C92F423F02C8431CF8AB794007F27**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (MMSI)** | **37-40** | **0010** |
| **MID: 999999** | **41-60** | **11110100001000111111** |
| **Specific Beacon: 0** | **61-64** | **0000** |
| **Latitude Sign: North** | **65** | **0** |
| **Latitude Degrees: 44** | **66-72** | **0101100** |
| **Latitude Minutes: 30** | **73-74** | **10** |
| **Longitude Sign: East** | **75** | **0** |
| **Longitude Degrees: 33** | **76-83** | **00100001** |
| **Longitude Minutes: 30** | **84-85** | **10** |
| **BCH 1 Encoded:** | **86-106** | **00111001111000101010** |
| **BCH 1 Calculated:** | **N/A** | **00111001111000101010** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: +** | **113** | **1** |
| **Latitude Offset Minutes: 5** | **114-118** | **00101** |
| **Latitude Offset Seconds: 0** | **119-122** | **0000** |
| **Longitude Offset Sign: -** | **123** | **0** |
| **Longitude Offset Minutes: 0** | **124-128** | **00000** |
| **Longitude Offset Seconds: 28** | **129-132** | **0111** |
| **BCH 2 Encoded:** | **133-144** | **111100100111** |
| **BCH 2 Calculated:** | **N/A** | **111100100111** |
| **Composite Latitude: 44.583333333333336 Degrees North** | **N/A** | **Composite Longitude: 33.492222222222225 Degrees East** |
| **15 Hex ID:** | **N/A** | **1925E847E0FFBFF** |

Protocol 75

Decoding Beacon ID

**Full message: FFFE2F8C92F423F07FDFFB2BF03783E0F66C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (MMSI)** | **37-40** | **0010** |
| **MID: 999999** | **41-60** | **11110100001000111111** |
| **Specific Beacon: 0** | **61-64** | **0000** |
| **Latitude Sign: default** | **65** | **0** |
| **Latitude Degrees: default** | **66-72** | **1111111** |
| **Latitude Minutes: default** | **73-74** | **11** |
| **Longitude Sign: default** | **75** | **0** |
| **Longitude Degrees: default** | **76-83** | **11111111** |
| **Longitude Minutes: default** | **84-85** | **11** |
| **BCH 1 Encoded:** | **86-106** | **01100101011111000000** |
| **BCH 1 Calculated:** | **N/A** | **01100101011111000000** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: default** | **113** | **1** |
| **Latitude Offset Minutes: default** | **114-118** | **00000** |
| **Latitude Offset Seconds: default** | **119-122** | **1111** |
| **Longitude Offset Sign: default** | **123** | **1** |
| **Longitude Offset Minutes: default** | **124-128** | **00000** |
| **Longitude Offset Seconds: default** | **129-132** | **1111** |
| **BCH 2 Encoded:** | **133-144** | **011001101100** |
| **BCH 2 Calculated:** | **N/A** | **011001101100** |
| **Composite Latitude: default** | **N/A** | **Composite Longitude: default** |
| **15 Hex ID:** | **N/A** | **1925E847E0FFBFF** |

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 18.02.2010

**National Location Protocol**

| № | Time | Coordinats | Full message | Protocol | Comment |
|---|---|---|---|---|---|
| 1 | 12:38:00 | | | | time of beacon activation in Location 1 |
| 3 | 12:38:50 | N 44°35'24"<br>E 33°29'32" | FFFE2F<br>8C9A0018CB242179A0E637121C0055 | 76 | time of the first message with position encoded, the first message after beacon activation has position data |
| 4 | 12:39:23 | | | | time of beacon deactivation |
| 5 | 12:40:38 | | | | time of beacon re-activation |
| 6 | 12:41:29 | Default value | FFFE2F<br>8C9A0018DFC0FF02AD44779F3C0010 | 77 | time of the first message after beacon re-activation |

Protocol 76

Decoding Beacon ID

**Full message: FFFE2F8C9A0018CB242179A0E637121C0055**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: National Location - EPIRB** | **37-40** | **1010** |
| **Serial Number: 99** | **41-58** | **000000000001100011** |
| **Latitude Flag: North** | **59** | **0** |
| **Latitude (Degrees): 44** | **60-66** | **0101100** |
| **Latitude (Minutes): 36** | **67-71** | **10010** |
| **Longitude Flag: East** | **72** | **0** |
| **Longitude (Degrees): 33** | **73-80** | **00100001** |
| **Longitude (Minutes): 30** | **81-85** | **01111** |
| **BCH 1 Encoded:** | **86-106** | **00110100001110011000** |
| **BCH 1 Calculated:** | **86-106** | **00110100001110011000** |
| **Fixed bits (110): Pass** | **107-109** | **110** |
| **Bits 113 - 132 provides offset data location** | **110** | **1** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Loc. Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: -** | **113** | **0** |
| **Latitude Offset Minutes: 0** | **114-115** | **00** |
| **Latitude Offset Seconds: 36** | **116-119** | **1001** |
| **Longitude Offset Sign: -** | **120** | **0** |
| **Longitude Offset Minutes: 0** | **121-122** | **00** |
| **Longitude Offset Seconds: 28** | **123-126** | **0111** |
| **Additional Id (Nat Use)** | **127-132** | **000000** |
| **BCH 2 Encoded:** | **133-144** | **000001010101** |
| **BCH 2 Calculated:** | **N/A** | **000001010101** |
| **Composite Latitude: 44.59 Degrees North** | **N/A** | **Composite Longitude: 33.492222222222225 Degrees East** |
| **15 Hex ID:** | **N/A** | **19340031BF81FE0** |

Protocol 77

Decoding Beacon ID

**Full message: FFFE2F8C9A0018DFC0FF02AD44779F3C0010**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: National Location - EPIRB** | **37-40** | **1010** |
| **Serial Number: 99** | **41-58** | **000000000001100011** |
| **Latitude Flag: default** | **59** | **0** |
| **Latitude (Degrees): default** | **60-66** | **1111111** |
| **Latitude (Minutes): default** | **67-71** | **00000** |
| **Longitude Flag: default** | **72** | **0** |
| **Longitude (Degrees): default** | **73-80** | **11111111** |
| **Longitude (Minutes): default** | **81-85** | **00000** |
| **BCH 1 Encoded:** | **86-106** | **01010101101010010001** |
| **BCH 1 Calculated:** | **86-106** | **01010101101010010001** |
| **Fixed bits (110): Pass** | **107-109** | **110** |
| **Bits 113 - 132 provides offset data location** | **110** | **1** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Loc. Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: default** | **113** | **1** |
| **Latitude Offset Minutes: default** | **114-115** | **00** |
| **Latitude Offset Seconds: default** | **116-119** | **1111** |
| **Longitude Offset Sign: default** | **120** | **1** |
| **Longitude Offset Minutes: default** | **121-122** | **00** |
| **Longitude Offset Seconds: default** | **123-126** | **1111** |
| **Additional Id (Nat Use)** | **127-132** | **000000** |
| **BCH 2 Encoded:** | **133-144** | **000000010000** |
| **BCH 2 Calculated:** | **N/A** | **000000010000** |
| **Composite Latitude: default** | **N/A** | **Composite Longitude: default** |
| **15 Hex ID:** | **N/A** | **19340031BF81FE0** |

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 18.02.2010

**User Location Protocol**

| № | Time | Coordinats | Full message | Protocol | Comment |
|---|---|---|---|---|---|
| 1 | 13:26:30 | | | | time of beacon activation in Location 1 |
| 3 | 13:27:19 | N 44°32'00" E 33°40'00" | FFFE2F CC94186186186689DE52A59021AD2D | 78 | time of the first message with position encoded |
| 4 | 13:28:00 | | | | time of beacon deactivation |
| 5 | 13:28:37 | | | | time of beacon re-activation |
| 6 | 13:29:28 | Default value | FFFE2F CC94186186186689DE52AFE0FF0146 | 79 | time of the first message after beacon re-activation |

Protocol 78

Decoding Beacon ID

**Full message: FFFE2FCC94186186186689DE52A59021AD2D**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Maritime User** | **37-39** | **010** |
| **Maritime MMSI (6 digits): 999999** | **40-75** | **0000110000110000110000110000110000011** |
| **Specific bcn: 0** | **76-81** | **001101** |
| **Spare** | **82-83** | **00** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **00111011110010100 1010** |
| **Calculated BCH 1:** | **N/A** | **00111011110010100 1010** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **North** | **108** | **0** |
| **Latitude (degrees): 44** | **109-115** | **0101100** |
| **Latitude (minutes): 32** | **116-119** | **1000** |
| **East** | **120** | **0** |
| **Longitude (degrees): 33** | **121-128** | **00100001** |
| **Longitude (minutes): 40** | **129-132** | **1010** |
| **Encoded BCH 2:** | **133-144** | **110100101101** |
| **Calculated BCH 2:** | **N/A** | **110100101101** |
| **15 Hex ID:** | **N/A** | **992830C30C30CD1** |

Protocol 79

Decoding Beacon ID

**Full message: FFFE2FCC94186186186689DE52AFE0FF0146**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Maritime User** | **37-39** | **010** |
| **Maritime MMSI (6 digits): 999999** | **40-75** | **0000110000110000110000110000110000011** |
| **Specific bcn: 0** | **76-81** | **001101** |
| **Spare** | **82-83** | **00** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **00111011100101001010** |
| **Calculated BCH 1:** | **N/A** | **00111011100101001010** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **default** | **108** | **0** |
| **Latitude (degrees): default** | **109-115** | **1111111** |
| **Latitude (minutes): default** | **116-119** | **0000** |
| **default** | **120** | **0** |
| **Longitude (degrees): default** | **121-128** | **11111111** |
| **Longitude (minutes): default** | **129-132** | **0000** |
| **Encoded BCH 2:** | **133-144** | **000101000110** |
| **Calculated BCH 2:** | **N/A** | **000101000110** |
| **15 Hex ID:** | **N/A** | **992830C30C30CD1** |

