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Report On

Limited Testing of the
ACR Electronics Inc
GlobalFix V6
In accordance with Cospas-Sarsat T.007

Document 75953445 Report 02 Issue 2 **February 2023**

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REPORT ON

Emergency Beacons Limited Testing of the
ACR Electronics Inc
GlobalFix V6

Document 75953445 Report 02 Issue 2

February 2023

APPLICANT

Ocean Signal Limited
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MANUFACTURER

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DATED

16 February 2023

UKAS TESTING
0141

CONTENTS

SECTION 1

REPORT SUMMARY

Emergency Beacons Limited Testing of the
ACR Electronics Inc
GlobalFix V6

1.1 INTRODUCTION

The information contained in this report is intended to show verification of the ACR Electronics Inc GlobalFix V6 to limited requirements of Cospas-Sarsat T.007.

Objective	To perform Emergency Beacon Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Applicant	Ocean Signal Limited
Manufacturer	ACR Electronics Inc
Model Number(s)	GlobalFix V6*[1] GlobalFix V6 Class 3*[2]
Serial Number(s)	TA000014 TA000007
Number of Samples Tested	2
Test Specification/Issue/Date	Cospas-Sarsat T.007 Issue 5 Rev 7 June 2021
Date of Receipt of Test Samples	6 January 2022
Order Number Date	PO13429 16 September 2021
Start of Test	17 March 2022
Finish of Test	11 May 2022
Name of Engineer(s)	M Sellers P Adams
Related Documents	Cospas-Sarsat T.001 Issue 4 Revision 8 June 2021 Cospas-Sarsat T.IP (TCXO) Issue 1 Revision 5 October 2013

*[1] Refer to Manufacturer document 5.(q) Differences Between AIS & Non-AIS Beacon Model Variants_Issue 1.pdf. The limited testing required was decided based on the original submission of the GlobalFix V5 (see Document 75953445-01 Issue 5). Battery current comparison measurements have been included in Annex A and the results for the Electrical and Functional testing can be compared with the results in the GlobalFix V5 report.

*[2] The scope of the additional testing for the variant (GlobalFix V6 Class 3 – see section 3) was agreed between the Manufacturer and Cospas-Sarsat Secretariate under pre-application PA21-10.

1.2 APPLICATION FORM

G.1 - Beacon Manufacturer and Beacon Model	
Beacon Manufacturer	Ocean Signal Ltd, ACR Electronics Inc.
Beacon Manufacturer's Address	Ocean Signal Ltd, Unit 4 Ocivan Way, Margate, Kent, CT9 4NN, UK ACR Electronics Inc, 5757 Ravenswood Road, Fort Lauderdale, FL 33312, USA
Beacon Model Name	RLB-43, RLB-45, EPIRB2 Pro, EPIRB2
Additional Beacon Model Names	GlobalFix V6, GlobalFix V6 Class 3, rescueME EPIRB2 Pro, rescueME EPIRB2

G.1 - Beacon Type and Operational Configurations		
Beacon Type	Beacon Used While	Tick Where Appropriate (X)
EPIRB Float Free	Floating in water or on deck or in a safety raft	X (RLB-43, EPIRB2 Pro)
EPIRB Non-Float Free (automatic and manual activation)	Floating in water or on deck or in a safety raft	X (RLB-43, EPIRB2)
EPIRB Non-Float Free (manual activation only)	Floating in water or on deck or in a safety raft	X (RLB-45)
EPIRB Float Free with VDR	Floating in water or on deck or in a safety raft	
PLB	On ground and above ground	
	On ground and above ground and floating in water	
	On ground, above ground, and on a personal floatation device*	
ELT Survival	On ground and above ground	
	On ground and above ground and floating in water	
ELT Auto Fixed	Fixed ELT with aircraft external antenna	
ELT(DT)	Distress Tracking ELT with aircraft external antenna	
ELT Auto Portable	In aircraft with an external antenna	
	On ground, above ground, or in a safety raft with an integrated antenna	
ELT Auto Deployable	Deployable ELT with attached antenna	
Other (specify)	N/A	

* Applicable only to PLBs with integral antennas operated while attached to personal flotation devices (e.g. lifejackets) where the PLB and its antenna are mounted on PFD in such a position, that, in the nominal mode of operation, they are kept above water.

G.1 - Beacon Characteristics		
Characteristic	Declared Value	
Operating frequency (406 MHz operating channel = 406.nnn)	406.031 MHz	
Operating temperature range	Tmin = -20 °C	Tmax= 55 °C
Temperature, at which minimum duration of continuous operation is expected (Submit C/S T.007 Section 5, part s, if applicable)	Tmin ✓	OR Other (-20°C) N/A
Manufacturer-declared Minimum Operating Lifetime* * this value is specified by National Administrations or International Organisations	No Yes No No N/A	24 hours, or 48 hours, or 168 hours, or Other hours Other hours, (specify)
Beacon power supply type (internal non-rechargeable, internal re-chargeable, external, combined, other)	Internal non-rechargeable	
External power supply parameters (AC/DC, nominal voltage, nominal minimum and nominal maximum voltage)	Current (AC / DC):	N/A
	Nominal Voltage (V):	N/A
	Nominal Minimum Voltage (V):	N/A
	Nominal Maximum Voltage (V):	N/A
Is external power supply needed to energise the beacon or its ancillary devices in any of operational modes (N/A or Yes or No)	No	
Battery cell chemistry	Lithium Iron Disulphide	
Battery cell model name, cell size, number of cells in a battery pack, and details of the battery pack electrical configuration	Cell Model Name:	L91
	Cell Size:	50.5mm x 14.5mm dia
	Number of Cells in Battery Pack:	6
	Details of the battery pack electrical configuration:	3 series packs of 2 cells in series (6 cells in series)
Battery cell manufacturer	Energizer	
Battery pack manufacturer and part number	Battery Pack Manufacturer Name:	Ocean Signal Ltd and/or ACR Electronics Inc
	Battery Pack Part Number:	901S-03925
Beacon manufacturers declared maximum allowed cell shelf-life (from date of cell manufacture to date of battery pack installation in the beacon)	2	years
Declared beacon battery replacement period (from date of installation in the beacon to expiry date marked on the beacon)	10.5	years

Oscillator type (e.g. OCXO, MCXO, TCXO)	TCXO	
Oscillator manufacturer	Rakon	
Oscillator model name/ part number	Model Name:	E6907LF
	Part Number:	E6907LF
Oscillator satisfies long-term frequency stability requirements (Yes or No)	Yes	
Antenna type: Integral or Other (e.g. External, Detachable – specify type)	Integral	
Antenna manufacturer	Ocean Signal Ltd and/or ACR Electronics Inc	
Antenna part name and part number (OEM, if applicable, and beacon manufacturer's)	OEM Model Name:	N/A
	OEM Part Number:	N/A
	Beacon Manufacturer's Model Name:	RLB-43, RLB-45: 130S-03877(RLB-44) / EPIRB2 Pro: 130S-03273(EPIRB3 Pro) / EPIRB2: 130S-01404(EPIRB3)
	Beacon Manufacturer's Part Number:	RLB-43, RLB-45: 130S-03877(RLB-44) / EPIRB2 Pro: 130S-03273(EPIRB3 Pro) / EPIRB2: 130S-01404(EPIRB3)
Antenna cable assembly min/max RF- losses at 406 MHz, if applicable	Minimum loss (dB):	N/A
	Maximum loss (dB):	N/A
Navigation device type (Internal, External or None)	Internal	
Features in beacon that prevent degradation to 406 MHz signal or other beacon performances resulting from a failure of navigation device or failure to acquire position data (Yes, No, or N/A)	Yes	
Features in beacon that ensure erroneous position data is not encoded into the beacon message (Yes, No or N/A)	Yes	
Navigation device capable of supporting global coverage (Yes, No or N/A)	Yes	
Encoded position update capability (Yes, No, N/A) and	Yes	
Encoded position update interval value (range)	3:57.5 to 15:00	minutes:seconds
For Internal Navigation Devices		
Geodetic reference system (WGS 84 or GTRF)	WGS 84	
GNSS receiver cold start forced at every beacon activation (Yes or No)	Yes	
Navigation device manufacturer	Ublox	
Navigation device model name and part Number	Model Name:	MAX-M8Q
	Part Number:	MAX-M8Q

Internal navigation device antenna type(integrated, internal, external, passive/active) , manufacturer and model	Internal, AEL Crystals Ltd, DAE1575R1820A	
GNSS system supported (e.g. GPS, GLONASS, Galileo)	GPS, Galileo	
For External Navigation Devices		
Data protocol for GNSS receiver to beacon interface	N/A	
Physical interface for beacon to navigation device	N/A	
Electrical interface for beacon to navigation device	N/A	
Part number of the external navigation interface device (if applicable)	N/A	
Navigation device model and manufacturer (if beacon designed to use specific devices)	N/A	
Self-Test Mode Characteristics:	Self-Test Mode	Optional GNSS Self-test Mode
Activated by a separate switch/ separate switch position (Yes or No)	Yes	Yes
Self-test/GNSS self-test mode switch automatically returns to normal position when released (Yes or No)	Yes	Yes
Self-test/ GNSS self-test activation can cause an operational mode transmission (Yes or No)	No	No
Results in transmission of a single self-test burst only, regardless of how long the self-test activation mechanism is applied (Yes or No)	Yes	Yes
Results of self-test / GNSS self-test are indicated by (provide details, e.g. Pass / Fail indicator light, strobe light, etc.)	Indicator LED / Strobe	Indicator LED / Strobe
The content of the encoded position data fields of the self-test message has default values	Yes	No
Performs an internal check and indicates that RF-power is being emitted at 406 MHz and 121.5 MHz, if beacon includes a 121.5 Hz homer (Yes or No)	Yes	No
Self-test results in transmission of a signal other than at 406 MHz (Yes & details or No)	Yes, 121.5MHz for 1sec	No
Self-test can be activated directly at beacon (Yes or No)	Yes	Yes
List of Items checked by self-test	406 Freq Generation & RF Power, 121.5 RF Power, Battery Status, GNSS Module status	GNSS, 406* *(The GNSS self-test is limited to checking operation of the internal GNSS receiver; if a fix is acquired during the test the beacon shall encode the position and perform a 406MHz test transmission. If a fix is not obtained the beacon shall not perform any transmission).
Self-test/ GNSS self-test 406 MHz burst duration (440 or 520 ms)	520ms	520mS

Self-test message length format flag in bit 25, (“0” or “1”)	1	1
Maximum duration of a self-test mode, sec	16	140
Maximum recommended number of self-tests / GNSS self-tests during battery pack replacement period (as applicable)	120	60
Distinct indication of self-test start (Yes or No)	Yes	Yes
Indication of self-test results (Yes or No)	Yes	Yes
Distinct indication of insufficient battery capacity (Yes or No)	Yes	N/A
Automatic termination of self-test mode immediately after completion of the self-test cycle (Yes or No)	Yes	Yes
GNSS Self-test results in transmission of a single burst, irrespectively of the test result (Yes or No)	N/A	No
Self-test / GNSS self-test can be activated from beacon remote activation points (Yes & details or No)	No	No
List all methods of Self-test mode and GNSS Self-test modes activation. Provide details on a separate sheet to describe	Test key only	Test key only
Repetitive Automated Interrogation of a Beacons Status (Yes & details per section 5.1, item (y), or No)	No	
Message Coding Protocols	Protocol Option	Tick Where Appropriate (X)
User Protocol	Maritime with MMSI	
	Maritime with Radio Call Sign	
	EPIRB Float Free with Serial Number	
	EPIRB Non Float Free with Serial Number	
	Radio Call Sign	
	Aviation	
	ELT with Serial Number	
	ELT with Aircraft Operator and Serial Number	
	ELT with Aircraft 24-bit Address	
	PLB with Serial Number	
	National (Short Message Format)	
	National (Long Message Format)	
Standard Location Protocol	EPIRB with MMSI	X
	EPIRB with Serial Number	X
	ELT with 24-bit Address	
	ELT with Aircraft Operator Designator	
	ELT with Serial Number	
	PLB with Serial Number	

National Location Protocol	National Location: EPIRB	
	National Location: ELT	
	National Location: PLB	
ELT(DT) Location Protocol	ELT with Serial Number	
	ELT with Aircraft Operator and Serial Number	
	ELT with Aircraft 24-bit Address	
	ELT with Serial Number and 3LD in PDF-2	
	ELT with Aircraft 24-bit Address and 3LD in PDF-2	
RLS Location Protocol (TAC or NRN and Serial Number)	EPIRB	X
	ELT	
	PLB	
RLS Location Protocol (MMSI)	EPIRB	X
	PLB	
User Location Protocol	Maritime with MMSI	
	Maritime with Radio Call Sign	
	EPIRB Float Free with Serial Number	
	EPIRB Non Float Free with Serial Number	
	Radio Call Sign	
	Aviation	
	ELT with Serial Number	
	ELT with Aircraft Operator and Serial Number	
	ELT with Aircraft 24-bit Address	
	PLB with Serial Number	

Other Declarations	Declared Value		
Beacon includes a homer transmitter(s) (Yes or No)	Yes		
- homer transmitter(s) frequency and power	Frequency	Power (dBm)	Yes / No
	121.5 MHz	16dBm ±2dBm	Yes
	243.0 MHz	N/A	No
	AIS	N/A	No
	Other (MHz)		
	N/A	N/A	No
	Description:	N/A	
homer transmitter(s) duty cycle	50 - 98 (121.5MHz)	%	
duty cycle of homer swept tone	35 (121.5MHz)	%	
Beacon includes a high intensity flashing light (e.g. Strobe)	Yes		
- light intensity	>0.5	cd	
- flash rate	24	flashes per minute	
Beacon transmission repetition period satisfies C/S T.001 requirement that two beacon's repetition periods are not synchronised closer than a few seconds over 5 minute period, and the time intervals between transmissions are randomly distributed on the interval 47.5 to 52.5 seconds (Yes or No)	Yes		
Other ancillary devices (e.g. voice transceiver, remote control, external audio and light indicators, external activation device). List details on a separate sheet if insufficient space to describe.	Yes, non-visible IR strobe		
Beacon includes automatic activation mechanism (Yes or No). Specify type of automatic beacon activation mechanism	Yes / No :	Yes (Except RLB-45)	
	Description:	Water contacts (Except RLB-45)	
Beacon includes a voice-transceiver (Yes or No), and if Yes specify:	Yes / No :	No	
Voice transmitter nominal output power	If Yes, specify: (dBm)	N/A	
Voice transmitter operating frequencies	If Yes, specify: (MHz)	N/A	
- provides prevention against continuous operation of voice transmitter (Yes or No), and if Yes specify:	Yes / No :	N/A	
- maximum continuous voice-transmission operation ("time-out timer")	"Time-out timer" (minutes):	N/A	
- maximuim cumulative transmit-mode on-time ("On time")	On time (hours : minutes):	N/A	
Beacon includes features and functions not listed above, related or non-related to 406 MHz (Yes or No). List features and use a separate sheet if insufficient space	Yes		
	Description:	Near-Field Communication (NFC)	

Beacon model hardware part number (P/N) and version	RLB-43: 900S-03888 Issue 01.00, RLB-45: 900S-03889 Issue 01.00, EPIRB2 Pro: 800S-04156 Issue 01.00, EPIRB2: 800S-04156 Issue 01.00	
Beacon model firmware P/N, version, date of issue/releases	500S-03885 Issue 00.03.00, Release date 07/04/2022 Tested Version. Production version Issue 01.00 01/06/2022	
Beacon model software P/N, version, date of issue/releases	N/A	
Beacon model printed circuit board P/N and version	RLB-43 PCB Assy: 800S-04156 Issue 01.00, RLB-45 PCB Assy: 800S-04156 Issue 01.00, EPIRB2 Pro PCB Assy: 800S-04156 Issue 01.00, EPIRB2 PCB Assy: 800S-04156 Issue 01.00	
Beacon model multiple programmable options, except message coding protocols (Yes/No)	No	
	If Yes, List all programmable options associated with this type-approval application:	
Known non-compliances with C/S T.001 requirements (Yes or No). If Yes, provide details (Submit C/S T.007 Section 5, part t, if applicable)	No	
Beacon Manufacturer Point of Contact (POC) for this Type Approval application:		
Name and Job Title:	Mark Newton / Approvals Manager	
Phone:	+44 1843 808028	
E-mail:	mark.newton@oceansignal.com	

Dated(*)	14-02-2023
Signed(*)	
(Name, Position and Signature of Beacon Manufacturer Representative)	Mark Newton / Approvals Manager

Information Provided by the Cospas-Sarsat Accepted Test Facility

Name and Location of Beacon Test Facility: TÜV SÜD, United Kingdom

Date of Submission for Testing:

Applicable C/S Standards:

Document	Issue	Revision	Date
C/S T.001	4	8	June 2021
C/S T.007	5	7	June 2021
IP (TCXO)	-	5	October 2013

I hereby confirm that the 406 MHz beacon described above has been successfully tested in accordance with the Cospas-Sarsat 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

Detail any observed non-compliances and/or deviations from standard test procedures here:

Non-compliances:

For the GlobalFix V6, the results are outside the limits stated in clause A.2.1 (d) of C/S T.007. However, the measurements are within the Test Facility Accuracy stated in C/S T.008.

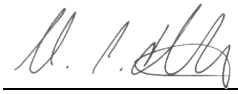
For the GlobalFix V6, the results are outside the limits stated in clause A.2.1 (g) of C/S T.007. However, the measurements are within the Test Facility Accuracy stated in C/S T.008.

Deviations:

None.

Notes:

None

Signed: 

Name: Martin Hardy

Position Held: Authorised Signatory

Date: 16 February 2023

1.3 PRODUCT INFORMATION

1.3.1 Technical Description

The Equipment Under Test (EUT) was an ACR Electronics Inc GlobalFix V6 as shown in the photograph below. A full technical description can be found in the manufacturer's documentation.

Equipment Under Test

1.3.2 Physical Test Configuration

The Equipment Under Test (EUT) was operated using its own power source (internal battery). The first EUT was configured so that the antenna port was connected to the 50Ω test system using a coaxial cable (TA000014). The test configuration for all tests is identical with the exception of Satellite Qualitative and Position Acquisition Time and Position Accuracy.

Another EUT was a fully packaged beacon, similar to the proposed production beacons equipped with its proper antenna (TA000007). This EUT was used to perform Satellite Qualitative and Position Acquisition Time and Position Accuracy. The test configuration for these tests is a function of the beacon type and the operational environments supported by the beacon, as declared by the manufacturer.

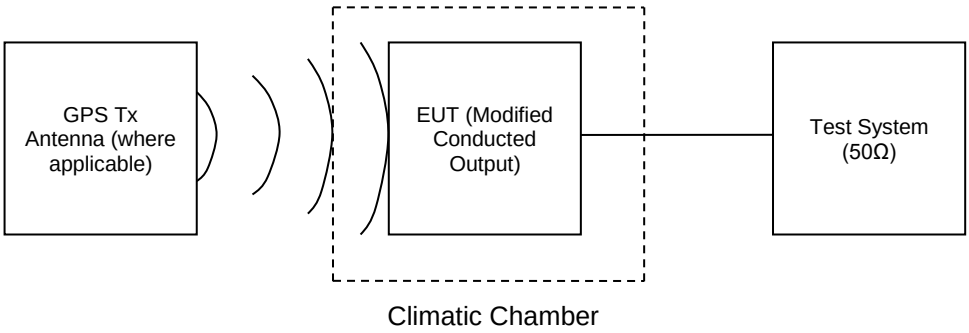
One EUT listed above was the same as the original approval for the GlobalFix V5, however, for this testing it was reconfigured accordingly, so that it didn't have the AIS functionality. The AIS

was disabled while reprogramming the EUT, so it simulated a GlobalFix V6 and GlobalFix V6 Class 3 as instructed by the manufacturer. The other EUT was unique to this testing.

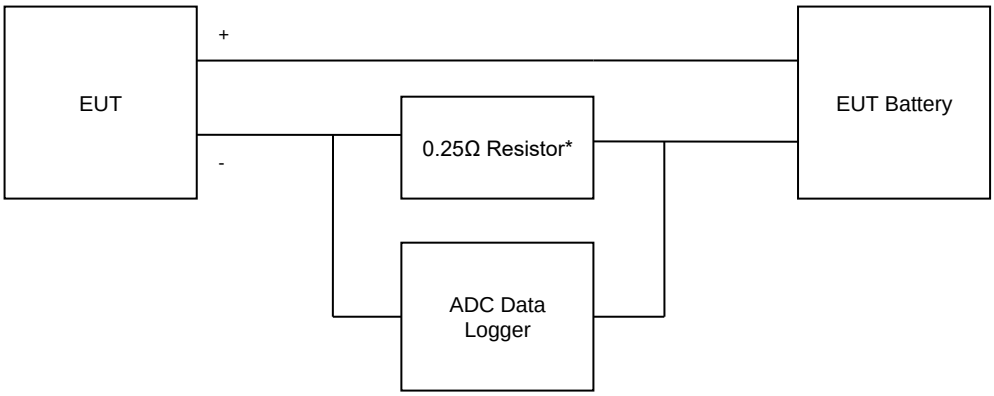
Both samples were used for both the GlobalFix V6 and GlobalFix V6 Class 3 measurements. To do this, when transitioning to the GlobalFix V6 Class 3, the water contacts inside the housing which make connection to the PCB were removed so that it could not be activated while in water. This simulated the EUT having no water contacts for the duration of testing. Limited comparison testing was performed on this sample to show there was no significant difference conductively.

System Configurations

Conducted Laboratory Tests



Battery Current Measurements



Note: The resistor in series with negative line of battery

* Removed for Standby mode measurements. Leakage current measured through Data Logger (Nominal resistance 1MΩ).

For other Navigation and Satellite configurations, see photographs in section 5 of this report.

Further Information

The EUT is fitted with an internal GPS receiver. From cold start, without GPS signal data present, the duty cycle of the receiver is as described in the manufacturer information. After a 15-minute warm up, electrical and functional tests were carried out for 30 minutes to ensure that measurements were made during periods when the GPS receiver was active and inactive.

Due to the Operating Lifetime at Minimum Temperature Test not being required for these models, a limited battery current comparison was performed comparing these models to the original approvals. See Annex A for further information.

1.3.3 Modes of Operation

Modes of operation of the EUT during testing were as follows:

Off/Standby Mode
- No apparent activity

Self-test
- Test button held and released between 1 and 5 seconds
- List of items checked as per Customer Supplied Information (Application Form)
- Navigation data applied at ambient temperature

GNSS Self-test
- Test button held and released between >5 and 10 seconds
- List of items checked as per Customer Supplied Information (Application Form)
- Navigation data applied as applicable (e.g. none applied for timeout, data applied for 'burst')

Operating
- Activate On button
- 121.5 Homer active and offset
- GNSS operating in normal duty cycle
- No navigation data applied (unless otherwise stated)

All modes

All mode descriptions are applicable to all tests unless otherwise stated. Additional methods of activation include:
- Water contacts

All Navigation input descriptions are applicable to all tests unless otherwise stated.

1.4 TEST LOCATIONS

Satellite Qualitative/Navigation test A.3.8.2.2: Daedalus Airfield, Lee-on-the-Solent, Hants, UK
All other tests: Octagon House Laboratory, Fareham, Hampshire, UK

1.5 MODIFICATIONS

Modification State (Mod State)	Date of Implementation	Reasons for modification	Description of modification, HW/FW P/Ns, SW version/release after modification
0	N/A	N/A	As supplied by manufacturer. Hardware: 01.00 Firmware: 00.01.00 Software: N/A
1	22/02/2022	Update to fix GNSS Timings via factory NVM settings and AIS* Timings (self test burst) via factory NVM settings	Hardware: 01.00 Firmware: 00.01.00 Software: N/A
2	07/04/2022	Change to AIS* stack for True Heading parameter	Hardware: 01.00 Firmware: 00.03.00 Software: N/A

The table above details modifications made to the EUT during the test programme. The modifications incorporated during each test are recorded on the appropriate test pages.

*The AIS modification has been included in the table to show the full modification that was performed on the samples. This would have no effect on the EUTs as both samples had the AIS disabled for testing.

Following the modification of the original EUT design an additional scope of testing was agreed between the Cospas-Sarsat Secretariat and the device manufacturer (with respect to the EPIRB3 Pro model:

Additional Testing Requirement	Reference(s)	Details
See Details column.	N/A	A change from MS0 to MS1 was made following identification of an update to the factory NVM settings for the GNSS Timings and AIS Timings in self test only. There was no testing carried out in Modification State 0 associated with this report. Whilst the change was recorded as a modification state for the purpose of this document, no firmware or hardware was changed and therefore contact with the Secretariate was not made.
• Functional tests at ambient temperature (A.2.1).	Ref email dated: 12 April 2022 14:29 RE: Plb3 worksheet	A change from MS1 to MS2 was made following identification of errors in the AIS stack, which caused an incorrect True Heading reading. NOTE: this firmware issue was originally identified within another Ocean Signal product. The case was discussed, and the logic of repeat testing.

1.6 REPORT MODIFICATION RECORD

Issue 1 – First Issue.
Issue 2 – Section 1.3.3 updated to reflect true operating modes. Section 1.3.2 updated with reference to Annex A for battery current comparison and refence to the original report for GNSS information. Section 1.3.2 updated with a description about the samples being used for both models. Section 1.3.2 updated to show how the samples were reconfigured. Section 5 has been updated with all photos for all radiated tests to show the same sample was used but it had been reconfigured. Test Clauses throughout the report have been aligned to C/S T.007 Issue 5 Rev 7 June 2021. Tables F-E.3 have been updated and the AIS observation has been removed. Section 1.1 has been updated with a direct reference to the GlobalFix V5 report. Annex A has been updated. Section 1.5 has been updated with a comment regarding the AIS modification. Sections 2 and 3 have been updated with Antenna Characteristic recalculations.

SECTION 2

TEST DETAILS

Emergency Beacons Limited Testing of the
ACR Electronics Inc
GlobalFix V6

TEST RESULTS TABLE

Parameters to be Measured		Range of Specification	Units	Test Results			Comments
				Tmin	Tamb	Tmax	
				(-20°C)	(+21°C)	(+55°C)	
1. Power Output							**Result: Pass**
Model: GlobalFix V6, S/N: TA000014, TUV Ref: TSR19 and Modification State 2							
Transmitter power output	(maximum)	35 - 39	dBm	N/T	36.10	N/T	
	(minimum)			N/T	36.03	N/T	
Power output rise time	(maximum)	< 5	ms	N/T	0.416	N/T	
	(minimum)			N/T	0.408	N/T	
Power output 1ms before burst	(maximum)	< -10	dBm	N/T	-23.21	N/T	
	(minimum)			N/T	-35.08	N/T	
2. Digital Message Coding							**Result: Pass**
Model: GlobalFix V6, S/N: TA000014, TUV Ref: TSR19 and Modification State 2							
Bit Sync	1 - 15	15 bits “1”	P / F	N/T	P	N/T	
Frame sync	16 - 24	“000101111”	P / F	N/T	P	N/T	
Format flag	25	1 bit	bit value	N/T	1	N/T	
Protocol flag	26	1 bit	bit value	N/T	0	N/T	
Identification / position data	27 - 85	59 bits	P / F	N/T	P	N/T	
BCH code	86 -106	21 bits	P / F	N/T	P	N/T	
Emerg. Code/nat. use/supplem. Data	107 - 112	6 bits	bit value	N/T	111000	N/T	
Additional data / BCH (if applicable)	112 - 144	32 bits	P / F	N/T	P	N/T	
Position Error (if applicable)		< 5	km	N/T	N/A	N/T	

Parameters to be Measured		Range of Specification	Units	Test Results			Comments
				Tmin	Tamb	Tmax	
				(-20°C)	(+21°C)	(+55°C)	
3. Digital Message Generator							**Result: Pass**
Model: GlobalFix V6, S/N: TA000014, TUV Ref: TSR19 and Modification State 2							
Repetition rate, T_R:							
Average T_R		48.5 ≤ T_{Ravg} ≤ 51.5	seconds	N/T	50.123	N/T	
Minimum T_R		47.5 ≤ T_{Rmin} ≤ 48.0	seconds	N/T	47.996	N/T	
Maximum T_R		52.0 ≤ T_{Rmax} ≤ 52.5	seconds	N/T	52.011	N/T	
Standard deviation		0.5 - 2.0	seconds	N/T	1.41	N/T	
Bit rate							
Minimum fb		≥ 399.6	bits/sec	N/T	399.91	N/T	
Maximum fb		≤ 400.4	bits/sec	N/T	400.00	N/T	
Total transmission time							
Short message	(maximum)	435.6 - 444.4	ms	N/A	N/A	N/A	
	(minimum)			N/A	N/A	N/A	
Long message	(maximum)	514.8 - 525.2	ms	N/T	519.562	N/T	
	(minimum)			N/T	519.547	N/T	
Unmodulated carrier							
Minimum T1		≥ 158.4	ms	N/T	160.344	N/T	
Maximum T1		≤ 161.6	ms	N/T	160.359	N/T	
First burst delay		≥ 47.5	seconds	N/T	53	N/T	