**Last Valid Position (A.3.8.6)**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 16.02.2010

**Standart Location Protocol**

| № | Time | Coordinats | Full message | Protocol | Comment |
|---|---|---|---|---|---|
| 1 | 13:53:00 | | | | time of beacon activation in location 1 |
| 2 | 13:53:50 | N 44°35'16"<br>E 33°29'20" | FFFE2F<br>8C92F423F02C8431CF8AB79500A39A | 80 | time of the first message after beacon activation, message encoded with position (location 1) |
| 3 | 13:56:45 | | | | time of navigation input removal |
| 4 | 13:57:35 | N 44°35'16"<br>E 33°29'20" | FFFE2F<br>8C92F423F02C8431CF8AB79500A39A | | time of first message after navigation input removal |
| 5 | 17:52:24 | N 44°35'16"<br>E 33°29'20" | FFFE2F<br>8C92F423F02C8431CF8AB79500A39A | | time of the last message encoded with encoded position (location 1), before reverting to default |
| 6 | 17:53:12 | Default value | FFFE2F<br>8C92F423F07FDFFB2BF03783E0F66C | 81 | time of the first default message |

Time of change coordinates on coordinates by default 3:59:22

Protocol 80

Decoding Beacon ID

**Full message: FFFE2F8C92F423F02C8431CF8AB79500A39A**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (MMSI)** | **37-40** | **0010** |
| **MID: 999999** | **41-60** | **11110100001000111111** |
| **Specific Beacon: 0** | **61-64** | **0000** |
| **Latitude Sign: North** | **65** | **0** |
| **Latitude Degrees: 44** | **66-72** | **0101100** |
| **Latitude Minutes: 30** | **73-74** | **10** |
| **Longitude Sign: East** | **75** | **0** |
| **Longitude Degrees: 33** | **76-83** | **00100001** |
| **Longitude Minutes: 30** | **84-85** | **10** |
| **BCH 1 Encoded:** | **86-106** | **00111001111100010101O** |
| **BCH 1 Calculated:** | **N/A** | **00111001111100010101O** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: +** | **113** | **1** |
| **Latitude Offset Minutes: 5** | **114-118** | **00101** |
| **Latitude Offset Seconds: 16** | **119-122** | **0100** |
| **Longitude Offset Sign: -** | **123** | **0** |
| **Longitude Offset Minutes: 0** | **124-128** | **00000** |
| **Longitude Offset Seconds: 40** | **129-132** | **1010** |
| **BCH 2 Encoded:** | **133-144** | **001110011010** |
| **BCH 2 Calculated:** | **N/A** | **001110011010** |
| **Composite Latitude: 44.58777777777778 Degrees North** | **N/A** | **Composite Longitude: 33.48888888888889 Degrees East** |
| **15 Hex ID:** | **N/A** | **1925E847E0FFBFF** |

Protocol 81

Decoding Beacon ID

**Full message: FFFE2F8C92F423F07FDFFB2BF03783E0F66C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: Standard Location - EPIRB (MMSI)** | **37-40** | **0010** |
| **MID: 999999** | **41-60** | **11110100001000111111** |
| **Specific Beacon: 0** | **61-64** | **0000** |
| **Latitude Sign: default** | **65** | **0** |
| **Latitude Degrees: default** | **66-72** | **1111111** |
| **Latitude Minutes: default** | **73-74** | **11** |
| **Longitude Sign: default** | **75** | **0** |
| **Longitude Degrees: default** | **76-83** | **11111111** |
| **Longitude Minutes: default** | **84-85** | **11** |
| **BCH 1 Encoded:** | **86-106** | **01100101011111000000** |
| **BCH 1 Calculated:** | **N/A** | **01100101011111000000** |
| **Fixed bits (1101): Pass** | **107-110** | **1101** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: default** | **113** | **1** |
| **Latitude Offset Minutes: default** | **114-118** | **00000** |
| **Latitude Offset Seconds: default** | **119-122** | **1111** |
| **Longitude Offset Sign: default** | **123** | **1** |
| **Longitude Offset Minutes: default** | **124-128** | **00000** |
| **Longitude Offset Seconds: default** | **129-132** | **1111** |
| **BCH 2 Encoded:** | **133-144** | **011001101100** |
| **BCH 2 Calculated:** | **N/A** | **011001101100** |
| **Composite Latitude: default** | **N/A** | **Composite Longitude: default** |
| **15 Hex ID:** | **N/A** | **1925E847E0FFBFF** |

**Last Valid Position (A.3.8.6)**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 17.02.2010

**User Location Protocol**

| № | Time | Coordinats | Full message | Protocol | Comment |
|---|---|---|---|---|---|
| 1 | 14:08:43 | | | | time of beacon activation in location 1 |
| 2 | 14:09:33 | N44°36′00′′ E33°28′00′′ | FFFE2F CC94186186186689DE52A59221788C | 82 | time of the first message after beacon activation, message encoded with position (location 1) |
| 3 | 14:14:00 | | | | time of navigation input removal |
| 4 | 14:14:27 | N44°36′00′′ E33°28′00′′ | FFFE2F CC94186186186689DE52A59221788C | | time of first message after navigation input removal |
| 5 | 18:08:15 | N44°36′00′′ E33°28′00′′ | FFFE2F CC94186186186689DE52A59221788C | | time of the last message encoded with encoded position (location 1), before reverting to default |
| 6 | 18:09:03 | Default value | FFFE2F CC94186186186689DE52AFE0FF0146 | 83 | time of the first default message |

Time of change coordinates on coordinates by default 3:59:30

Protocol 82

Decoding Beacon ID

**Full message: FFFE2FCC94186186186689DE52A59221788C**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Maritime User** | **37-39** | **010** |
| **Maritime MMSI (6 digits): 999999** | **40-75** | **0000110000110000110000110000110000011** |
| **Specific bcn: 0** | **76-81** | **001101** |
| **Spare** | **82-83** | **00** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **00111011100101001010** |
| **Calculated BCH 1:** | **N/A** | **00111011100101001010** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **North** | **108** | **0** |
| **Latitude (degrees): 44** | **109-115** | **0101100** |
| **Latitude (minutes): 36** | **116-119** | **1001** |
| **East** | **120** | **0** |
| **Longitude (degrees): 33** | **121-128** | **00100001** |
| **Longitude (minutes): 28** | **129-132** | **0111** |
| **Encoded BCH 2:** | **133-144** | **100010001100** |
| **Calculated BCH 2:** | **N/A** | **100010001100** |
| **15 Hex ID:** | **N/A** | **992830C30C30CD1** |

Protocol 83

Decoding Beacon ID

**Full message: FFFE2FCC94186186186689DE52AFE0FF0146**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: User** | **26** | **1** |
| **Country code: 201** | **27-36** | **0011001001** |
| **User type: Maritime User** | **37-39** | **010** |
| **Maritime MMSI (6 digits): 999999** | **40-75** | **0000110000110000110000110000110000011** |
| **Specific bcn: 0** | **76-81** | **001101** |
| **Spare** | **82-83** | **00** |
| **Aux radio device: 121.5 MHz** | **84-85** | **01** |
| **Encoded BCH 1:** | **86-106** | **00111011100101001010** |
| **Calculated BCH 1:** | **N/A** | **00111011100101001010** |
| **Encoded Position Data Source From Internal Navigation Device** | **107** | **1** |
| **default** | **108** | **0** |
| **Latitude (degrees): default** | **109-115** | **1111111** |
| **Latitude (minutes): default** | **116-119** | **0000** |
| **default** | **120** | **0** |
| **Longitude (degrees): default** | **121-128** | **11111111** |
| **Longitude (minutes): default** | **129-132** | **0000** |
| **Encoded BCH 2:** | **133-144** | **000101000110** |
| **Calculated BCH 2:** | **N/A** | **000101000110** |
| **15 Hex ID:** | **N/A** | **992830C30C30CD1** |

**Last Valid Position (A.3.8.6)**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 18.02.2010

**National Location Protocol**

| № | Time | Coordinats | Full message | Protocol | Comment |
|---|---|---|---|---|---|
| 1 | 13:54:11 | | | | time of beacon activation in location 1 |
| 2 | 13:55:00 | N 44°35'16"<br>E 33°29'20" | FFFE2F<br>8C9A0018CB242179A0E63716280201 | 84 | time of the first message after beacon activation, message encoded with position (location 1) |
| 3 | 13:56:50 | | | | time of navigation input removal |
| 4 | 13:57:08 | N 44°35'16"<br>E 33°29'20" | FFFE2F<br>8C9A0018CB242179A0E63716280201 | | time of first message after navigation input removal |
| 5 | 17:54:07 | N 44°35'16"<br>E 33°29'20" | FFFE2F<br>8C9A0018CB242179A0E63716280201 | | time of the last message encoded with encoded position (location 1), before reverting to default |
| 6 | 17:54:57 | Default value | FFFE2F<br>8C9A0018DFC0FF02AD44779F3C0010 | 85 | time of the first default message |