Parameters to be Measured		Range of Specification	Units	Test Results			Comments
				Tmin	Tamb	Tmax	
				(-20°C)	(+21°C)	(+55°C)	
4. Modulation							**Result: Non-Compliance**
Model: GlobalFix V6, S/N: TA000014, TUV Ref: TSR19 and Modification State 2							
Biphase-L		P / F	P / F	N/T	P	N/T	
Rise time	(maximum)	50 - 250	µs	N/T	110.4	N/T	
	(minimum)	50 - 250	µs	N/T	89.7	N/T	
Fall time	(maximum)	50 - 250	µs	N/T	152.8	N/T	
	(minimum)	50 - 250	µs	N/T	130.1	N/T	
Phase deviation: positive	(maximum)	+(1.0 to 1.2)	radians	N/T	1.112	N/T	
	(minimum)	+(1.0 to 1.2)	radians	N/T	0.995*	N/T	*The positive phase deviation falls outside of T.007. However, the measurement is within the Test Facility limits stated in T.008.
Phase deviation: negative	(maximum)	-(1.0 to 1.2)	radians	N/T	-1.157	N/T	
	(minimum)	-(1.0 to 1.2)	radians	N/T	-1.056	N/T	
Symmetry measurement		≤ 0.05		N/T	0.02358	N/T	
5. 406 MHz Transmitted Frequency							**Result: Pass**
Model: GlobalFix V6, S/N: TA000014, TUV Ref: TSR19 and Modification State 2							
Nominal Value	(maximum)	C/S T.001	MHz	N/T	406.0310336	N/T	
	(minimum)			N/T	406.0310334	N/T	
Short-term stability	(maximum)	≤ $2x10^{-9}$	/100ms	N/T	5.18E-10	N/T	
	(minimum)			N/T	4.70E-10	N/T	
Medium-term stability – Slope	(maximum)	(-1 to +1)$x10^{-9}$	/minutes	N/T	5.33E-11	N/T	
	(minimum)			N/T	1.08E-10	N/T	
Medium-term stability – Residual frequency variation	(maximum)	≤ $3x10^{-9}$		N/T	2.14E-10	N/T	
	(minimum)			N/T	-1.99E-11	N/T	
6. Spurious Emissions into 50ohms							**Result: Pass**
Model: GlobalFix V6, S/N: TA000014, TUV Ref: TSR19 and Modification State 2							
In band (406.0 – 406.1 MHz)		C/S T.001 mask	P / F	N/T	P	N/T	

Parameters to be Measured		Range of Specification	Units	Test Results			Comments
				Tmin	Tamb	Tmax	
				(-20°C)	(+21°C)	(+55°C)	
7. 406 MHz VSWR Check							**Result: Non-Compliance**
Model: GlobalFix V6, S/N: TA000014, TUV Ref: TSR19 and Modification State 2							
Nominal Value	(maximum)	C/S T.001	MHz	N/T	406.0310343	N/T	
	(minimum)			N/T	406.0310341	N/T	
Modulation rise time	(maximum)	50-250	µs	N/T	110.1	N/T	
	(minimum)	50-250	µs	N/T	90.1	N/T	
Modulation fall time	(maximum)	50-250	µs	N/T	149.9	N/T	
	(minimum)	50-250	µs	N/T	129.7	N/T	
Modulation phase deviation: positive	(maximum)	+ (1.0 to 1.2)	radians	N/T	1.110	N/T	
	(minimum)	+ (1.0 to 1.2)	radians	N/T	0.999*	N/T	*The positive phase deviation falls outside of T.007. However, the measurement is within the Test Facility limits stated in T.008.
Modulation phase deviation: negative	(maximum)	- (1.0 to 1.2)	radians	N/T	-1.168	N/T	
	(minimum)	- (1.0 to 1.2)	radians	N/T	-1.052	N/T	
Modulation symmetry measurement		≤ 0.05		N/T	0.02324	N/T	
Digital Message		correct	P / F	N/T	P	N/T	

Parameters to be Measured	Range of Specification	Units	Test Results			Comments
			Tmin	Tamb	Tmax	
			(-20°C)	(+21°C)	(+55°C)	
8(a). Self-test Mode						**Result: Pass**
Model: GlobalFix V6, S/N: TA000014, TUV Ref: TSR19 and Modification State 2						
Frame sync	011010000	P / F	N/T	P	N/T	
Format flag	1 / 0	bit value	N/T	1	N/T	
Single radiated burst	≤440 / 520 (±1%)	ms	N/T	519.562	N/T	
Default position data (if applicable)	correct	P / F	N/T	P	N/T	
Description	provided	Y / N	Y			
Design data on protection against repetitive self-test mode transmissions	provided	Y / N	Y			
Single burst verification	one burst	P / F	N/T	P	N/T	
Provides for 15 Hex ID	correct	P / F	N/T	P	N/T	
121.5 MHz RF power (if applicable)	verify that RF power emitted	P / F	N/T	P	N/T	
406 MHz power	verify that RF power emitted	P / F	N/T	P	N/T	
Distinct indication of Self-Test	provided	Y / N	N/T	Y	N/T	
Distinct indication of RF power being emitted	provided	Y / N	N/T	Y	N/T	
Indication of Self-Test result	provided	Y / N	N/T	Y	N/T	
Distinct indication of insufficient battery capacity	provided	Y / N	N/T			
Maximum duration of Self-Test mode	≤ maximum duration of Self-Test	sec	N/T	16	N/T	Manufacturer Declared Value: 16
Automatic termination of Self-Test mode upon completion of Self-Test and indication of Self-Test results	verify automatic termination, irrespective of the switch position	Y / N	N/T	Y	N/T	

Parameters to be Measured	Range of Specification	Units	Test Results			Comments
			Tmin	Tamb	Tmax	
			(-20°C)	(+21°C)	(+55°C)	
8 (b). GNSS Self-Test Mode (if applicable)						**Result: Pass**
Model: GlobalFix V6, S/N: TA000014, TUV Ref: TSR19 and Modification State 2						
Frame sync	011010000	P / F	N/T	P	N/T	
Format flag	1 / 0	bit value	N/T	1	N/T	
Radiated burst duration	≤ 520 (+1%)	ms	N/T	519.547	N/T	
Position data except for ELT (DT) (if applicable)	must be within 500 m (or 5.25 km for User Location Protocol) of the actual position	P / F	N/T	P	N/T	
Position data for ELT(DT)	must be within 200 m of the actual horizontal position and 700 m of the altitude	P / F	N/A	N/A	N/A	
Design data showing how GNSS Self-test is limited in number of transmissions and duration	provided	Y / N		Y		
Single burst verification (if applicable)	one burst	P / F	N/T	P	N/T	
121.5 MHz RF power (if applicable)	verify that RF power is emitted	Y / N	N/T	Y	N/T	
406 MHz power (if applicable)	verify that RF power is emitted	Y / N	N/T	Y	N/T	
Maximum duration of GNSS Self-tests	Manufacturer to specify value	s	N/T	114	N/T	Manufacturer specified value: 140
Actual duration of Self-test with encoded location	Less than maximum duration	s	N/T	54	N/T	
Maximum number of GNSS Self-tests (only beacons with internal navigation devices)	Manufacturer to specify number	Number		60		Manufacturer specified number: 60
Distinct indication to register successful completion or failure of the GNSS self-test	must be provided	Y/N	N/T	Y	N/T	
Distinct indication that a maximum number of GNSS self-tests has been attained after GNSS self-test mode activation and without transmission of a test message or further GNSS receiver current drain	must be provided	Y/N		N/T		
Automatic termination of the GNSS self-test mode upon completion of the GNSS self-test cycle and indication of the results	verify automatic termination of GNSS self-test mode, irrespective of the switch position			Y		

Parameters to be Measured	Range of Specification	Units	Test Results				Comments
14. Satellite Qualitative Tests							**Result: Pass**
Model: GlobalFix V6, S/N: TA000007, TUV Ref: TSR4 and Modification State 1 (SLP Protocol)							
Test Configuration	As per C/S T.007		Configuration				
			5	6	7	8	
15 Hex ID Decoded by LUT	correct	P / F	-	-	P	-	
Doppler Location results with error ≤ 5km	≥ 80	%	-	-	90.91	-	
15. Antenna Characteristics							**Result: Pass**
Model: GlobalFix V6, S/N: TA000007, TUV Ref: TSR4 and Modification State 2 (Recalculation)							
Test Configuration	As per C/S T.007		Configuration				
			1	2	3	4	
Polarisation	linear or RHCP		Linear	-	-	Linear	
VSWR	≤ 1.5		N/A	-	-	N/A	Detachable Antennas Only
$EIRP_{LOSS}$		dB	0.15	-	-	0.15	
$EIRP_{maxEOL}$	≤ 43*	dBm	42.27	-	-	41.03	* ≤ 45 for PLB on PFD
$EIRP_{minEOL}$	≥ 32**	dBm	33.44	-	-	30.84	** $EIRP_{minEOL}$ limit decreases to 30 dBm for Configuration 4

Parameters to be Measured	Range of Specification	Units	Test Results				Comments
17. Navigation System							**Result: Pass**
Model: GlobalFix V6, S/N: TA000007, TUV Ref: TSR4 and Modification State 1							
Location protocol	C/S T.001		National	Standard	User	RLS	
Configuration 7							
Position accuracy - A.3.8.2.1	C/S T.001	m	-	22.9	-	-	
Position Acquisition Time - A.3.8.2.1	<10/1	min	-	0.87	-	-	
Position accuracy - A.3.8.2.2	C/S T.001	m	-	35.4	-	-	
Position Acquisition Time - A.3.8.2.2	<10/1	min	-	0.87	-	-	

2.1 POWER OUTPUT

2.1.1 Specification

Cospas-Sarsat T.007, Clause A.2.1 (a)

2.1.2 Equipment Under Test and Modification State

GlobalFix V6 S/N: TA000014 - Modification State 2

2.1.3 Date of Test

10 May 2022

2.1.4 Test Equipment Used

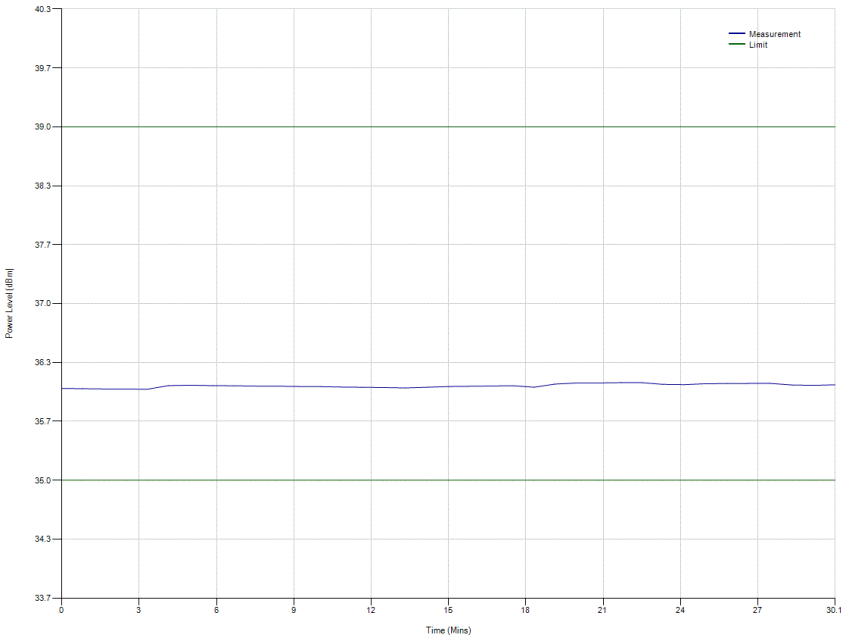
The major items of test equipment used for the above tests are identified in Section 4.1.

2.1.5 Laboratory Environmental Conditions

Ambient Temperature 25.1°C
Relative Humidity 40.9%

2.1.6 Test Results

Ambient Temperature



Summary

The EUT complies with clause A.3.2.3 of Cospas-Sarsat T.007.

2.2 DIGITAL MESSAGE

2.2.1 Specification

Cospas-Sarsat T.007, Clause A.2.1 (b)

2.2.2 Equipment Under Test and Modification State

GlobalFix V6 S/N: TA000014 - Modification State 2

2.2.3 Date of Test

10 May 2022

2.2.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 4.1.

2.2.5 Laboratory Environmental Conditions

Ambient Temperature 25.1°C
Relative Humidity 40.9%

2.2.6 Test Results

Test Duration: 30 minutes
No. of bursts: 37

Ambient Temperature

Decoded Beacon Message

Hexadecimal code: **FFFE2F8C9DFE7018DFEFF8129DF861F0FABE**

The code consists of 36 hexadecimal characters representing a first generation beacon message with the format flag set to Long including bit and frame synchronization pattern prefix (24 bits) as defined by T.001 Issue 4 - Rev.6.

Unique identifier:
193BFCE031BFDFF

Binary Range	Binary Content	Field Name	Decoded Value
1-15	111111111111111	Bit-synchronization pattern consisting of "1"s shall occupy the first 15-bit positions	True
16-24	000101111	Frame Synchronization Pattern	Normal beacon operation
25	1	Format Flag	Long Message
26	0	Protocol Flag	Location, further information provided in "Protocol Code"
27-36	0011001001	Country code:	Albania - 201
		For associated SAR Points of Contact (SPOC) related to Albania - 201 :	Search Contact list here
37-40	1101	Protocol Code	RLS Location Protocol
41-42	11	Beacon type	RLS Test Location
43-46	1111	Identification type	RLS protocol coded with MMSI last 6 digits
47-66	10011100000001100011	Last 6 digits MMSI	639075
67-75	011111111	Latitude	Default - no location (Default - no location)
76-85	0111111111	Longitude	Default - no location (Default - no location)
86-106	00000010010100111011	BCH-1 error correcting code	BCH-1 code in message matches the recalculated BCH-1 from the PDF-1 field
107	1	Encoded position source	Encoded position data is provided by an internal navigation device
108	1	121.5 Mhz Homing Device	Included in beacon
109	1	Beacon capability to process and automatically generated RLM Type-1	Capable to process an automatically generated RLM Type-1
110	0	Beacon capability to process a manually generated RLM Type-1 RLM Type-2	Not capable to process a manually generated RLM Type-2
111	0	Beacon Feedback on receipt of RLM Type-1	RLM Type-1 (automatic) not received by this beacon
112	0	Beacon Feedback on receipt of RLM Type-2	RLM Type-2 (manual) not received by this beacon
113-114	01	RLS Provider Identification	GALILEO Return Link Service Provider
115-123	100001111	Latitude offset	Default value
124-132	100001111	Longitude offset	Default value
133-144	101010111110	BCH-2 error correcting code	BCH-2 code in message matches the recalculated BCH-2 from the PDF-2 field

Summary

The EUT complies with clause A.3.1.4 of Cospas-Sarsat T.007.

2.3 MODULATION

2.3.1 Specification

Cospas-Sarsat T.007, Clause A.2.1 (d)

2.3.2 Equipment Under Test and Modification State

GlobalFix V6 S/N: TA000014 - Modification State 2

2.3.3 Date of Test

10 May 2022

2.3.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 4.1.

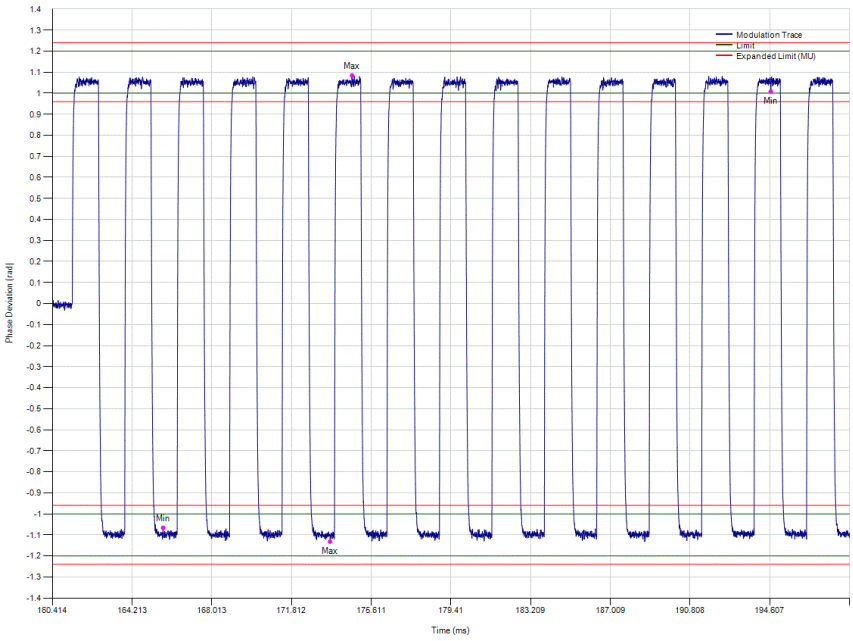
2.3.5 Laboratory Environmental Conditions

Ambient Temperature 25.1°C
Relative Humidity 40.9%

2.3.6 Test Results

Test Duration: 30 minutes
No. of bursts: 37

Ambient Temperature



Summary

The EUT fails to comply* with clause A.3.2.4 of Cospas-Sarsat T.007.

*The positive phase deviation falls outside the limits in T.007. However, the measurement is within the Test Facility limits stated in T.008.

2.4 406 MHZ TRANSMITTED FREQUENCY

2.4.1 Specification

Cospas-Sarsat T.007, Clause A.2.1 (e)

2.4.2 Equipment Under Test and Modification State

GlobalFix V6 S/N: TA000014 - Modification State 2

2.4.3 Date of Test

10 May 2022

2.4.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 4.1.

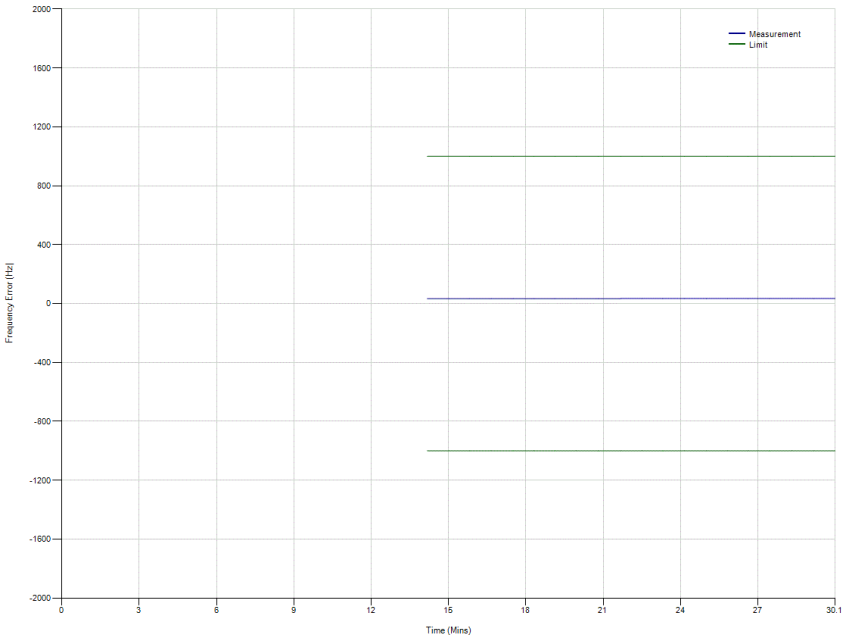
2.4.5 Laboratory Environmental Conditions

Ambient Temperature 25.1°C
Relative Humidity 40.9%

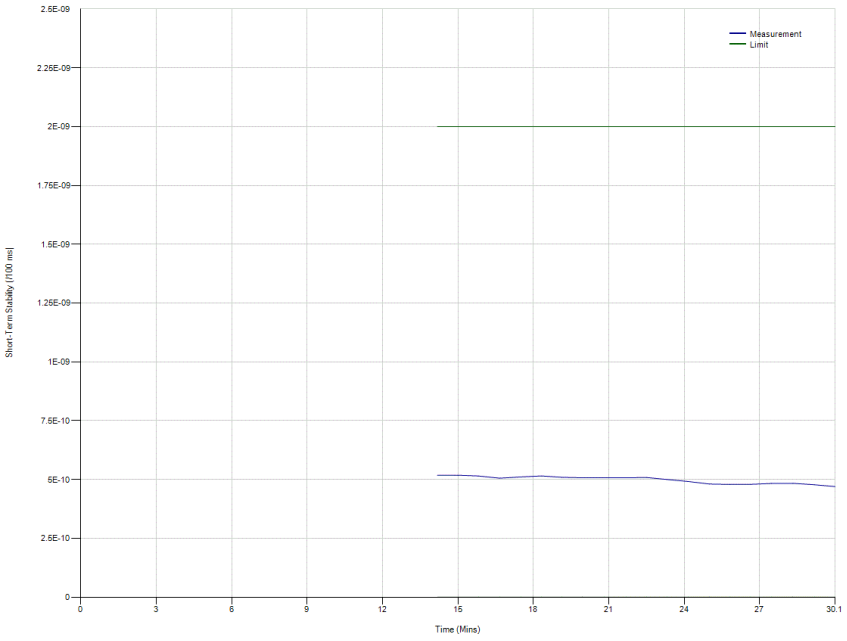
2.4.6 Test Results

Ambient Temperature

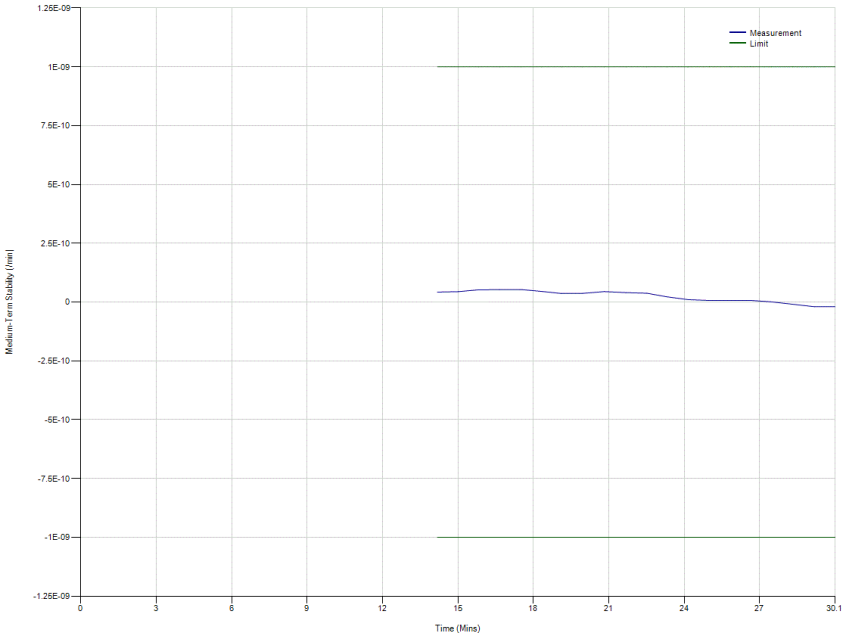
Nominal Frequency



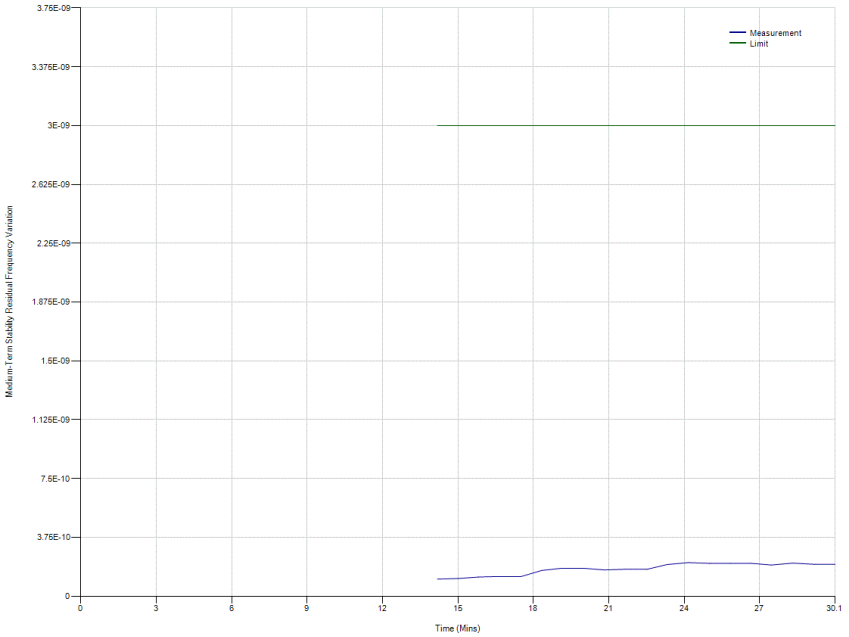
Short Term Stability



Medium Term Stability – Slope



Medium Term Stability – Residual Frequency Variation



Summary

The EUT complies with clause A.3.2.1 of Cospas-Sarsat T.007.

2.5 SPURIOUS EMISSIONS INTO 50 OHMS

2.5.1 Specification

Cospas-Sarsat T.007, Clause A.2.1 (f)

2.5.2 Equipment Under Test and Modification State

GlobalFix V6 S/N: TA000014 - Modification State 2

2.5.3 Date of Test

10 May 2022

2.5.4 Test Equipment Used

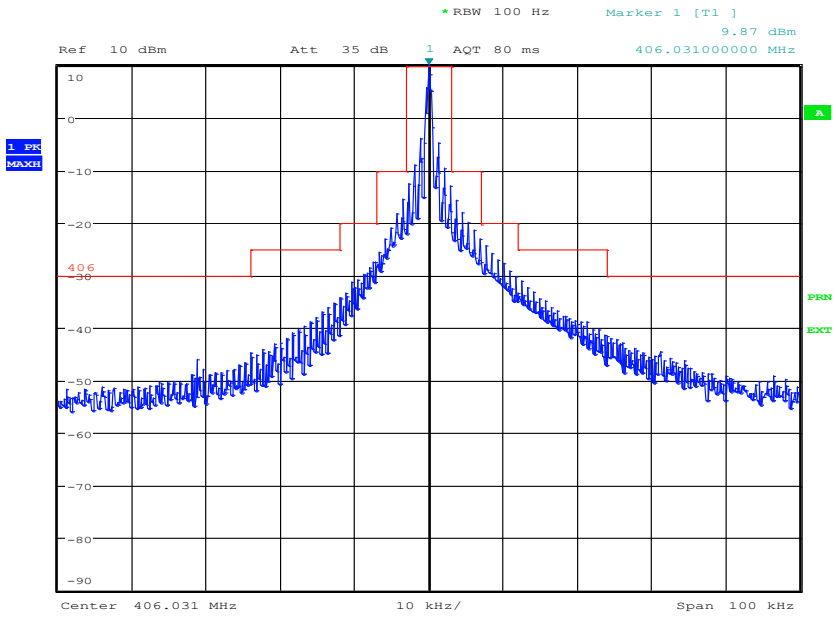
The major items of test equipment used for the above tests are identified in Section 4.1.

2.5.5 Laboratory Environmental Conditions

Ambient Temperature 25.1°C
Relative Humidity 40.9%

2.5.6 Test Results

Ambient Temperature



Date: 10.MAY.2022 12:33:06

Summary

The EUT complies with clause A.3.2.3.4 of Cospas-Sarsat T.007.

2.6 406 MHZ VSWR CHECK

2.6.1 Specification

Cospas-Sarsat T.007, Clause A.2.1 (g)

2.6.2 Equipment Under Test and Modification State

GlobalFix V6 S/N: TA000014 - Modification State 2

2.6.3 Date of Test

10 May 2022

2.6.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 4.1.