Time of change coordinates on coordinates by default 3:59:57

Protocol 84

Decoding Beacon ID

**Full message: FFFE2F8C9A0018CB242179A0E63716280201**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: National Location - EPIRB** | **37-40** | **1010** |
| **Serial Number: 99** | **41-58** | **000000000001100011** |
| **Latitude Flag: North** | **59** | **0** |
| **Latitude (Degrees): 44** | **60-66** | **0101100** |
| **Latitude (Minutes): 36** | **67-71** | **10010** |
| **Longitude Flag: East** | **72** | **0** |
| **Longitude (Degrees): 33** | **73-80** | **00100001** |
| **Longitude (Minutes): 30** | **81-85** | **01111** |
| **BCH 1 Encoded:** | **86-106** | **00110100000111001 1000** |
| **BCH 1 Calculated:** | **86-106** | **00110100000111001 1000** |
| **Fixed bits (110): Pass** | **107-109** | **110** |
| **Bits 113 - 132 provides offset data location** | **110** | **1** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Loc. Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: -** | **113** | **0** |
| **Latitude Offset Minutes: 0** | **114-115** | **00** |
| **Latitude Offset Seconds: 44** | **116-119** | **1011** |
| **Longitude Offset Sign: -** | **120** | **0** |
| **Longitude Offset Minutes: 0** | **121-122** | **00** |
| **Longitude Offset Seconds: 40** | **123-126** | **1010** |
| **Additional Id (Nat Use)** | **127-132** | **000000** |
| **BCH 2 Encoded:** | **133-144** | **001000000001** |
| **BCH 2 Calculated:** | **N/A** | **001000000001** |
| **Composite Latitude: 44.58777777777778 Degrees North** | **N/A** | **Composite Longitude: 33.48888888888889 Degrees East** |
| **15 Hex ID:** | **N/A** | **19340031BF81FE0** |

Protocol 85

Decoding Beacon ID

**Full message: FFFE2F8C9A0018DFC0FF02AD44779F3C0010**

| ITEM | BITS | VALUE |
|---|---|---|
| **Message format: long format** | **25** | **1** |
| **Protocol: Location Protocol** | **26** | **0** |
| **Country code: 201** | **27-36** | **0011001001** |
| **Type of location protocol: National Location - EPIRB** | **37-40** | **1010** |
| **Serial Number: 99** | **41-58** | **000000000001100011** |
| **Latitude Flag: default** | **59** | **0** |
| **Latitude (Degrees): default** | **60-66** | **1111111** |
| **Latitude (Minutes): default** | **67-71** | **00000** |
| **Longitude Flag: default** | **72** | **0** |
| **Longitude (Degrees): default** | **73-80** | **11111111** |
| **Longitude (Minutes): default** | **81-85** | **00000** |
| **BCH 1 Encoded:** | **86-106** | **01010101101010010001** |
| **BCH 1 Calculated:** | **86-106** | **01010101101010010001** |
| **Fixed bits (110): Pass** | **107-109** | **110** |
| **Bits 113 - 132 provides offset data location** | **110** | **1** |
| **Position Data: Encoded Position Data Source From Internal Navigation Device** | **111** | **1** |
| **Aux Loc. Device: 121.5 MHz homer** | **112** | **1** |
| **Latitude Offset Sign: default** | **113** | **1** |
| **Latitude Offset Minutes: default** | **114-115** | **00** |
| **Latitude Offset Seconds: default** | **116-119** | **1111** |
| **Longitude Offset Sign: default** | **120** | **1** |
| **Longitude Offset Minutes: default** | **121-122** | **00** |
| **Longitude Offset Seconds: default** | **123-126** | **1111** |
| **Additional Id (Nat Use)** | **127-132** | **000000** |
| **BCH 2 Encoded:** | **133-144** | **000000010000** |
| **BCH 2 Calculated:** | **N/A** | **000000010000** |
| **Composite Latitude: default** | **N/A** | **Composite Longitude: default** |
| **15 Hex ID:** | **N/A** | **19340031BF81FE0** |

**ANNEX 8**

**SATELLITE QUALITATIVE TEST**

(Annex A.2.5 C/S T.007)

**ANNEX 8.1**

**TEST CONFIGURATION FOR EPIRB,
BEACON SITTING ON GROUND PLANE**

**Satellite qualitative test**

**Configuration 7 Section 4.5 C/S T.007 (Issue 4 Rev.4 Oct 2009)**

**Test conditions:**

- Ambient temperature at open testing area: 8..11 $^{O}$C
- Relative air humidity: 57..65 %
- Atmosphere pressure: 753..759 mm/Hg
- Satellite test EPIRB operation duration: 8:00 hours.
- No homing transmitter operating.
- Radio beacon No.0001200013I is placed in the centre of a thin 27 cm diameter aluminnium disc which was be placed directly on level dry ground (dirt). Configuration 7 Section 4.5 C/S T.007 (Issue 4 Rev.4 Oct 2009).
- BUT was placed in the vertical orientation described in the manufacturer's instruction.
- BUT was placed in the area with a good all round view of the sky.
- Location of EPIRB is N44° 32' 12.06"; E 33° 26' 38.89"

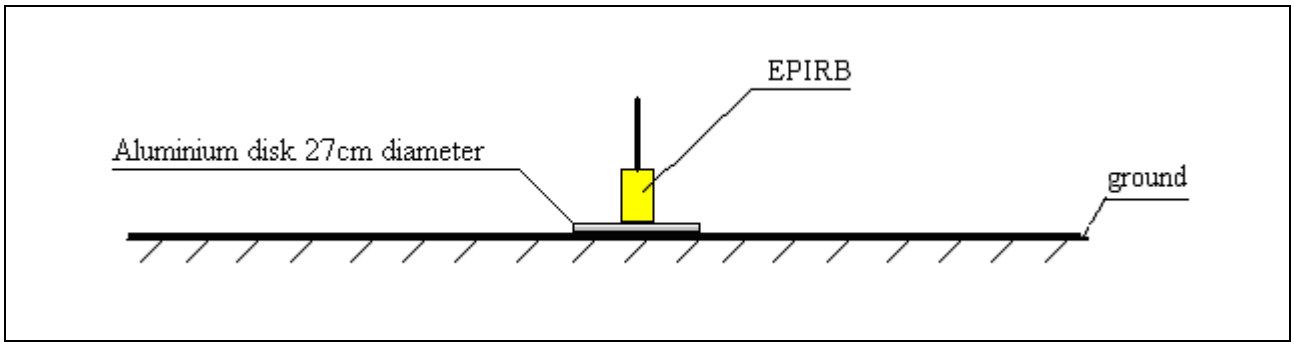



**Figure 1: Test Configuration for BUT operating above the ground plane.**

**Radio beacon coding**

The radio beacon is coded with Standard Location – Test protocol
Country code is **369 (USA)**,
Message content 1 – 144 bits: FFFE2F971E0000027FDFF838A7F683E0F00E.
Radio beacon identification number (15-digit ID): 2E3C000004FFBFF.
Message content after defined location (30-HEX ID): 971E0000022C8432DCDD7688C3542F.

**SATELLITE QUALITATIVE TEST SUMMARY REPORT**

Date of the Test: February 18, 2010
Time of the Test: 8:00 GMT
Beacon Model: E100G class 2
Beacon 15 Hex ID: 2E3C000004FFBFF
Actual location of the test beacon: Latitude N44° 32' 12.06"; Longitude: E 33° 26' 38.89".
Beacon test configuration: beacon operated on ground plane (configuration 7 section 4.5 C/S T.007 (issue 4 rev.4 oct2009))