2.6.5 Laboratory Environmental Conditions

Ambient Temperature 25.1°C
Relative Humidity 42.4%

2.6.6 Test Results

Test Duration: 30 minutes
No. of bursts: 37

Ambient Temperature

Decoded Beacon Message

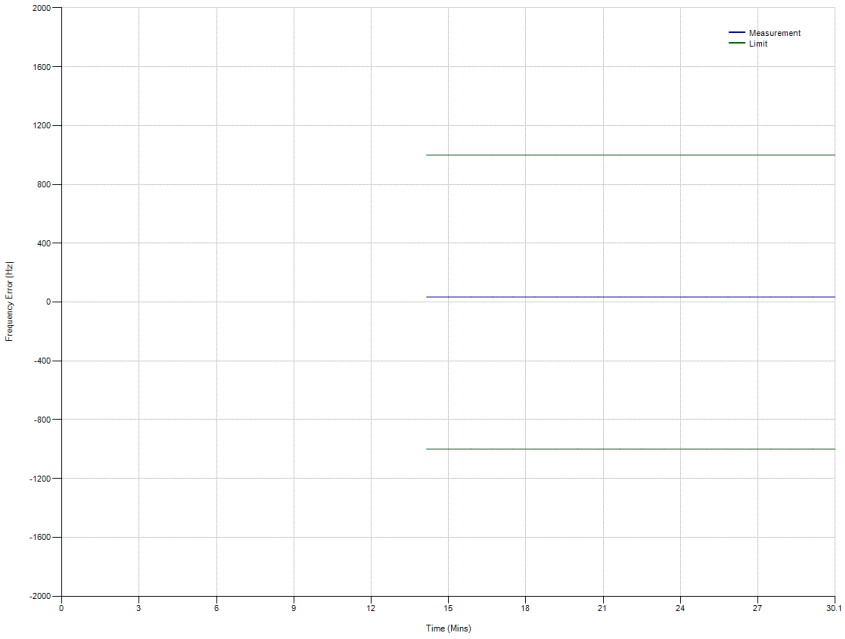
Hexadecimal code: **FFFE2F8C9DFE7018DFEFF8129DF861F0FABE**

The code consists of 36 hexadecimal characters representing a first generation beacon message with the format flag set to Long including bit and frame synchronization pattern prefix (24 bits) as defined by T.001 Issue 4 - Rev.6.

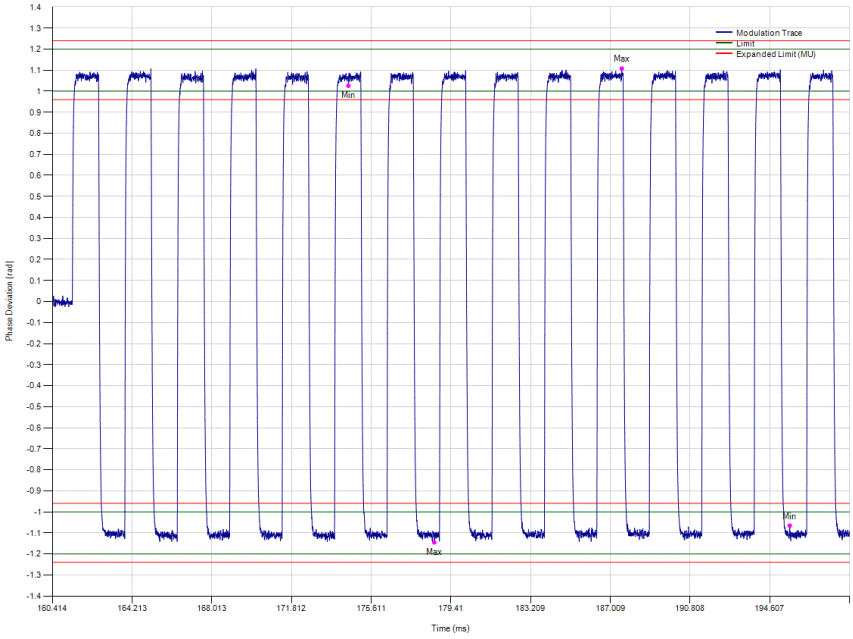
Unique identifier:
193BFCE031BFDFF

Binary Range	Binary Content	Field Name	Decoded Value
1-15	111111111111111	Bit-synchronization pattern consisting of "1"s shall occupy the first 15-bit positions	True
16-24	000101111	Frame Synchronization Pattern	Normal beacon operation
25	1	Format Flag	Long Message
26	0	Protocol Flag	Location, further information provided in "Protocol Code"
27-36	0011001001	Country code:	Albania - 201
		For associated SAR Points of Contact (SPOC) related to Albania - 201 :	Search Contact list here
37-40	1101	Protocol Code	RLS Location Protocol
41-42	11	Beacon type	RLS Test Location
43-46	1111	Identification type	RLS protocol coded with MMSI last 6 digits
47-66	10011100000001100011	Last 6 digits MMSI	639075
67-75	011111111	Latitude	Default - no location (Default - no location)
76-85	0111111111	Longitude	Default - no location (Default - no location)
86-106	00000010010100111011	BCH-1 error correcting code	BCH-1 code in message matches the recalculated BCH-1 from the PDF-1 field
107	1	Encoded position source	Encoded position data is provided by an internal navigation device
108	1	121.5 Mhz Homing Device	Included in beacon
109	1	Beacon capability to process and automatically generated RLM Type-1	Capable to process an automatically generated RLM Type-1
110	0	Beacon capability to process a manually generated RLM Type-1 RLM Type-2	Not capable to process a manually generated RLM Type-2
111	0	Beacon Feedback on receipt of RLM Type-1	RLM Type-1 (automatic) not received by this beacon
112	0	Beacon Feedback on receipt of RLM Type-2	RLM Type-2 (manual) not received by this beacon
113-114	01	RLS Provider Identification	GALILEO Return Link Service Provider
115-123	100001111	Latitude offset	Default value
124-132	100001111	Longitude offset	Default value
133-144	101010111110	BCH-2 error correcting code	BCH-2 code in message matches the recalculated BCH-2 from the PDF-2 field

Frequency Plot



Modulation Plot



Summary

The EUT fails to comply* with clause A.3.3 of Cospas-Sarsat T.007.

*The positive phase deviation falls outside the limits in T.007. However, the measurement is within the Test Facility limits stated in T.008.

2.7 SELF-TEST MODES

2.7.1 Specification

Cospas-Sarsat T.007, Clause A.2.1 (h)

2.7.2 Equipment Under Test and Modification State

GlobalFix V6 S/N: TA000014 - Modification State 2

2.7.3 Date of Test

10 May 2022

2.7.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 4.1.

2.7.5 Laboratory Environmental Conditions

Ambient Temperature 24.9°C
Relative Humidity 42.8%

2.7.6 Test Results

Note: Self-test at ambient temperature was carried out with navigation data applied. The EUT was activated and allowed to obtain a fix. It was then deactivated and a Self-test was performed to show the EUT encoded default values. This is shown from the decoded messages below.

Self-test Mode

Ambient Temperature

Burst 1
Decoded Beacon Message

Hexadecimal code: **FFFE2F8C9DFE7018CCF024AD44F84ECA2A3C**

The code consists of 36 hexadecimal characters representing a first generation beacon message with the format flag set to Long including bit and frame synchronization pattern prefix (24 bits) as defined by T.001 Issue 4 - Rev.6.

Unique identifier:
193BFCE031BFDFF

Binary Range	Binary Content	Field Name	Decoded Value
1-15	111111111111111	Bit-synchronization pattern consisting of "1"s shall occupy the first 15-bit positions	True
16-24	000101111	Frame Synchronization Pattern	Normal beacon operation
25	1	Format Flag	Long Message
26	0	Protocol Flag	Location, further information provided in "Protocol Code"
27-36	0011001001	Country code:	Albania - 201
		For associated SAR Points of Contact (SPOC) related to Albania - 201 :	Search Contact list here
37-40	1101	Protocol Code	RLS Location Protocol
41-42	11	Beacon type	RLS Test Location
43-46	1111	Identification type	RLS protocol coded with MMSI last 6 digits
47-66	10011100000001100011	Last 6 digits MMSI	639075
67-75	001100111	Latitude	51.5 Degrees North (51.5)
76-85	1000000100	Longitude	2.0 Degrees West (-2.0)
86-106	10010101101010001001	BCH-1 error correcting code	BCH-1 code in message matches the recalculated BCH-1 from the PDF-1 field
107	1	Encoded position source	Encoded position data is provided by an internal navigation device
108	1	121.5 Mhz Homing Device	Included in beacon
109	1	Beacon capability to process and automatically generated RLM Type-1	Capable to process an automatically generated RLM Type-1
110	0	Beacon capability to process a manually generated RLM Type-1 RLM Type-2	Not capable to process a manually generated RLM Type-2
111	0	Beacon Feedback on receipt of RLM Type-1	RLM Type-1 (automatic) not received by this beacon
112	0	Beacon Feedback on receipt of RLM Type-2	RLM Type-2 (manual) not received by this beacon
113-114	01	RLS Provider Identification	GALILEO Return Link Service Provider
115-123	001110110	Latitude offset	7.0 minutes 24.0 seconds (negative)
124-132	010100010	Longitude offset	10.0 minutes 8.0 seconds (negative)
133-144	101000111100	BCH-2 error correcting code	BCH-2 code in message matches the recalculated BCH-2 from the PDF-2 field
		Composite location	51.377 -1.831

Burst 3
Decoded Beacon Message

Hexadecimal code: **FFFED08C9DFE7018DFEFF8129DF861F0FABE**

The code consists of 36 hexadecimal characters representing a first generation beacon message with the format flag set to Long including bit and frame synchronization pattern prefix (24 bits) as defined by T.001 Issue 4 - Rev.6.

Unique identifier:
193BFCE031BFDFF

Binary Range	Binary Content	Field Name	Decoded Value
1-15	111111111111111	Bit-synchronization pattern consisting of "1"s shall occupy the first 15-bit positions	True
16-24	011010000	Frame Synchronization Pattern	Test protocol message coded for non-operational use
25	1	Format Flag	Long Message
26	0	Protocol Flag	Location, further information provided in "Protocol Code"
27-36	0011001001	Country code:	Albania - 201
		For associated SAR Points of Contact (SPOC) related to Albania - 201 :	Search Contact list here
37-40	1101	Protocol Code	RLS Location Protocol
41-42	11	Beacon type	RLS Test Location
43-46	1111	Identification type	RLS protocol coded with MMSI last 6 digits
47-66	10011100000001100011	Last 6 digits MMSI	639075
67-75	011111111	Latitude	Default - no location (Default - no location)
76-85	0111111111	Longitude	Default - no location (Default - no location)
86-106	00000010010100111011	BCH-1 error correcting code	BCH-1 code in message matches the recalculated BCH-1 from the PDF-1 field
107	1	Encoded position source	Encoded position data is provided by an internal navigation device
108	1	121.5 Mhz Homing Device	Included in beacon
109	1	Beacon capability to process and automatically generated RLM Type-1	Capable to process an automatically generated RLM Type-1
110	0	Beacon capability to process a manually generated RLM Type-1 RLM Type-2	Not capable to process a manually generated RLM Type-2
111	0	Beacon Feedback on receipt of RLM Type-1	RLM Type-1 (automatic) not received by this beacon
112	0	Beacon Feedback on receipt of RLM Type-2	RLM Type-2 (manual) not received by this beacon
113-114	01	RLS Provider Identification	GALILEO Return Link Service Provider
115-123	100001111	Latitude offset	Default value
124-132	100001111	Longitude offset	Default value
133-144	101010111110	BCH-2 error correcting code	BCH-2 code in message matches the recalculated BCH-2 from the PDF-2 field

Table F-E.3: Self-test Mode Actions and Indications

No.	Action/Indication	Time-stamp (HH:MM:SS)	Description of action/indication	Duration of action/indication (sec)	Notes
1	Self-Test mode initiation (distinct action)	00:00:00	Hold the 'Test' button in until the red LED starts flashing, then release it	3 Sec	
2	Distinct indication of the Self-test initiation	00:00:04	LED flashes white	1 Sec	
3	Self-test single burst transmission	00:00:05		520mS	Observed on Spectrum Analyser
4	Self-test message default values	00:00:05	Self-test message structure and bit values confirmed correct		Decoded using TUV test system
5	Distinct indication of RF transmission	00:00:05		None	121.5 MHz 406 MHz
6	Distinct indication of the Self-test PASS result	00:00:06	A series of Blue LED flashes (if RLS) or Green LED flashes (if NON RLS)	Up to 10 Sec	Dependent on number of flashes. See manufacturers user manual for description of self-test indications.
7	Distinct indication of the Self-test FAIL result	00:00:06	A series of Magenta (if RLS) or Orange (if non RLS) LED flashes	Up to 10 Sec	Dependent on number of flashes. See manufacturers user manual for description of self-test indications.
8	Distinct indication of Insufficient Battery Energy	00:00:06	A series of Magenta (if RLS) or Orange (if non RLS) LED flashes	Up to 10 Sec	Dependent on number of flashes. See manufacturers user manual for description of self-test indications.
9	Automatic termination of the Self-test mode, irrespectively of the switch position		'Test' button held in	21 seconds	If the 'Test' button is held in, the EUT turns off. The EUT ceases to draw residual current after this. See battery current measurements for details.
10	Duration of the Self-test mode				The potential maximum duration that the manufacturer has declared is 16s but it is dependent on the number of flashes. See manufacturers user manual for description of self-test indications.

GNSS Self-test mode

General

All duration measurements below include activation method time, i.e. they start from test switch press and include any “hold for x seconds” requirement and they end when all visual and audible activity appeared to cease.

All positional accuracy values below were calculated using the Haversine Formula; the Earth’s radius was taken as 6367 km.

Example decodes are shown only for RLS Location Protocol at ambient temperature, however all protocols were measured, decoded, and found to be compliant.