**Data from USA MCC**

| LEOLUT ID | Satellite ID | Satellite Pass Number | Time of Closest Approach (TCA) mm.dd.yy | Cross Track Angle | 30 Hex ID Provided by LUT | Latitude | Longitude | Location Error (km) |
|---|---|---|---|---|---|---|---|---|
| GU1 | S9 | 39779 | 6:36 | 11 | 971E0000022C8432 DCDD7688C3542F | 44,3425 | 32,1266 | * |
| FL2 | S9 | 39781 | 9:54 | 11 | 971E0000022C8432 DCDD7688C3542F | 44,3411 | 32,1262 | * |
| FL1 | S9 | 39782 | 11:33 | 11 | 971E0000022C8432 DCDD7688C3542F | 44,3416 | 32,1261 | * |
| AK1 | S12 | 5315 | 7:25 | 17 | 971E0000022C8432 DCDD7688C3542F | 44,538 | 33,4339 | 0,83 |
| HI1 | S12 | 5316 | 9:05 | 17 | 971E0000022C8432 DCDD7688C3542F | 44,5368 | 33,435 | 0,73 |
| GU2 | S12 | 5318 | 12:25 | 17 | 971E0000022C8432 DCDD7688C3542F | 44,5365 | 33,4354 | 0,70 |
| FL1 | S12 | 5320 | 15:45 | 17 | 971E0000022C8432 DCDD7688C3542F | 44,5372 | 33,4358 | 0,67 |
| AK2 | S10 | 24468 | 6:42 | 9 | 971E0000022C8432 DCDD7688C3542F | 44,5394 | 33,4398 | 0,46 |
| HI1 | S10 | 24469 | 8:22 | 9 | 971E0000022C8432 DCDD7688C3542F | 44,5382 | 33,4407 | 0,33 |
| GU1 | S10 | 24471 | 11:42 | 9 | 971E0000022C8432 DCDD7688C3542F | 44,5384 | 33,4413 | 0,30 |
| FL2 | S10 | 24473 | 15:02 | 9 | 971E0000022C8432 DCDD7688C3542F | 44,5389 | 33,4405 | 0,38 |
| CA1 | S10 | 24474 | 16:42 | -8 | 971E0000022C8432 DCDD7688C3542F | 44,5516 | 33,4346 | 1,83 |
| AK2 | S12 | 5317 | 10:45 | -18 | 971E0000022C8432 DCDD7688C3542F | 44,5564 | 33,4477 | 2,21 |
| GU2 | S12 | 5318 | 12:25 | -18 | 971E0000022C8432 DCDD7688C3542F | 44,5576 | 33,4465 | 2,33 |
| GU1 | S12 | 5318 | 12:25 | -18 | 971E0000022C8432 DCDD7688C3542F | 44,558 | 33,4463 | 2,38 |
| CA1 | S12 | 5321 | 17:25 | -18 | 971E0000022C8432 DCDD7688C3542F | 44,5584 | 33,447 | 2,43 |
| AK2 | S7 | 61186 | 13:6 | 6 | 971E0000022C8432 DCDD7688C3542F | 44,5401 | 33,4375 | 0,66 |
| HI1 | S7 | 61187 | 14:47 | 6 | 971E0000022C8432 DCDD7688C3542F | 44,5387 | 33,4391 | 0,46 |
| GU1 | S7 | 61189 | 18:09 | 6 | 971E0000022C8432 DCDD7688C3542F | 44,5388 | 33,4397 | 0,43 |
| FL1 | S7 | 61190 | 19:50 | 6 | 971E0000022C8432 DCDD7688C3542F | 44,5389 | 33,4397 | 0,43 |
| FL2 | S7 | 61191 | 21:31 | 6 | 971E0000022C8432 DCDD7688C3542F | 44,5386 | 33,4392 | 0,45 |
| AK2 | S8 | 48508 | 10:54 | 14 | 971E0000022C8432 DCDD7688C3542F | 44,5404 | 33,4397 | 0,55 |
| AK1 | S8 | 48509 | 12:33 | 14 | 971E0000022C8432 DCDD7688C3542F | 44,5387 | 33,4412 | 0,33 |
| GU2 | S8 | 48511 | 15:51 | 14 | 971E0000022C8432 DCDD7688C3542F | 44,5384 | 33,4423 | 0,24 |
| FL2 | S8 | 48513 | 19:9 | 14 | 971E0000022C8432 DCDD7688C3542F | 44,5389 | 33,4415 | 0,33 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| AK2 | S7 | 61188 | 16:28 | -12 | 971E0000022C8432 DCDD7688C3542F | 44,5412 | 33,449 | 0,63 |
| CA1 | S7 | 61192 | 23:12 | -12 | 971E0000022C8432 DCDD7688C3542F | 44,5421 | 33,449 | 0,72 |
| AK2 | S8 | 48512 | 17:30 | -3 | 971E0000022C8432 DCDD7688C3542F | 44,5439 | 33,4518 | 1,01 |
| FL1 | S11 | 17308 | 21:05 | 21 | 971E0000022C8432 DCDD7688C3542F | 44,5324 | 33,4403 | 0,57 |
| FL2 | S11 | 17309 | 22:44 | 21 | 971E0000022C8432 DCDD7688C3542F | 44,533 | 33,4385 | 0,61 |
| CA2 | S11 | 17310 | 24:23 | 21 | 971E0000022C8432 DCDD7688C3542F | 44,5328 | 33,4382 | 0,64 |
| CA1 | S11 | 17303 | 12:50 | 21 | 971E0000022C8432 DCDD7688C3542F | 44,5345 | 33,4357 | 0,72 |
| AK2 | S11 | 17304 | 14:29 | 21 | 971E0000022C8432 DCDD7688C3542F | 44,5338 | 33,4367 | 0,68 |
| HI1 | S11 | 17305 | 16:08 | 21 | 971E0000022C8432 DCDD7688C3542F | 44,5328 | 33,4382 | 0,64 |
| GU2 | S11 | 17307 | 19:26 | 21 | 971E0000022C8432 DCDD7688C3542F | 44,5327 | 33,4388 | 0,62 |
| AK1 | S9 | 39783 | 13:12 | 17 | 971E0000022C8432 DCDD7688C3542F | 44,5376 | 33,4357 | 0,68 |
| HI1 | S9 | 39784 | 14:51 | 17 | 971E0000022C8432 DCDD7688C3542F | 44,5364 | 33,4375 | 0,53 |
| AK2 | S9 | 39785 | 16:30 | 17 | 971E0000022C8432 DCDD7688C3542F | 44,5351 | 33,4392 | 0,43 |
| GU1 | S9 | 39786 | 18:09 | 17 | 971E0000022C8432 DCDD7688C3542F | 44,5355 | 33,4389 | 0,44 |
| FL2 | S9 | 39788 | 21:27 | 17 | 971E0000022C8432 DCDD7688C3542F | 44,5358 | 33,4388 | 0,44 |
| FL1 | S9 | 39789 | 23:06 | 17 | 971E0000022C8432 DCDD7688C3542F | 44,5355 | 33,4384 | 0,48 |
| S7, S8, S9, S10, S11, S12 – satellites of USA | | | | | | | | |

***- Error data**

| Satellite PassNumber | Number satellite | Distance*, km |
|---|---|---|
| 5315 | S12 | 0,83 |
| 5316 | S12 | 0,73 |
| 5318 | S12 | 0,70 |
| 5320 | S12 | 0,67 |
| 24468 | S10 | 0,46 |
| 24469 | S10 | 0,33 |
| 24471 | S10 | 0,30 |
| 24473 | S10 | 0,38 |
| 24474 | S10 | 1,83 |
| 5317 | S12 | 2,21 |
| 5318 | S12 | 2,33 |
| 5318 | S12 | 2,38 |
| 5321 | S12 | 2,43 |
| 61186 | S7 | 0,66 |
| 61187 | S7 | 0,46 |
| 61189 | S7 | 0,43 |
| 61190 | S7 | 0,43 |
| 61191 | S7 | 0,45 |
| 48508 | S8 | 0,55 |
| 48509 | S8 | 0,33 |

| | | |
|---|---|---|
| 48511 | S8 | 0,24 |
| 48513 | S8 | 0,33 |
| 61188 | S7 | 0,63 |
| 61192 | S7 | 0,72 |
| 48512 | S8 | 1,01 |
| 17308 | S11 | 0,57 |
| 17309 | S11 | 0,61 |
| 17310 | S11 | 0,64 |
| 17303 | S11 | 0,72 |
| 17304 | S11 | 0,68 |
| 17305 | S11 | 0,64 |
| 17307 | S11 | 0,62 |
| 39783 | S9 | 0,68 |
| 39784 | S9 | 0,53 |
| 39785 | S9 | 0,43 |
| 39786 | S9 | 0,44 |
| 39788 | S9 | 0,44 |
| 39789 | S9 | 0,48 |

* Distance between position of EPIRB and coordinates calculated by COSPAS-SARSAT system

$$\text{Ratio of successful solutions} = \frac{\text{number of Doppler solutions within 5 km with } 1^{o} < \text{CTA} < 21^{o}}{\text{number of satellite passes over test duration with } 1^{o} < \text{CTA} < 21^{o}} \text{ x } 100\ \%$$

$$\text{Ratio of successful solutions} = \frac{38}{38} \text{ x } 100\% = 100\ \%$$

**ANNEX 8.2**

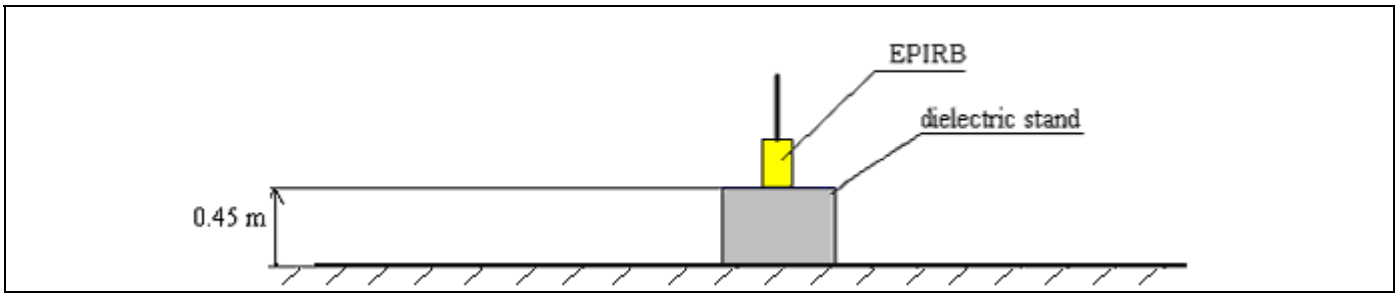
**TEST CONFIGURATION FOR EPIRB,
BEACON SITTING ABOVE GROUND PLANE**

**Satellite qualitative test**

**Configuration 8 Section 4.5 C/S T.007 (Issue 4 Rev.4 Oct 2009)**

**Test conditions:**

- Ambient temperature at open testing area: 9..12 $^{O}$C
- Relative air humidity: 55..62 %
- Atmosphere pressure: 755..761 mm/Hg
- Satellite test EPIRB operation duration: 10 hours.
- No homing transmitter operating.
- Radio beacon No.0001200013 I is placed on a wooden electrically insulating support so that its base is 0.45m above level dry ground (RF absorbing material). Configuration 8 Section 4.5 C/S T.007 (Issue 4 Rev.3 Oct 2008).
- BUT was placed in the vertical orientation described in the manufacturer's instructions
- BUT was placed in an area with a good all round view of the sky.
- Location of EPIRB is N 44° 32' 12.06"; E 33° 26' 38.89"




**Radio beacon coding**

The radio beacon is coded with Standard Location – Test protocol
Country code is **369 (USA)**,
Message content 1 – 144 bits: FFFE2F971E0000027FDFF838A7F683E0F00E.
Radio beacon identification number (15-digit ID): 2E3C000004FFBFF.
Message content after defined location (30-HEX ID): 971E0000022C8432DCDD7688C3542F.