GNSS Self-test Observations

Parameter	Actual	Declared
GNSS Self-test count	N/T	60
GNSS Self-test maximum duration (s) incl. activation method	114	140
Indication of GNSS Self-test activation/completion	A GNSS self-test activation is activated by holding the TEST button in until the red LED stops flashing and becomes steady, then it should be released. If navigation data is detected, the LED will flash green a number of times as described below. If no navigation data is detected, the LED will flash red a number of times as described below. The number of flashes indicates the number of GNSS Self-Tests remaining, up to a maximum of 10 times. The test result will then be repeated after 2 seconds.	
Indication of GNSS Self-test count limit reached	N/T	

Summary: GNSS Self-test with Valid Navigation Input

Protocol	RLS Location Protocol		
Temperature (°C)	-20	+22	+55
Frame sync verification	N/T	011010000	N/T
Format Flag (1 bit)	N/T	1	N/T
Single Radiated burst (ms)	N/T	519.547	N/T
Position data	N/T	P	N/T
Single burst verification	N/T	P	N/T
Actual duration (s) incl. activation method	N/T	54	N/T
Position Input Latitude	N 51° 22' 35”		
Position Input Longitude	W 1° 49' 50”		
Position Output Latitude	N/T	N 51° 22’ 36”	N/T
Position Output Longitude	N/T	W 1° 49’ 52”	N/T
Position Error (m)	N/T	49.3	N/T

Protocol	Standard Location Protocol		
Temperature (°C)	-20	+22	+55
Frame sync verification	N/T	011010000	N/T
Format Flag (1 bit)	N/T	1	N/T
Single Radiated burst (ms)	N/T	519.539	N/T
Position data	N/T	P	N/T
Single burst verification	N/T	P	N/T
Actual duration (s) incl. activation method	N/T	56	N/T
Position Input Latitude	N 51° 22' 35”		
Position Input Longitude	W 1° 49' 50”		
Position Output Latitude	N/T	N 51° 22’ 36”	N/T
Position Output Longitude	N/T	W 1° 49’ 52”	N/T
Position Error (m)	N/T	49.3	N/T

Summary: GNSS Self-test without Valid Navigation Input

Protocol	RLS Location Protocol		
Temperature (°C)	-20	+22	+55
Frame sync verification	N/A	N/A	N/A
Format Flag (1 bit)	N/A	N/A	N/A
Single Radiated burst (ms)	N/A	N/A	N/A
Default Position data	N/A	N/A	N/A
Single burst verification	N/A	N/A	N/A
Actual duration (s) incl. activation method	N/T	114	N/T

Protocol	Standard Location Protocol		
Temperature (°C)	-20	+22	+55
Frame sync verification	N/A	N/A	N/A
Format Flag (1 bit)	N/A	N/A	N/A
Single Radiated burst (ms)	N/A	N/A	N/A
Default Position data	N/A	N/A	N/A
Single burst verification	N/A	N/A	N/A
Actual duration (s) incl. activation method	N/T	114	N/T

Full Hex Messages	
RLS Protocol with Navigation data applied	
Ambient	FFFED08C9DFE7018CCF024AD44F84ECA2A3C
RLS Protocol without Navigation data applied	
Ambient	N/A
Standard Location Protocol with Navigation data applied	
Ambient	FFFED08C9EF9C06333A03ECA66771DA4D4D0
Standard Location Protocol without Navigation data applied	
Ambient	N/A

Decoded Message for RLS Location Protocol at Ambient Temperature

Decoded Beacon Message

Hexadecimal code: **FFFED08C9DFE7018CCF024AD44F84ECA2A3C**

The code consists of 36 hexadecimal characters representing a first generation beacon message with the format flag set to Long including bit and frame synchronization pattern prefix (24 bits) as defined by T.001 Issue 4 - Rev.6.

Unique identifier:
193BFCE031BFDFF

Binary Range	Binary Content	Field Name	Decoded Value
1-15	111111111111111	Bit-synchronization pattern consisting of "1"s shall occupy the first 15-bit positions	True
16-24	011010000	Frame Synchronization Pattern	Test protocol message coded for non-operational use
25	1	Format Flag	Long Message
26	0	Protocol Flag	Location, further information provided in "Protocol Code"
27-36	0011001001	Country code:	Albania - 201
		For associated SAR Points of Contact (SPOC) related to Albania - 201 :	Search Contact list here
37-40	1101	Protocol Code	RLS Location Protocol
41-42	11	Beacon type	RLS Test Location
43-46	1111	Identification type	RLS protocol coded with MMSI last 6 digits
47-66	10011100000001100011	Last 6 digits MMSI	639075
67-75	001100111	Latitude	51.5 Degrees North (51.5)
76-85	1000000100	Longitude	2.0 Degrees West (-2.0)
86-106	10010101101010001001 1	BCH-1 error correcting code	BCH-1 code in message matches the recalculated BCH-1 from the PDF-1 field
107	1	Encoded position source	Encoded position data is provided by an internal navigation device
108	1	121.5 Mhz Homing Device	Included in beacon
109	1	Beacon capability to process and automatically generated RLM Type-1	Capable to process an automatically generated RLM Type-1
110	0	Beacon capability to process a manually generated RLM Type-1 RLM Type-2	Not capable to process a manually generated RLM Type-2
111	0	Beacon Feedback on receipt of RLM Type-1	RLM Type-1 (automatic) not received by this beacon
112	0	Beacon Feedback on receipt of RLM Type-2	RLM Type-2 (manual) not received by this beacon
113-114	01	RLS Provider Identification	GALILEO Return Link Service Provider
115-123	001110110	Latitude offset	7.0 minutes 24.0 seconds (negative)
124-132	010100010	Longitude offset	10.0 minutes 8.0 seconds (negative)
133-144	101000111100	BCH-2 error correcting code	BCH-2 code in message matches the recalculated BCH-2 from the PDF-2 field
		Composite location	51.377 -1.831

Table F-E.4: GNSS Self-test Mode Actions and Indications

No.	Action/Indication	Time-stamp (HH:MM:SS)	Description of action/indication	Duration of action/indication (sec)	Notes
1	GNSS Self-test mode initiation (distinct action)	00:00:00	Hold the 'TEST' button in and when the red LED stops flashing and becomes steady, release the 'TEST' button	7 sec	
2	Distinct indication of the GNSS Self-test initiation	00:00:07	The LED will flash green once and then goes into it's LED sequence	1 sec	
3	GNSS Self-test single burst transmission			520ms (with Nav input)	Observed on spectrum analyser
4	GNSS Self-test message position encoding		GNSS self-test message structure and bit values confirmed correct	1 sec (with Nav input)	Decode using TUV test system
5	Distinct indication of the GNSS Self-test PASS result	00:00:41	The LED flashes green to indicate a pass result and how many GNSS Self-Tests remain	15 sec	406 MHz burst with navigation acknowledgment
6	Distinct indication of the GNSS Self-test FAIL result	00:01:39	The LED flashes red twice and then goes into it's normal LED sequence for a failed result	15 sec	
7	Distinct indication that the manufacturer-declared limited number of GNSS Self-tests is attained				The LED will either flash green or red 13 times depending on whether the GNSS Self-Test was successful.
8	Automatic termination of the Self-test mode, irrespectively of the switch position		'Test' button held in	21 sec	If the 'Test' button is held in, the EUT turns off. The EUT ceases to draw residual current after this. See battery current measurements for details.
9	Duration of the GNSS Self-test mode	00:00:56 (with Nav input) 00:01:54 (without Nav input)			

Summary

The EUT complies with clause A.3.6 of Cospas-Sarsat T.007.

2.8 SATELLITE QUALITATIVE TESTS

2.8.1 Specification

Cospas-Sarsat T.007, Clause A.2.5

2.8.2 Equipment Under Test and Modification State

GlobalFix V6 S/N: TA000007 - Modification State 1

2.8.3 Date of Test

17 March 2022 & 18 April 2022

2.8.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 4.1.

2.8.5 Laboratory Environmental Conditions

Ambient Temperature 11.1 - 13.9°C
Relative Humidity 52.6 - 62.2%

2.8.6 Test Results

Configuration 7

Test Start: 15:54:54
Test End: 08:24:42
15 Hex ID: 193DF380C6FFBFF

Actual location of the test beacon: 50.814305
(Daedalus Airfield, Lee-on-the-Solent, Central) -1.2017598

Satellite ID	Satellite Pass Number	15 Hex ID Provided by LUT	Doppler Latitude	Doppler Longitude	TCA	CTA (deg)	Location Error (km)
114	14034	193DF380C665C05*	50.817	-1.191	2022-03-17 15:48:12	-14.872	0.813
12	67550	193DF380C665C05*	50.815	-1.204	2022-03-17 16:53:08	16.997	0.175
13	49272	193DF380C665C05*	50.819	-1.198	2022-03-17 20:07:50	6.666	0.585
10	86716	193DF380C665C05*	50.817	-1.199	2022-03-17 20:28:34	8.878	0.357
13	49273	193DF380C665C05*	50.816	-1.202	2022-03-17 21:48:02	-8.775	0.189
10	86717	193DF380C665C05*	50.817	-1.204	2022-03-17 22:09:08	-6.381	0.338
114	14040	193DF380C665C05*	50.989	-1.131	2022-03-18 02:18:04	-12.847	20.036
114	14041	193DF380C665C05*	50.815	-1.205	2022-03-18 03:58:31	2.827	0.240
114	14042	193DF380C665C05*	50.8	-1.181	2022-03-18 05:37:32	16.715	2.157
12	67558	193DF380C665C05*	50.814	-1.193	2022-03-18 06:48:48	-15.088	0.616
13	49273	193DF380C665C05*	50.819	-1.2	2022-03-17 21:48:02	-8.776	0.536

Location Errors greater than 5 km are marked in red text.

$$\text{Ratio of Successful Solutions} = \frac{\text{number of Doppler solutions within 5 km with } 1°<\text{CTA}<21°}{\text{number of satellite passes over test duration with } 1°<\text{CTA}<21°}$$

$$= \frac{10}{11}$$

$$= 90.91\%$$

*NOTE: Hex ID is provided with location - the Hex ID with default values is 193DF380C6FFBFF.

Summary

The EUT complies with clause A.2.5 of Cospas-Sarsat T.007.

2.9 NAVIGATION SYSTEM TEST

2.9.1 Specification

Cospas-Sarsat T.007, Clause A.2.7

2.9.2 Equipment Under Test and Modification State

GlobalFix V6 S/N: TA000007 - Modification State 1

2.9.3 Date of Test

31 March 2022 & 06 April 2022

2.9.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 4.1.

2.9.5 Laboratory Environmental Conditions

Ambient Temperature 7.3 – 14.5°C
Relative Humidity 50.6 – 74.5%

2.9.6 Test Results

Position Acquisition Time and Position Accuracy (C/S T.007 A.3.8.2)

Locations:

A.3.8.2.1:	50° 52.1423' N	1° 14.6799' W	①
A.3.8.2.2:	50° 48.8584' N	1° 12.1056' W	①

The appropriate position was applied, the EUT activated and time to first message containing valid position data timed.

Configuration as per C/S T.007	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 metres	Time to Acquire Position (sec)	Location Error in metres
Configuration 7	52.2	22.9	52.4	35.4

Positional accuracy was calculated using the Haversine Formula, The Earth's radius was taken as 6367 km.

① GPS Site Survey – Live Location

Summary

The EUT complies with clause A.2.7 of Cospas-Sarsat T.007.

2.10 BEACON ANTENNA TEST (EIRP RECALCULATION ONLY)

2.10.1 Specification

Cospas-Sarsat T.007, Clause A.2.6

2.10.2 Equipment Under Test and Modification State

GlobalFix V6 S/N: TA000007 - Modification State 2

2.10.3 Date of Test

N/A

2.10.4 Test Equipment Used

N/A

2.10.5 Laboratory Environmental Conditions

N/A

2.10.6 Test Results

Configuration 1

Legend: ~~**Strikeout**~~ **Under-range** **Over-range** Vv-Vh < 10 dB

	Elevation Angle (degrees)									
	10		20		30		40		50	
Azimuth Angle (Degrees)	EIRP dBm	Ant dBi	EIRP dBm	Ant dBi	EIRP dBm	Ant dBi	EIRP dBm	Ant dBi	EIRP dBm	Ant dBi
0	40.08	3.98	41.62	5.52	42.15	6.05	40.64	4.54	34.81	-1.29
30	40.24	4.14	41.71	5.61	42.06	5.96	40.71	4.61	35.12	-0.98
60	40.42	4.32	42.14	6.04	42.04	5.94	40.64	4.54	34.57	-1.53
90	40.70	4.60	42.12	6.02	41.90	5.80	40.41	4.31	34.14	-1.96
120	40.67	4.57	42.12	6.02	42.10	6.00	40.47	4.37	34.14	-1.96
150	40.38	4.28	42.27	6.17	42.05	5.95	40.81	4.71	33.91	-2.19
180	40.33	4.23	42.19	6.09	42.21	6.11	40.91	4.81	33.59	-2.51
210	40.48	4.38	42.07	5.97	41.83	5.73	40.79	4.69	34.20	-1.90
240	40.71	4.61	42.07	5.97	41.83	5.73	40.18	4.08	34.02	-2.08
270	40.68	4.58	42.06	5.96	41.73	5.63	40.05	3.95	34.12	-1.98
300	40.35	4.25	41.81	5.71	41.72	5.62	40.39	4.29	34.59	-1.51
330	40.14	4.04	41.67	5.57	41.94	5.84	40.82	4.72	35.02	-1.08

	Elevation Angle (degrees)									
	10		20		30		40		50	
Azimuth Angle (Degrees)	Vv	Vh	Vv	Vh	Vv	Vh	Vv	Vh	Vv	Vh
0	108.17	81.71	109.29	85.43	109.12	81.29	106.55	75.10	99.00	85.65
30	108.33	80.57	109.38	84.94	109.04	77.00	106.61	79.73	99.36	84.96
60	108.51	78.48	109.82	83.95	109.02	71.72	106.53	84.30	98.86	82.60
90	108.79	79.73	109.79	84.80	108.88	73.57	106.29	85.82	98.43	82.11
120	108.76	75.34	109.79	84.97	109.08	78.33	106.35	85.86	98.46	80.44
150	108.47	74.76	109.95	83.76	109.03	74.03	106.70	83.96	98.21	81.32
180	108.42	74.48	109.86	85.47	109.19	77.12	106.82	79.74	97.83	83.33
210	108.57	73.06	109.74	86.76	108.80	82.39	106.70	78.44	98.36	85.80
240	108.80	76.96	109.73	87.24	108.79	84.74	106.08	79.88	98.10	86.77
270	108.77	78.74	109.72	87.59	108.69	85.70	105.95	81.07	98.14	87.58
300	108.44	80.42	109.46	88.37	108.68	85.25	106.29	79.86	98.70	86.87
330	108.23	76.63	109.33	87.05	108.91	83.01	106.73	79.41	99.19	86.43
Min (Vv-Vh)	26.5		21.1		23.0		20.5		10.6	

$EIRP_{LOSS} = Pt_{ambient} - Pt_{EOL} =$ 36.10 - 35.95* = 0.15 dB

$EIRP_{maxEOL} = Max[EIRP_{max}, (EIRP_{max} - EIRP_{LOSS})] =$ Max[42.27 42.12]= 42.27 dBm

$EIRP_{minEOL} = Min[EIRP_{min}, (EIRP_{min} - EIRP_{LOSS})] =$ Min[33.59 33.44]= 33.44 dBm

Configuration 4

Legend: ~~**Strikeout**~~ **Under-range** **Over-range** Vv-Vh < 10 dB

	Elevation Angle (degrees)									
	10		20		30		40		50	
Azimuth Angle (Degrees)	EIRP dBm	Ant dBi	EIRP dBm	Ant dBi	EIRP dBm	Ant dBi	EIRP dBm	Ant dBi	EIRP dBm	Ant dBi
0	38.91	2.81	40.87	4.77	39.73	3.63	37.41	1.31	33.08	-3.02
90	38.57	2.63	40.82	4.88	39.38	3.28	36.81	0.87	31.94	-4.00
180	38.59	2.49	40.67	4.57	38.72	2.62	35.78	-0.32	~~**28.72**~~	-7.38
270	38.90	2.80	41.02	4.92	39.29	3.19	36.72	0.62	30.84	-5.26

$EIRP_{LOSS} = Pt_{ambient} - Pt_{EOL}$ = 36.10 - 35.95* = 0.15 dB

$EIRP_{maxEOL} = Max[EIRP_{max}, (EIRP_{max} - EIRP_{LOSS})]$ = Max[41.02, 41.03]= 41.03dBm

$EIRP_{minEOL} = Min[EIRP_{min}, (EIRP_{min} - EIRP_{LOSS})]$ = Min[30.84, 30.85]= 30.84dBm

*The raw results and PTeol figure were taken from the original submission (see Document 75953445-01 Issue 05) and a recalculation was performed with the Ptambient measured in this report.