# SATELLITE QUALITATIVE TEST SUMMARY REPORT

Date of the Test: February 20, 2010
Time of the Test: 06:00 GMT
Beacon Model: E100G class 2
Beacon 15 Hex ID: 2E3C000004FFBFF
Actual location of the test beacon: Latitude: N 44° 32' 12.06"; Longitude: E 33° 26' 38.89"
Beacon test configuration: beacon operated above ground plane (configuration 8 section 4.5 C/S T.007 (issue 4 rev.4 oct 2009))

**Data from USA MCC**

| LEOLUT ID | Satellite ID | Satellite Pass Number | Time of Closest Approach (TCA) mm.dd.yy | Cross Track Angle | 15 Hex ID Provided by LUT | Latitude | Longitude | Location Error (km) |
|---|---|---|---|---|---|---|---|---|
| CA1 | S12 | 5343 | 6:05 | 20 | 971E0000022C8432 DCDD7688C3542F | 44,5311 | 33,4351 | 0,95 |
| AK1 | S12 | 5344 | 7:45 | 4 | 971E0000022C8432 DCDD7688C3542F | 44,5409 | 33,4341 | 0,93 |
| AK2 | S12 | 5345 | 9:25 | -14 | 971E0000022C8432 DCDD7688C3542F | 44,5423 | 33,4591 | 1,35 |
| GU1 | S12 | 5346 | 11:05 | 20 | 971E0000022C8432 DCDD7688C3542F | 44,5301 | 33,4365 | 0,95 |
| FL2 | S12 | 5348 | 14:25 | 20 | 971E0000022C8432 DCDD7688C3542F | 44,5307 | 33,4369 | 0,88 |
| CA1 | S12 | 5350 | 17:45 | -14 | 971E0000022C8432 DCDD7688C3542F | 44,5442 | 33,4587 | 1,43 |
| AK1 | S11 | 17326 | 2:47 | -18 | 971E0000022C8432 DCDD7688C3542F | 44,5471 | 33,4319 | 1,52 |
| HI1 | S11 | 17327 | 4:26 | -18 | 971E0000022C8432 DCDD7688C3542F | 44,5467 | 33,4316 | 1,50 |
| GU2 | S11 | 17328 | 6:05 | -18 | 971E0000022C8432 DCDD7688C3542F | 44,5473 | 33,432 | 1,53 |
| GU1 | S11 | 17329 | 7:44 | -18 | 971E0000022C8432 DCDD7688C3542F | 44,5463 | 33,4318 | 1,46 |
| FL1 | S11 | 17330 | 9:23 | -18 | 971E0000022C8432 DCDD7688C3542F | 44,547 | 33,4352 | 1,35 |
| CA2 | S11 | 17331 | 11:2 | -18 | 971E0000022C8432 DCDD7688C3542F | 44,5458 | 33,4319 | 1,41 |
| CA1 | S11 | 17332 | 12:41 | -18 | 971E0000022C8432 DCDD7688C3542F | 44,5462 | 33,4314 | 1,47 |
| HI2 | S11 | 17333 | 14:20 | 16 | 971E0000022C8432 DCDD7688C3542F | 44,5345 | 33,4335 | 0,89 |
| HI1 | S11 | 17334 | 15:59 | 16 | 971E0000022C8432 DCDD7688C3542F | 44,5348 | 33,4338 | 0,85 |
| AK2 | S11 | 17336 | 19:17 | -18 | 971E0000022C8432 DCDD7688C3542F | 44,5464 | 33,433 | 1,40 |
| AK2 | S10 | 24496 | 5:22 | 13 | 971E0000022C8432 DCDD7688C3542F | 44,5372 | 33,428 | 1,29 |
| HI1 | S10 | 24497 | 7:02 | 13 | 971E0000022C8432 DCDD7688C3542F | 44,5357 | 33,4291 | 1,21 |
| GU1 | S10 | 24499 | 10:22 | 13 | 971E0000022C8432 DCDD7688C3542F | 44,5353 | 33,4306 | 1,10 |
| FL1 | S10 | 24501 | 13:42 | 13 | 971E0000022C8432 DCDD7688C3542F | 44,5358 | 33,4299 | 1,14 |
| HI1 | S9 | 39806 | 3:09 | -14 | 971E0000022C8432 DCDD7688C3542F | 44,5457 | 33,4819 | 3,18 |
| HI2 | S9 | 39807 | 4:48 | -14 | 971E0000022C8432 | 44,5457 | 33,4819 | 3,18 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | DCDD7688C3542F | | | |
| GU1 | S9 | 39808 | 6:27 | -14 | 971E0000022C8432 DCDD7688C3542F | 44,5455 | 33,4818 | 3,16 |
| GU2 | S9 | 39809 | 8:06 | -14 | 971E0000022C8432 DCDD7688C3542F | 44,5447 | 33,4814 | 3,11 |
| CA1 | S9 | 39811 | 11:24 | -14 | 971E0000022C8432 DCDD7688C3542F | 44,5449 | 33,4812 | 3,10 |
| CA2 | S9 | 39812 | 13:3 | -14 | 971E0000022C8432 DCDD7688C3542F | 44,5453 | 33,4811 | 3,10 |
| HI1 | S9 | 39813 | 14:42 | 4 | 971E0000022C8432 DCDD7688C3542F | 44,5342 | 33,4456 | 0,30 |
| HI2 | S9 | 39814 | 16:21 | 20 | 971E0000022C8432 DCDD7688C3542F | 44,5266 | 33,4578 | 1,56 |
| AK1 | S9 | 39818 | 22:57 | -14 | 971E0000022C8432 DCDD7688C3542F | 44,546 | 33,4827 | 3,25 |
| CA1 | S8 | 48536 | 9:06 | 17 | 971E0000022C8432 DCDD7688C3542F | 44,5364 | 33,4361 | 0,65 |
| HI2 | S8 | 48537 | 10:45 | 17 | 971E0000022C8432 DCDD7688C3542F | 44,5357 | 33,4374 | 0,55 |
| GU1 | S8 | 48539 | 14:03 | 17 | 971E0000022C8432 DCDD7688C3542F | 44,5351 | 33,4387 | 0,47 |
| FL2 | S8 | 48541 | 17:21 | 17 | 971E0000022C8432 DCDD7688C3542F | 44,5348 | 33,4391 | 0,46 |
| AK2 | S7 | 61214 | 12:14 | 14 | 971E0000022C8432 DCDD7688C3542F | 44,538 | 33,4356 | 0,70 |
| HI2 | S7 | 61215 | 13:55 | 14 | 971E0000022C8432 DCDD7688C3542F | 44,5367 | 33,4372 | 0,56 |
| HI1 | S7 | 61216 | 15:36 | -21 | 971E0000022C8432 DCDD7688C3542F | 44,5369 | 33,4437 | 0,05 |
| GU1 | S7 | 61217 | 17:17 | 14 | 971E0000022C8432 DCDD7688C3542F | 44,5364 | 33,4382 | 0,48 |
| FL2 | S7 | 61219 | 20:39 | 14 | 971E0000022C8432 DCDD7688C3542F | 44,5361 | 33,4389 | 0,43 |
| CA2 | S7 | 61220 | 22:20 | -21 | 971E0000022C8432 DCDD7688C3542F | 44,5384 | 33,4444 | 0,19 |
| CA1 | S7 | 61221 | 23:59 | -21 | 971E0000022C8432 DCDD7688C3542F | 44,5383 | 33,4446 | 0,18 |
| S7, S8, S9, S10, S11, S12 – satellites of USA | | | | | | | | |

| Satellite PassNumber | Number satellite | Distance*, km |
|---|---|---|
| 5343 | S12 | 0,95 |
| 5344 | S12 | 0,93 |
| 5345 | S12 | 1,35 |
| 5346 | S12 | 0,95 |
| 5348 | S12 | 0,88 |
| 5350 | S12 | 1,43 |
| 17326 | S11 | 1,52 |
| 17327 | S11 | 1,50 |
| 17328 | S11 | 1,53 |
| 17329 | S11 | 1,46 |
| 17330 | S11 | 1,35 |
| 17331 | S11 | 1,41 |
| 17332 | S11 | 1,47 |
| 17333 | S11 | 0,89 |

| | | |
|---|---|---|
| 17334 | S11 | 0,85 |
| 17336 | S11 | 1,40 |
| 24496 | S10 | 1,29 |
| 24497 | S10 | 1,21 |
| 24499 | S10 | 1,10 |
| 24501 | S10 | 1,14 |
| 39806 | S9 | 3,18 |
| 39807 | S9 | 3,18 |
| 39808 | S9 | 3,16 |
| 39809 | S9 | 3,11 |
| 39811 | S9 | 3,10 |
| 39812 | S9 | 3,10 |
| 39813 | S9 | 0,30 |
| 39814 | S9 | 1,56 |
| 39818 | S9 | 3,25 |
| 48536 | S8 | 0,65 |
| 48537 | S8 | 0,55 |
| 48539 | S8 | 0,47 |
| 48541 | S8 | 0,46 |
| 61214 | S7 | 0,70 |
| 61215 | S7 | 0,56 |
| 61216 | S7 | 0,05 |
| 61217 | S7 | 0,48 |
| 61219 | S7 | 0,43 |
| 61220 | S7 | 0,19 |
| 61221 | S7 | 0,18 |

* Distance between position of EPIRB and coordinates calculated by COSPAS-SARSAT system

$$\text{Ratio of successful solutions} = \frac{\text{number of Doppler solutions within 5 km with } 1^{o} < \text{CTA} < 21^{o}}{\text{number of satellite passes over test duration with } 1^{o} < \text{CTA} < 21^{o}} \text{ x } 100\ \%$$

$$\text{Ratio of successful solutions} = \frac{40}{40} \text{ x } 100\% = 100\ \%$$

**ANNEX 8.3**

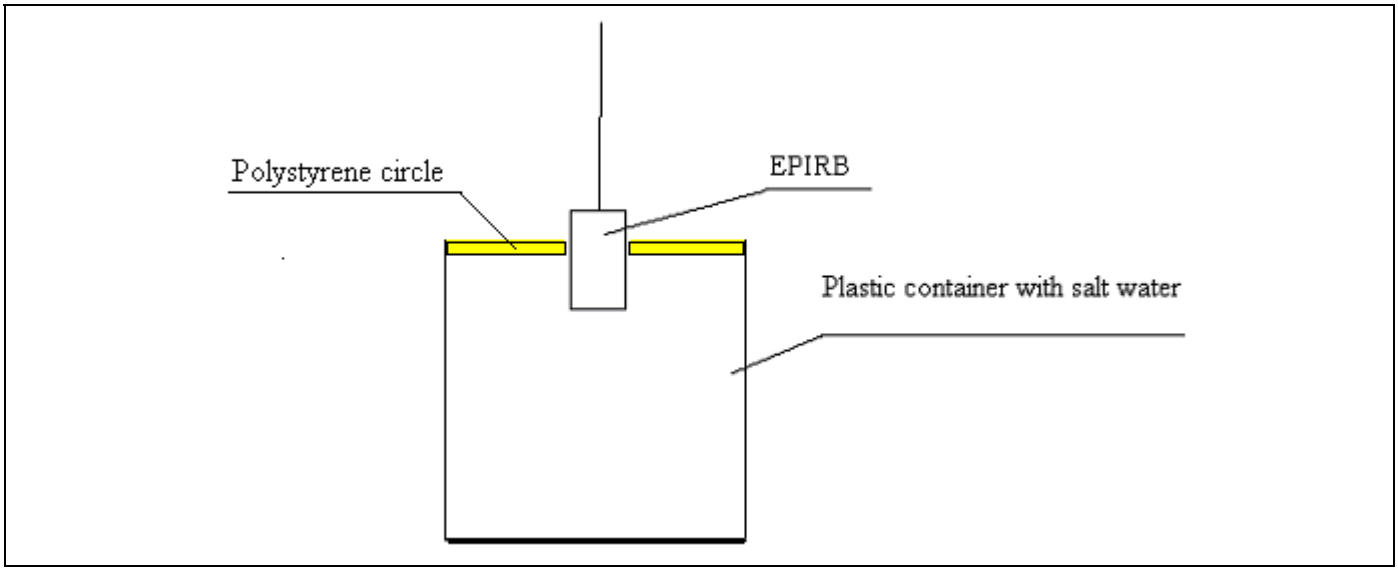
**TEST CONFIGURATION FOR EPIRB,
BEACON FLOATING IN WATER**

**Satellite qualitative test**

**Configuration 5 Section 4.5 C/S T.007 (Issue 4 Rev.4 Oct 2009)**

**Test conditions:**

- Ambient temperature at open testing area: 7..11 $^{O}$C
- Relative air humidity: 60..68 %
- Atmosphere pressure: 755..760 mm/Hg
- Satellite test EPIRB operation duration: 10 hours.
- No homing transmitter operating.
- The beacon was completely submerged in salt water [composition 5% salt solution by weight], activated while submerged, and floating to the surface under its own buoyancy.
- The beacon was maintained at or near the centre of the container for the duration of the test that was provided by a polystyrene radio transparent circle, floating on the surface of water, the free swimming of beacon in water was provided by the central opening.
- The container holding the salt water was placed in an area with a good all round view of the sky.
- The container by a diameter 58 cm and depth by a 66 cm is made from a non-conductive material (PVC plastic) and there is 50 cm of salt water under the base of the beacon when it is floating in the container and 22 cm of salt water between the beacon and the sides of the container.
- Radio beacon is submerged in a container with water at floating-line.
- Location of EPIRB is N 44° 35' 14.47"; E 33° 29' 17.65"




**Radio beacon coding**

The radio beacon is coded with Standard Location – Test protocol
Country code is **369 (USA)**,
Message content 1 – 144 bits: FFFE2F971E0000027FDFF838A7F683E0F00E.
Radio beacon identification number (15-digit ID): 2E3C000004FFBFF.
Message content after defined location (30-HEX ID): 971E0000022C8432DCDD769500B0C1

# SATELLITE QUALITATIVE TEST SUMMARY REPORT

Date of the Test: February 19, 2010
Time of the Test: 7:00 GMT
Beacon Model: E100G class 2
Beacon 15 Hex ID: 2E3C000004FFBFF
Actual location of the test beacon: Latitude N 44° 35' 14.47"; Longitude: E 33° 29' 17.65"
Beacon test configuration: floating in water (configuration 5 section 4.5 C/S T.007 (issue 4 rev.4 oct2009))

**Data from USA MCC**

| LEOLUT ID | Satellite ID | Satellite Pass Number | Time of Closest Approach (TCA) mm.dd.yy | Cross Track Angle | 30 Hex ID Provided by LUT | Latitude | Longitude | Location Error (km) |
|---|---|---|---|---|---|---|---|---|
| AK2 | S11 | 17313 | 5:20 | 3 | 971E0000022C8432 DCDD769500B0C1 | 44,5843 | 33,4856 | 0,40 |
| GU2 | S11 | 17314 | 6:59 | 3 | 971E0000022C8432 DCDD769500B0C1 | 44,5846 | 33,4854 | 0,38 |
| GU1 | S11 | 17315 | 8:38 | 3 | 971E0000022C8432 DCDD769500B0C1 | 44,5848 | 33,4860 | 0,34 |
| FL2 | S11 | 17316 | 10:17 | 3 | 971E0000022C8432 DCDD769500B0C1 | 44,5841 | 33,4858 | 0,41 |
| CA2 | S11 | 17317 | 11:56 | 3 | 971E0000022C8432 DCDD769500B0C1 | 44,5841 | 33,4869 | 0,38 |
| CA1 | S11 | 17318 | 13:35 | 3 | 971E0000022C8432 DCDD769500B0C1 | 44,5848 | 33,4861 | 0,33 |
| AK2 | S11 | 17323 | 21:50 | 3 | 971E0000022C8432 DCDD769500B0C1 | 44,5847 | 33,4879 | 0,29 |
| GU1 | S9 | 39794 | 7:21 | 8 | 971E0000022C8432 DCDD769500B0C1 | 44,5848 | 33,4878 | 0,28 |
| GU2 | S9 | 39795 | 9:00 | 8 | 971E0000022C8432 DCDD769500B0C1 | 44,5838 | 33,4869 | 0,41 |
| FL1 | S9 | 39796 | 10:39 | 8 | 971E0000022C8432 DCDD769500B0C1 | 44,5838 | 33,4870 | 0,41 |
| CA1 | S9 | 39797 | 12:18 | 8 | 971E0000022C8432 DCDD769500B0C1 | 44,5843 | 33,4868 | 0,36 |
| HI1 | S9 | 39798 | 13:57 | 8 | 971E0000022C8432 DCDD769500B0C1 | 44,5852 | 33,4864 | 0,28 |
| AK2 | S9 | 39799 | 15:36 | 8 | 971E0000022C8432 DCDD769500B0C1 | 44,5862 | 33,4894 | 0,15 |
| AK1 | S9 | 39804 | 23:51 | 8 | 971E0000022C8432 DCDD769500B0C1 | 44,5852 | 33,4909 | 0,31 |
| FL2 | S12 | 5334 | 15:05 | 2 | 971E0000022C8432 DCDD769500B0C1 | 44,5898 | 33,4726 | 1,29 |
| AK2 | S11 | 17324 | 23:29 | 19 | 971E0000022C8432 DCDD769500B0C1 | 44,5874 | 33,4857 | 0,21 |
| HI1 | S11 | 17319 | 15:14 | 19 | 971E0000022C8432 DCDD769500B0C1 | 44,5885 | 33,4838 | 0,38 |
| HI2 | S11 | 17320 | 16:53 | 19 | 971E0000022C8432 DCDD769500B0C1 | 44,5889 | 33,4833 | 0,44 |
| AK2 | S10 | 24482 | 6:02 | 11 | 971E0000022C8432 DCDD769500B0C1 | 44,5886 | 33,4794 | 0,73 |
| HI1 | S10 | 24483 | 7:42 | 11 | 971E0000022C8432 DCDD769500B0C1 | 44,5872 | 33,4803 | 0,64 |
| GU1 | S10 | 24485 | 11:02 | 11 | 971E0000022C8432 DCDD769500B0C1 | 44,587 | 33,4813 | 0,56 |
| FL2 | S10 | 24487 | 14:22 | 11 | 971E0000022C8432 DCDD769500B0C1 | 44,5877 | 33,4805 | 0,63 |
| HI1 | S12 | 5330 | 8:25 | 2 | 971E0000022C8432 DCDD769500B0C1 | 44,5893 | 33,4727 | 1,27 |
| AK1 | S12 | 5331 | 10:05 | -16 | 971E0000022C8432 | 44,5934 | 33,4867 | 0,69 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | DCDD769500B0C1 | | | |
| GU1 | S12 | 5332 | 11:45 | 2 | 971E0000022C8432 DCDD769500B0C1 | 44,5893 | 33,4724 | 0,50 |
| FL2 | S12 | 5334 | 15:05 | 2 | 971E0000022C8432 DCDD769500B0C1 | 44,5898 | 33,4726 | 1,29 |
| CA1 | S12 | 5335 | 16:45 | -16 | 971E0000022C8432 DCDD769500B0C1 | 44,5945 | 33,4866 | 0,81 |
| AK2 | S7 | 61200 | 12:40 | 10 | 971E0000022C8432 DCDD769500B0C1 | 44,5906 | 33,4817 | 0,64 |
| HI1 | S7 | 61201 | 14:21 | 10 | 971E0000022C8432 DCDD769500B0C1 | 44,5894 | 33,4831 | 0,48 |
| GU1 | S7 | 61203 | 17:43 | 10 | 971E0000022C8432 DCDD769500B0C1 | 44,5897 | 33,4840 | 0,43 |
| FL1 | S7 | 61205 | 21:05 | 10 | 971E0000022C8432 DCDD769500B0C1 | 44,5902 | 33,4830 | 0,53 |
| AK2 | S8 | 48522 | 10:00 | 15 | 971E0000022C8432 DCDD769500B0C1 | 44,5876 | 33,4765 | 0,95 |
| AK1 | S8 | 48523 | 11:39 | 15 | 971E0000022C8432 DCDD769500B0C1 | 44,5858 | 33,4790 | 0,77 |
| GU2 | S8 | 48525 | 14:57 | 15 | 971E0000022C8432 DCDD769500B0C1 | 44,5856 | 33,4799 | 0,70 |
| FL2 | S8 | 48527 | 18:15 | 15 | 971E0000022C8432 DCDD769500B0C1 | 44,5861 | 33,4793 | 0,73 |
| AK2 | S8 | 48526 | 16:36 | -1 | 971E0000022C8432 DCDD769500B0C1 | 44,5959 | 33,5010 | 1,39 |
| GU1 | S9 | 39800 | 17:15 | 20 | 971E0000022C8432 DCDD769500B0C1 | 44,5861 | 33,4861 | 0,22 |
| FL1 | S9 | 39802 | 20:33 | 20 | 971E0000022C8432 DCDD769500B0C1 | 44,5858 | 33,4879 | 0,17 |
| S7, S8, S9, S10, S11, S12 – satellites of USA | | | | | | | | |