Summary

The EUT complies with clause A.2.6 of Cospas-Sarsat T.007.

SECTION 3

TEST DETAILS

Emergency Beacons Limited Testing of the
ACR Electronics Inc
GlobalFix V6 Class 3

TEST RESULTS TABLE

Parameters to be Measured		Range of Specification	Units	Test Results			Comments
				Tmin	Tamb	Tmax	
				(-20°C)	(+21°C)	(+55°C)	
1. Power Output							**Result: Pass**
Model: GlobalFix V6 Class 3, S/N: TA000014, TUV Ref: TSR19 and Modification State 2							
Transmitter power output	(maximum)	35 - 39	dBm	N/T	36.00	N/T	
	(minimum)			N/T	35.93	N/T	
Power output rise time	(maximum)	< 5	ms	N/T	0.418	N/T	
	(minimum)			N/T	0.414	N/T	
Power output 1ms before burst	(maximum)	< -10	dBm	N/T	-22.90	N/T	
	(minimum)			N/T	-38.62	N/T	
2. Digital Message Coding							**Result: Pass**
Model: GlobalFix V6 Class 3, S/N: TA000014, TUV Ref: TSR19 and Modification State 2							
Bit Sync	1 - 15	15 bits “1”	P / F	N/T	P	N/T	
Frame sync	16 - 24	“000101111”	P / F	N/T	P	N/T	
Format flag	25	1 bit	bit value	N/T	1	N/T	
Protocol flag	26	1 bit	bit value	N/T	0	N/T	
Identification / position data	27 - 85	59 bits	P / F	N/T	P	N/T	
BCH code	86 -106	21 bits	P / F	N/T	P	N/T	
Emerg. Code/nat. use/supplem. Data	107 - 112	6 bits	bit value	N/T	111000	N/T	
Additional data / BCH (if applicable)	112 - 144	32 bits	P / F	N/T	P	N/T	
Position Error (if applicable)		< 5	km	N/T	N/A	N/T	

Parameters to be Measured		Range of Specification	Units	Test Results			Comments
				Tmin	Tamb	Tmax	
				(-20°C)	(+21°C)	(+55°C)	
3. Digital Message Generator							**Result: Pass**
Model: GlobalFix V6 Class 3, S/N: TA000014, TUV Ref: TSR19 and Modification State 2							
Repetition rate, T_R:							
Average T_R		48.5 ≤ T_{Ravg} ≤ 51.5	seconds	N/T	50.123	N/T	
Minimum T_R		47.5 ≤ T_{Rmin} ≤ 48.0	seconds	N/T	47.999	N/T	
Maximum T_R		52.0 ≤ T_{Rmax} ≤ 52.5	seconds	N/T	52.010	N/T	
Standard deviation		0.5 - 2.0	seconds	N/T	1.412	N/T	
Bit rate							
Minimum fb		≥ 399.6	bits/sec	N/T	399.91	N/T	
Maximum fb		≤ 400.4	bits/sec	N/T	400.00	N/T	
Total transmission time							
Short message	(maximum)	435.6 - 444.4	ms	N/A	N/A	N/A	
	(minimum)			N/A	N/A	N/A	
Long message	(maximum)	514.8 - 525.2	ms	N/T	519.555	N/T	
	(minimum)			N/T	519.547	N/T	
Unmodulated carrier							
Minimum T1		≥ 158.4	ms	N/T	160.344	N/T	
Maximum T1		≤ 161.6	ms	N/T	160.359	N/T	
First burst delay		≥ 47.5	seconds	N/T	54	N/T	

Parameters to be Measured		Range of Specification	Units	Test Results			Comments
				Tmin	Tamb	Tmax	
				(-20°C)	(+21°C)	(+55°C)	
4. Modulation							**Result: Pass**
Model: GlobalFix V6 Class 3, S/N: TA000014, TUV Ref: TSR19 and Modification State 2							
Biphase-L		P / F	P / F	N/T	P	N/T	
Rise time	(maximum)	50 - 250	µs	N/T	110.2	N/T	
	(minimum)	50 - 250	µs	N/T	92.1	N/T	
Fall time	(maximum)	50 - 250	µs	N/T	149.7	N/T	
	(minimum)	50 - 250	µs	N/T	128.6	N/T	
Phase deviation: positive	(maximum)	+(1.0 to 1.2)	radians	N/T	1.109	N/T	
	(minimum)	+(1.0 to 1.2)	radians	N/T	1.010	N/T	
Phase deviation: negative	(maximum)	-(1.0 to 1.2)	radians	N/T	-1.171	N/T	
	(minimum)	-(1.0 to 1.2)	radians	N/T	-1.062	N/T	
Symmetry measurement		≤ 0.05		N/T	0.02307	N/T	
5. 406 MHz Transmitted Frequency							**Result: Pass**
Model: GlobalFix V6 Class 3, S/N: TA000014, TUV Ref: TSR19 and Modification State 2							
Nominal Value	(maximum)	C/S T.001	MHz	N/T	406.0310368	N/T	
	(minimum)			N/T	406.0310366	N/T	
Short-term stability	(maximum)	≤ $2x10^{-9}$	/100ms	N/T	5.29E-10	N/T	
	(minimum)			N/T	4.96E-10	N/T	
Medium-term stability – Slope	(maximum)	(-1 to +1)$x10^{-9}$	/minutes	N/T	1.28E-10	N/T	
	(minimum)			N/T	-6.89E-11	N/T	
Medium-term stability – Residual frequency variation	(maximum)	≤ $3x10^{-9}$		N/T	2.70E-10	N/T	
	(minimum)			N/T	1.19E-10	N/T	
6. Spurious Emissions into 50ohms							**Result: Pass**
Model: GlobalFix V6 Class 3, S/N: TA000014, TUV Ref: TSR19 and Modification State 2							
In band (406.0 – 406.1 MHz)		C/S T.001 mask	P / F	N/T	P	N/T	

Parameters to be Measured		Range of Specification	Units	Test Results			Comments
				Tmin	Tamb	Tmax	
				(-20°C)	(+21°C)	(+55°C)	
7. 406 MHz VSWR Check							**Result: Pass**
Model: GlobalFix V6 Class 3, S/N: TA000014, TUV Ref: TSR19 and Modification State 2							
Nominal Value	(maximum)	C/S T.001	MHz	N/T	406.0310377	N/T	
	(minimum)			N/T	406.0310373	N/T	
Modulation rise time	(maximum)	50-250	µs	N/T	110.8	N/T	
	(minimum)	50-250	µs	N/T	91.8	N/T	
Modulation fall time	(maximum)	50-250	µs	N/T	147.5	N/T	
	(minimum)	50-250	µs	N/T	129.1	N/T	
Modulation phase deviation: positive	(maximum)	+ (1.0 to 1.2)	radians	N/T	1.115	N/T	
	(minimum)	+ (1.0 to 1.2)	radians	N/T	1.012	N/T	
Modulation phase deviation: negative	(maximum)	- (1.0 to 1.2)	radians	N/T	-1.172	N/T	
	(minimum)	- (1.0 to 1.2)	radians	N/T	-1.050	N/T	
Modulation symmetry measurement		≤ 0.05		N/T	0.02342	N/T	
Digital Message		correct	P / F	N/T	P	N/T	

Parameters to be Measured	Range of Specification	Units	Test Results			Comments
			Tmin	Tamb	Tmax	
			(-20°C)	(+21°C)	(+55°C)	
8(a). Self-test Mode						**Result: Pass**
Model: GlobalFix V6 Class 3, S/N: TA000014, TUV Ref: TSR19 and Modification State 2						
Frame sync	011010000	P / F	N/T	P	N/T	
Format flag	1 / 0	bit value	N/T	1	N/T	
Single radiated burst	≤440 / 520 (±1%)	ms	N/T	519.547	N/T	
Default position data (if applicable)	correct	P / F	N/T	P	N/T	
Description	provided	Y / N	Y			
Design data on protection against repetitive self-test mode transmissions	provided	Y / N	Y			
Single burst verification	one burst	P / F	N/T	P	N/T	
Provides for 15 Hex ID	correct	P / F	N/T	P	N/T	
121.5 MHz RF power (if applicable)	verify that RF power emitted	P / F	N/T	P	N/T	
406 MHz power	verify that RF power emitted	P / F	N/T	P	N/T	
Distinct indication of Self-Test	provided	Y / N	N/T	Y	N/T	
Distinct indication of RF power being emitted	provided	Y / N	N/T	Y	N/T	
Indication of Self-Test result	provided	Y / N	N/T	Y	N/T	
Distinct indication of insufficient battery capacity	provided	Y / N	N/T			
Maximum duration of Self-Test mode	≤ maximum duration of Self-Test	sec	N/T	16	N/T	Manufacturer Declared Value: 16
Automatic termination of Self-Test mode upon completion of Self-Test and indication of Self-Test results	verify automatic termination, irrespective of the switch position	Y / N	N/T	Y	N/T	

Parameters to be Measured	Range of Specification	Units	Test Results			Comments
			Tmin	Tamb	Tmax	
			(-20°C)	(+21°C)	(+55°C)	
8 (b). GNSS Self-Test Mode (if applicable)						**Result: Pass**
Model: GlobalFix V6 Class 3, S/N: TA000014, TUV Ref: TSR19 and Modification State 2						
Frame sync	011010000	P / F	N/T	P	N/T	
Format flag	1 / 0	bit value	N/T	1	N/T	
Radiated burst duration	≤ 520 (+1%)	ms	N/T	519.516	N/T	
Position data except for ELT (DT) (if applicable)	must be within 500 m (or 5.25 km for User Location Protocol) of the actual position	P / F	N/T	P	N/T	
Position data for ELT(DT)	must be within 200 m of the actual horizontal position and 700 m of the altitude	P / F	N/A	N/A	N/A	
Design data showing how GNSS Self-test is limited in number of transmissions and duration	provided	Y / N		Y		
Single burst verification (if applicable)	one burst	P / F	N/T	P	N/T	
121.5 MHz RF power (if applicable)	verify that RF power is emitted	Y / N	N/T	Y	N/T	
406 MHz power (if applicable)	verify that RF power is emitted	Y / N	N/T	Y	N/T	
Maximum duration of GNSS Self-tests	Manufacturer to specify value	s	N/T	113	N/T	Manufacturer specified value: 140
Actual duration of Self-test with encoded location	Less than maximum duration	s	N/T	57	N/T	
Maximum number of GNSS Self-tests (only beacons with internal navigation devices)	Manufacturer to specify number	Number		60		Manufacturer specified number: 60
Distinct indication to register successful completion or failure of the GNSS self-test	must be provided	Y/N	N/T	Y	N/T	
Distinct indication that a maximum number of GNSS self-tests has been attained after GNSS self-test mode activation and without transmission of a test message or further GNSS receiver current drain	must be provided	Y/N		N/T		
Automatic termination of the GNSS self-test mode upon completion of the GNSS self-test cycle and indication of the results	verify automatic termination of GNSS self-test mode, irrespective of the switch position			Y		

Parameters to be Measured	Range of Specification	Units	Test Results				Comments
14. Satellite Qualitative Tests							**Result: Pass**
Model: GlobalFix V6 Class 3, S/N: TA000007, TUV Ref: TSR4 and Modification State 1 (SLP Protocol)							
Test Configuration	As per C/S T.007		Configuration				
			5	6	7	8	
15 Hex ID Decoded by LUT	correct	P / F	-	-	P	-	
Doppler Location results with error ≤ 5km	≥ 80	%	-	-	100	-	
15. Antenna Characteristics							**Result: Pass**
Model: GlobalFix V6 Class 3, S/N: TA000007, TUV Ref: TSR4 and Modification State 2 (Recalculation)							
Test Configuration	As per C/S T.007		Configuration				
			1	2	3	4	
Polarisation	linear or RHCP		Linear	-	-	Linear	
VSWR	≤ 1.5		N/A	-	-	N/A	Detachable Antennas Only
$EIRP_{LOSS}$		dB	0.05	-	-	0.05	
$EIRP_{maxEOL}$	≤ 43*	dBm	42.17	-	-	40.93	* ≤ 45 for PLB on PFD
$EIRP_{minEOL}$	≥ 32**	dBm	33.44	-	-	30.74	** $EIRP_{minEOL}$ limit decreases to 30 dBm for Configuration 4
17. Navigation System							**Result: Pass**
Model: GlobalFix V6 Class 3, S/N: TA000007, TUV Ref: TSR4 and Modification State 1 (A.3.8.2.1) **Model: GlobalFix V6 Class 3, S/N: TA000007, TUV Ref: TSR4 and Modification State 2 (A.3.8.2.2)**							
Location protocol	C/S T.001		National	Standard	User	RLS	
Configuration 7							
Position accuracy - A.3.8.2.1	C/S T.001	m	-	22.9	-	-	
Position Acquisition Time - A.3.8.2.1	<10/1	min	-	0.88	-	-	
Position accuracy - A.3.8.2.2	C/S T.001	m	-	35.4	-	-	
Position Acquisition Time - A.3.8.2.2	<10/1	min	-	0.90	-	-	