| Satellite PassNumber | Number satellite | Distance*, km |
|---|---|---|
| 17313 | S11 | 0,40 |
| 17314 | S11 | 0,38 |
| 17315 | S11 | 0,34 |
| 17316 | S11 | 0,41 |
| 17317 | S11 | 0,38 |
| 17318 | S11 | 0,33 |
| 17323 | S11 | 0,29 |
| 39794 | S9 | 0,28 |
| 39795 | S9 | 0,41 |
| 39796 | S9 | 0,41 |
| 39797 | S9 | 0,36 |
| 39798 | S9 | 0,28 |
| 39799 | S9 | 0,15 |
| 39804 | S9 | 0,31 |
| 5332 | S12 | 0,50 |
| 5334 | S12 | 1,29 |
| 17319 | S11 | 0,38 |
| 17320 | S11 | 0,44 |
| 17324 | S11 | 0,21 |
| 24482 | S10 | 0,73 |
| 24483 | S10 | 0,64 |
| 24485 | S10 | 0,56 |
| 24487 | S10 | 0,63 |

| | | |
|---|---|---|
| 5330 | S12 | 1,27 |
| 5331 | S12 | 0,69 |
| 5335 | S12 | 0,81 |
| 61200 | S7 | 0,64 |
| 61201 | S7 | 0,48 |
| 61203 | S7 | 0,43 |
| 61205 | S7 | 0,53 |
| 48522 | S8 | 0,95 |
| 48523 | S8 | 0,77 |
| 48525 | S8 | 0,70 |
| 48527 | S8 | 0,73 |
| 48526 | S8 | 1,39 |
| 39800 | S9 | 0,22 |
| 39802 | S9 | 0,17 |

* Distance between position of EPIRB and coordinates calculated by COSPAS-SARSAT system

$$\text{Ratio of successful solutions} = \frac{\text{number of Doppler solutions within 5 km with } 1^{\circ} < \text{CTA} < 21^{\circ}}{\text{number of satellite passes over test duration with } 1^{\circ} < \text{CTA} < 21^{\circ}} \text{ x } 100\ \%$$

$$\text{Ratio of successful solutions} = \frac{38}{38} \text{ x } 100\% = 100\ \%$$

**ANNEX 9**

**THE DETERMINATION OF COMPLIANCE OF 406 MHZ BEACONS EQUIPPED WITH A TCXO WITH COSPAS-SARSAT TYPE APPROVAL REQUIREMENTS**

**Revision 1 - October 2009**

**Model:** Safesea E100G class 2
**Serial number:** 0001200014I
**Firmware:** Issue 00.00.23
**EPIRB Float-free**
**Test Date:** 8.02.2010

Tabulated data of E4672 SN 2523 (installed in EPIRB E100G class 2) test are used as initial for the residual component calculation.

## 1. Residual Component of the Medium-Term Frequency Stability

| Size designation | The calculation formula | Value | | | |
|---|---|---|---|---|---|
| Rtot | | 2.12E-09 | | | |
| t Rtot , $^0$C | | -20 $^0$C | | | |
| Rosc | Temperature -20.1 $^0$C | 3.27E-10 | | | |
| Compare | Rtot<Rosc ? | Correction is not necessary | 2.12E-09 | > | 3.27E-10 |
| Rbeacon | $\sqrt{Rtot^2 - Rosc^2}$ | 2.092E-09 | | | |
| Rosc_max | | 2.00E-09 | | | |
| Rbeacon_max | $\sqrt{Rbeacon^2 + Rosc\_max^2}$ | 2.894E-09 | | | |
| Rage | | 2.00E-10 | | | |
| Rbeacon_5_year_max | Rbeacon_max+Rage | 3.09E-09 | | | |
| Compare | Rbeacon_5_year_max<3E-9 | No PASS | 3.45E-09 | > | 3.09E-09 |
| Compare with 3.1E-9 | Rbeacon_5_year_max<3.1E-9 | PASS | 3.09E-09 | < | 3.1E-09 |

Where:
$R_{tot}$ - is the value of the residual measured during Cospas-Sarsat type approval testing at a given point of the temperature gradient profile,
$R_{osc}$ - is the value provided for the specific oscillator in the beacon prototype at the same point of the temperature gradient profile.
$R_{beacon}$ - is the value previously calculated for the beacon contribution
$R_{osc\_max}$ - is the maximum oscillator contribution (2.0 ppb).

## 2. Positive and Negative Slopes

Tabulated data of E4672 SN 2523 (installed in EPIRB E100G class 2) test are used as initial for the slope calculation.

$S_{tot}$ - is the value of the Slope measured during Cospas-Sarsat type approval testing at a given point of the temperature gradient profile,
$S_{osc}$ - is the value provided for the specific oscillator in the beacon prototype at the same point of the temperature gradient profile.
$S_{beacon}$ - is the value previously calculated for the beacon contribution
$S_{osc\_max}$ - is the maximum oscillator contribution.

Positive slopes of the medium-term frequency stability for change temperature at the gradient test

| Size designation | The calculation formula | Value | | | |
|---|---|---|---|---|---|
| S +gr tot | | 4,37E-10 | | | |
| t Rtot , $^0$C | 24.01.2010 06:47:00 | -20 | | | |
| S +gr osc | -20 | 3,81E-11 | | | |
| Compare | S +gr tot<S +gr osc ? | Correction is not necessary | 4,37E-10 | > | 3,81E-11 |
| S +gr beacon | $\sqrt{S+gr\,tot^2 - S+gr\,osc^2}$ | 4.36E-10 | | | |
| S +osc_max | | 1.70E-09 | | | |
| S +beacon_max | $\sqrt{S+gr\,beacon^2 + S+osc\_max^2}$ | 1.75E-09 | | | |
| Compare | S +beacon_max<2E-9 | PASS | 1.75E-09 | < | 2E-09 |

Negative slopes of the medium-term frequency stability for change temperature at the gradient test

| Size designation | The calculation formula | Value | | | |
|---|---|---|---|---|---|
| S -gr tot | | -5.14E-10 | | | |
| t Rtot , $^0$C | 22.01.2010 22:59:00 | -18.8 $^0$C | | | |
| S -gr osc | -18,8 $^0$C | -2.82E-10 | | | |
| Compare | S -gr tot<S -gr osc ? | Correction is not necessary | 5.14E-10 | > | 2,82E-10 |
| S -gr beacon | $\sqrt{S-gr\,tot^2 - S-gr\,osc^2}$ | 4.29E-10 | | | |
| S -osc_max | | -1.70E-09 | | | |
| S -beacon_max | $\sqrt{S-gr\,beacon^2 + S-osc\_max^2}$ | 1.75E-09 | | | |
| Compare | S -beacon_max<2E-9 | PASS | 1.75E-09 | < | 2E-09 |

Positive slopes of the medium-term frequency stability for the steady state temperature at the gradient test

| Size designation | The calculation formula | Value | | | |
|---|---|---|---|---|---|
| S +stat tot | | 4.12E-10 | | | |
| t Rtot , $^0$C | 24.01.2010 07:18:00 | -20 $^0$C | | | |
| S +stat osc | -20 $^0$C | 1.15E-11 | | | |
| Compare | S +stat tot<S +stat osc ? | Correction is not necessary | 4.12E-10 | > | 1.15E-11 |
| S +stat beacon | $\sqrt{S+\text{stat tot}^2 - S+\text{stat osc}^2}$ | 4.115E-10 | | | |
| S +osc_max | | 7.00E-10 | | | |
| S +beacon_max | $\sqrt{S+\text{stat beacon}^2 + S+\text{osc\_max}^2}$ | 8.12E-10 | | | |
| Compare | S +beacon_max<1E-9 | PASS | 8.12E-10 | < | 1E-09 |

Negative slopes of the medium-term frequency stability for the steady state temperature at the gradient test

| Size designation | The calculation formula | Value | | | |
|---|---|---|---|---|---|
| S -stat tot | | -6.366E-10 | | | |
| t Rtot , $^0$C | 22.01.2010 22:08:00 | -18.9 $^0$C | | | |
| S -stat osc | -18.9 $^0$C | -8.655E-11 | | | |
| Compare | S -stat tot<S -stat osc ? | Correction is not necessary | 6.366E-10 | > | 8.655E-11 |
| S -stat beacon | $\sqrt{S-\text{stat tot}^2 - S-\text{stat osc}^2}$ | 6.31E-10 | | | |
| S -osc_max | | -7.00E-10 | | | |
| S -beacon_max | $\sqrt{S-\text{stat beacon}^2 + S-\text{osc\_max}^2}$ | 9.42E-10 | | | |
| Compare | S -beacon_max<1E-9 | PASS | 9.42E-10 | < | 1E-09 |

refer to “TCXO E4672 S N2523 for EPIRB E100G class 2.xls” file
refer to tabulated form for residual and slope calculation in the supplement “Stability calculation”
refer to data obtained during gradient test in “Gradient Log”
“Residual” and “Slope” are calculated data for every parameter accordingly.

**ANNEX 10**

**PHOTOS OF EPIRB MODEL "SAFESEA E100G CLASS 2"**


Fig. 10.1 — General view of EPIRB Survival “Safesea E100G class 2 No 0001200013I”


Fig. 10.2 — Photo of marking 1 (Safesea E100G class 2 No 0001200013I)


Fig. 10.3 — General view of EPIRB Survival “Safesea E100 class 1 No 0001200014I”

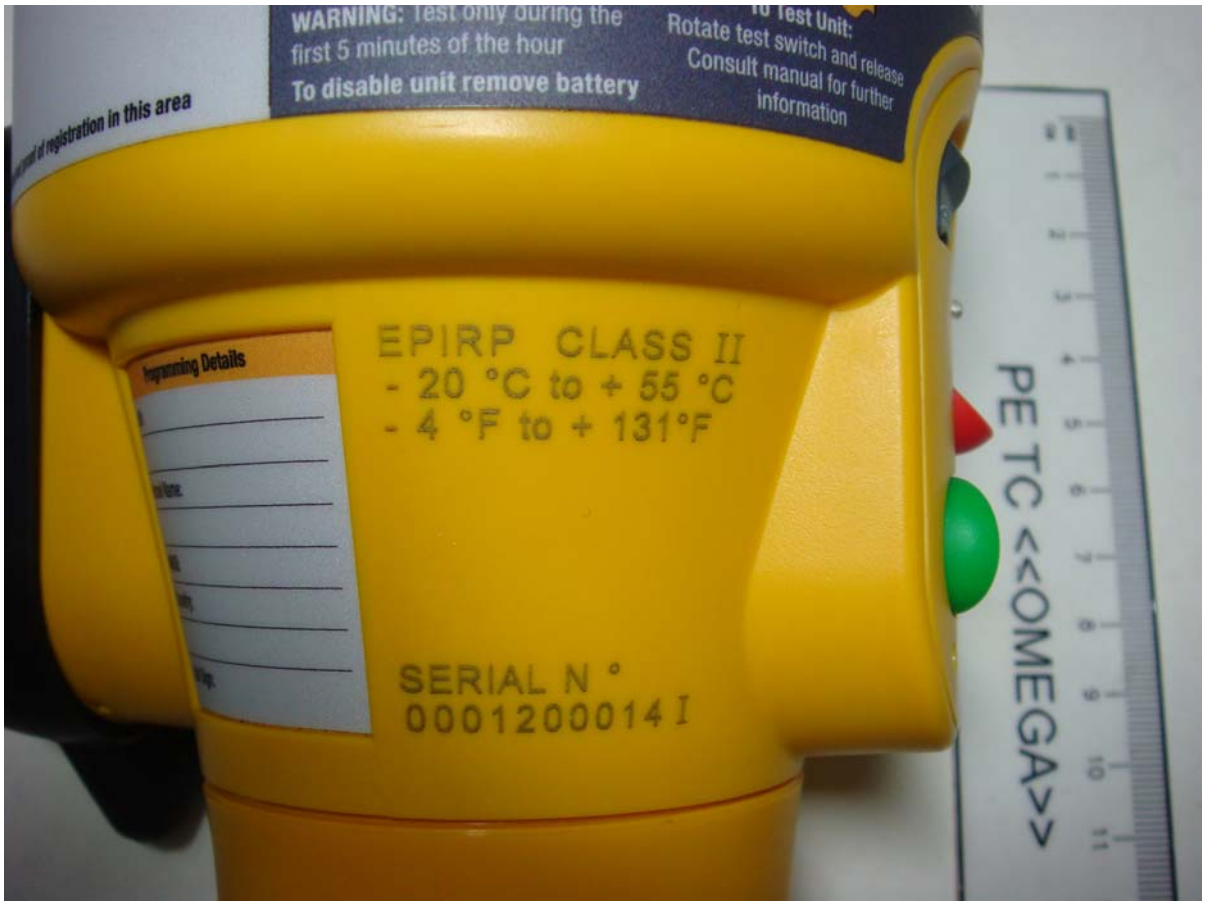



Fig. 10.4 — Photo of marking 2 (Safesea E100G class 2 No 0001200014I)


Fig. 10.5 — Photo of marking 3 (Safesea E100G class 2 No 0001200014I)


Fig. 10.6 — Photo of marking 4 (Safesea E100G class 2 No 0001200014I)


Fig. 10.7 — Photo of marking 5 (Safesea E100G class 2 No 0001200014I)


Fig. 10.8 — Photo of marking 6 (Safesea E100G class 2 No 0001200014I)

Fig. 10.9 — General view of test site for navigation test (Configuration 7 – Beacon on ground plan).


Fig. 10.10 — General view of test site for navigation test (Configuration 8 - Beacon above ground plane).

Fig. 10.11 — General view of plastic container for navigation tests.


Fig. 10.12 — General view of test site for navigation test (configuration 5 - Beacon floating in water).


Fig. 10.13 — General view of test site during satellite qualitative test at configuration 7 (section 4.5 standard T.007).

Fig 10.14 — General view of test site during satellite qualitative test at configuration 8 (section 4.5 standard T.007).

Fig 10.15 — General view of satellite qualitative test place at configuration 5
(section 4.5 standard T.007).i.e. beacon operating while floating in the salt water.

## ANNEX 11

## TEST EQUIPMENT USED AND TEST FACILITY ACCURACY

TEST EQUIPMENT USED

| No | Name of test equipment | Type, model | ser. No | Calibration due |
|---|---|---|---|---|
| 1. | Beacon tester | BT-611 | 1005 | 11.2010 |
| 2. | Spectrum analyzer | HP8593E | 3831U02306 | 05.2010 |
| 3. | Shielded room | - | No. 2 | 14.04.2010 |
| 4. | Climatic chamber | KPK 400V | 15 | 08.2010 |
| 5. | Antenna | DP-3 | 21134 | n/a |
| 6. | Antenna mast | ATR 2 | 101208 | n/a |
| 7. | Ground plane | Ug | 102282 | n/a |
| 8. | Stop-watch | SOSpr | 2388 | 10.2010 |

TEST FACILITY ACCURACY AND OPTIONAL EQUIPMENT

| **No.** | Parameter | Test facility accuracy |
|---|---|---|
| 1. | Repetition Time | ± 0,01 sec |
| 2. | Total (Transmission Time) | ± 1,0 ms |
| 3. | CW Preamble | ± 1,0 ms |
| 4. | Bit Rate | ± 0,6 bit/sec |
| 5. | Nominal Frequency | ± 100 Hz |
| 6. | Frequency Stability | $< 1 \times 10^{-10}$ |
| 7. | Transmitted Power | ± 0,5 dB |
| 8. | Spurious Power Level | ± 2 dB |
| 9. | Carrier Rise Time | ± 0,5 ms |
| 10. | Modulation Rise | ± 25 μs |
| 11. | Modulation Symmetry | < 0,01 |
| 12. | Phase Modulation | ± 0,04 rad |
| 13. | Voltage | 0.1% |
| 14. | Current value | 2% |
| 15. | Ambient temperature (near beacon) various | ± 2°C |
| 16. | Antenna Measurement | ± 3 dB |

| | | | |
|---|---|---|---|
| 1. | Computer | Pentium 4 | No. 102476 |
| 2. | Printer | Canon LBP 2900 | L10891E |
| 3. | Programming software | CSConfig | Issue 00.00.23 |
| 4. | Cable for EPIRB programming | - | 1 |