3.1 POWER OUTPUT

3.1.1 Specification

Cospas-Sarsat T.007, Clause A.2.1 (a)

3.1.2 Equipment Under Test and Modification State

GlobalFix V6 Class 3 S/N: TA000014 - Modification State 2

3.1.3 Date of Test

11 May 2022

3.1.4 Test Equipment Used

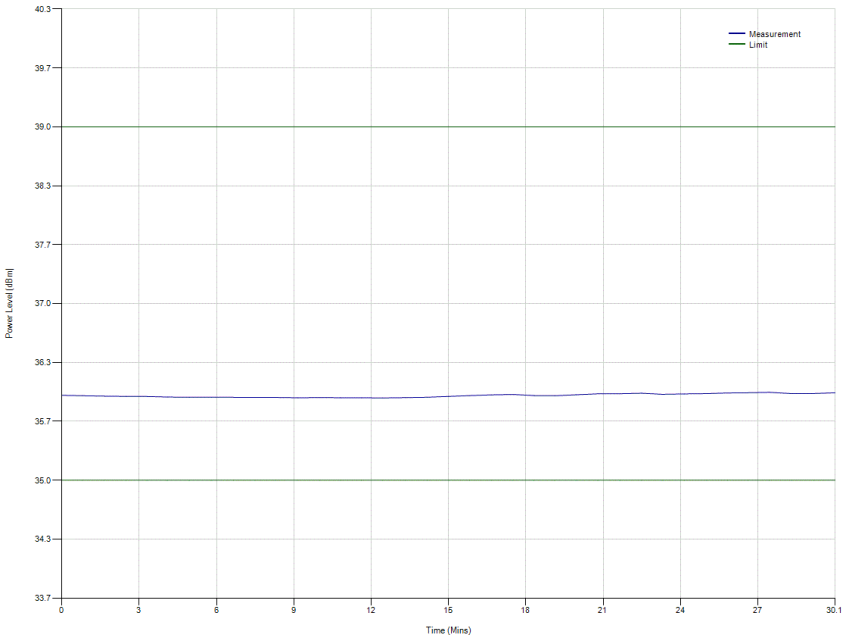
The major items of test equipment used for the above tests are identified in Section 4.1.

3.1.5 Laboratory Environmental Conditions

Ambient Temperature 24.8°C
Relative Humidity 38.3%

3.1.6 Test Results

Ambient Temperature



Summary

The EUT complies with clause A.3.2.3 of Cospas-Sarsat T.007.

3.2 DIGITAL MESSAGE

3.2.1 Specification

Cospas-Sarsat T.007, Clause A.2.1 (b)

3.2.2 Equipment Under Test and Modification State

GlobalFix V6 Class 3 S/N: TA000014 - Modification State 2

3.2.3 Date of Test

11 May 2022

3.2.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 4.1.

3.2.5 Laboratory Environmental Conditions

Ambient Temperature 24.8°C
Relative Humidity 38.3%

3.2.6 Test Results

Test Duration: 30 minutes
No. of bursts: 37

Ambient Temperature

Decoded Beacon Message

Hexadecimal code: **FFFE2F8C9DFE7018DFEFF8129DF861F0FABE**

The code consists of 36 hexadecimal characters representing a first generation beacon message with the format flag set to Long including bit and frame synchronization pattern prefix (24 bits) as defined by T.001 Issue 4 - Rev.6.

Unique identifier:
193BFCE031BFDFF

Binary Range	Binary Content	Field Name	Decoded Value
1-15	111111111111111	Bit-synchronization pattern consisting of "1"s shall occupy the first 15-bit positions	True
16-24	000101111	Frame Synchronization Pattern	Normal beacon operation
25	1	Format Flag	Long Message
26	0	Protocol Flag	Location, further information provided in "Protocol Code"
27-36	0011001001	Country code:	Albania - 201
		For associated SAR Points of Contact (SPOC) related to Albania - 201 :	Search Contact list here
37-40	1101	Protocol Code	RLS Location Protocol
41-42	11	Beacon type	RLS Test Location
43-46	1111	Identification type	RLS protocol coded with MMSI last 6 digits
47-66	10011100000001100011	Last 6 digits MMSI	639075
67-75	011111111	Latitude	Default - no location (Default - no location)
76-85	0111111111	Longitude	Default - no location (Default - no location)
86-106	00000010010100111011	BCH-1 error correcting code	BCH-1 code in message matches the recalculated BCH-1 from the PDF-1 field
107	1	Encoded position source	Encoded position data is provided by an internal navigation device
108	1	121.5 Mhz Homing Device	Included in beacon
109	1	Beacon capability to process and automatically generated RLM Type-1	Capable to process an automatically generated RLM Type-1
110	0	Beacon capability to process a manually generated RLM Type-1 RLM Type-2	Not capable to process a manually generated RLM Type-2
111	0	Beacon Feedback on receipt of RLM Type-1	RLM Type-1 (automatic) not received by this beacon
112	0	Beacon Feedback on receipt of RLM Type-2	RLM Type-2 (manual) not received by this beacon
113-114	01	RLS Provider Identification	GALILEO Return Link Service Provider
115-123	100001111	Latitude offset	Default value
124-132	100001111	Longitude offset	Default value
133-144	101010111110	BCH-2 error correcting code	BCH-2 code in message matches the recalculated BCH-2 from the PDF-2 field

Summary

The EUT complies with clause A.3.1.4 of Cospas-Sarsat T.007.

3.3 MODULATION

3.3.1 Specification

Cospas-Sarsat T.007, Clause A.2.1 (d)

3.3.2 Equipment Under Test and Modification State

GlobalFix V6 Class 3 S/N: TA000014 - Modification State 2

3.3.3 Date of Test

11 May 2022

3.3.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 4.1.

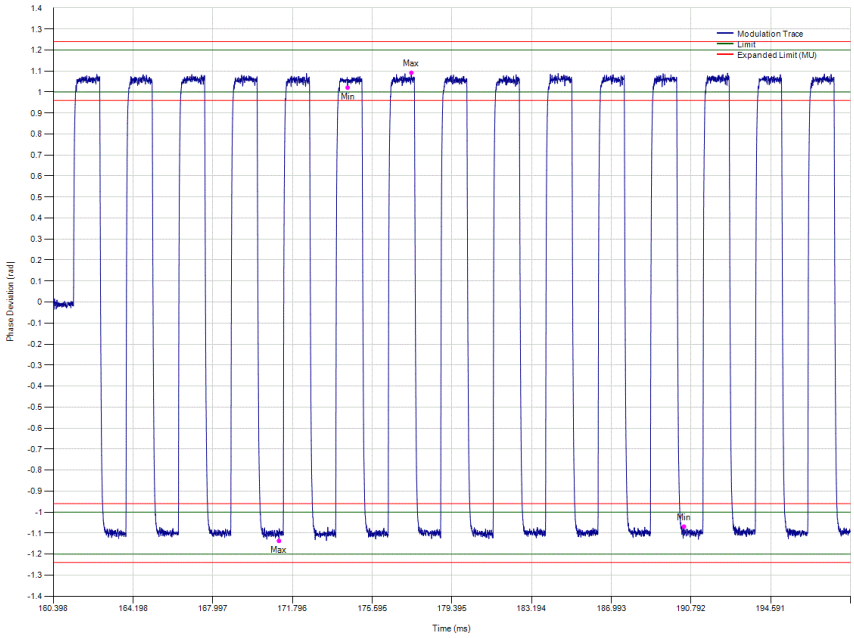
3.3.5 Laboratory Environmental Conditions

Ambient Temperature 24.8°C
Relative Humidity 38.3%

3.3.6 Test Results

Test Duration: 30 minutes
No. of bursts: 37

Ambient Temperature



Summary

The EUT complies with clause A.3.2.4 of Cospas-Sarsat T.007.

3.4 406 MHZ TRANSMITTED FREQUENCY

3.4.1 Specification

Cospas-Sarsat T.007, Clause A.2.1 (e)

3.4.2 Equipment Under Test and Modification State

GlobalFix V6 Class 3 S/N: TA000014 - Modification State 2

3.4.3 Date of Test

11 May 2022

3.4.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 4.1.

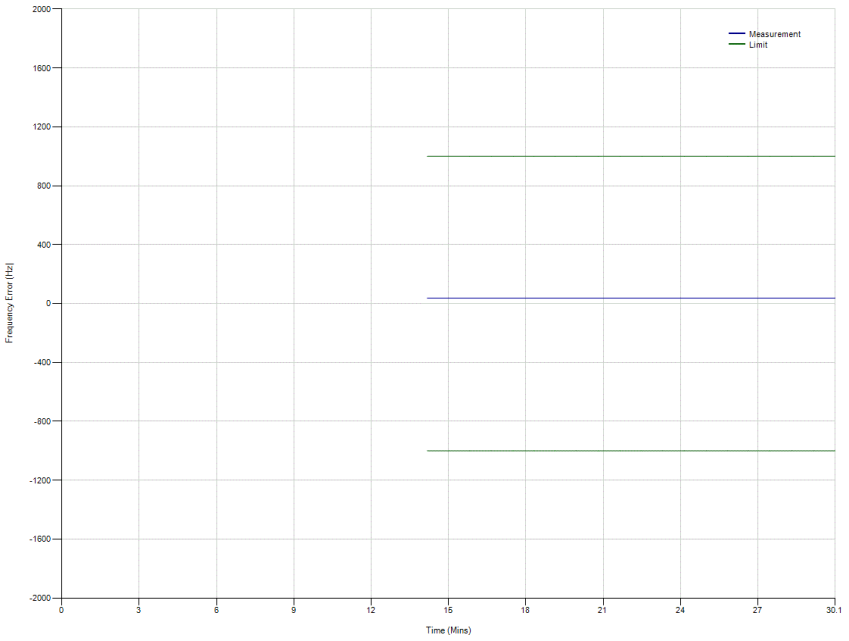
3.4.5 Laboratory Environmental Conditions

Ambient Temperature 24.8°C
Relative Humidity 38.3%

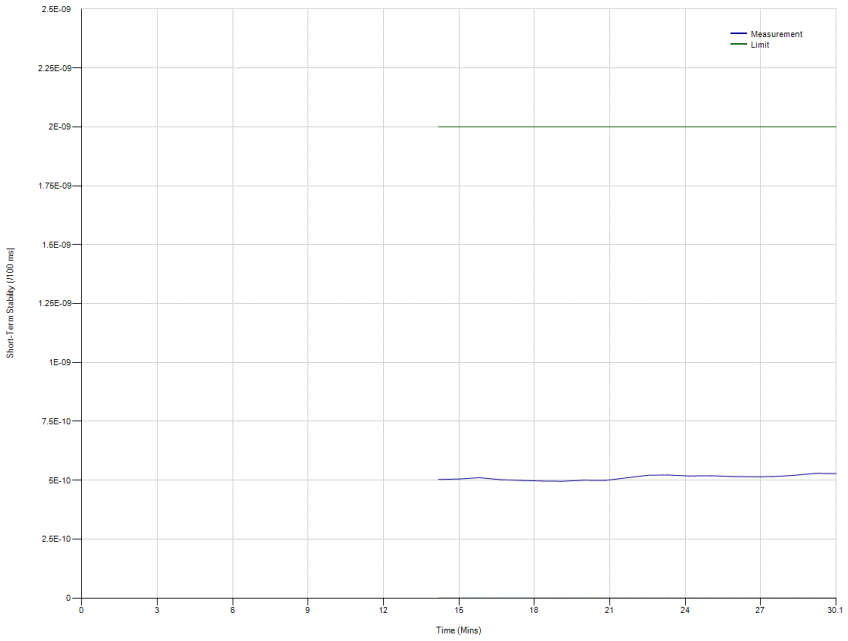
3.4.6 Test Results

Ambient Temperature

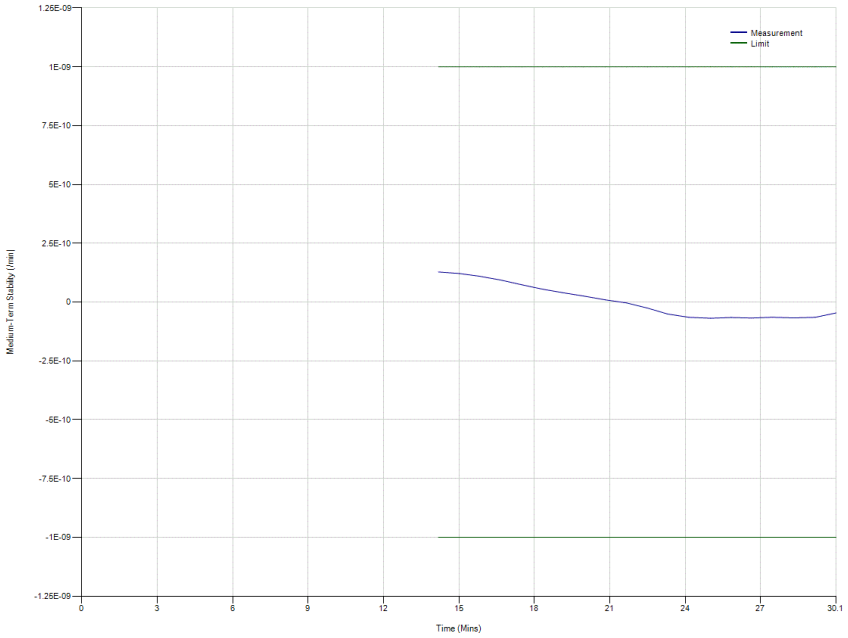
Nominal Frequency



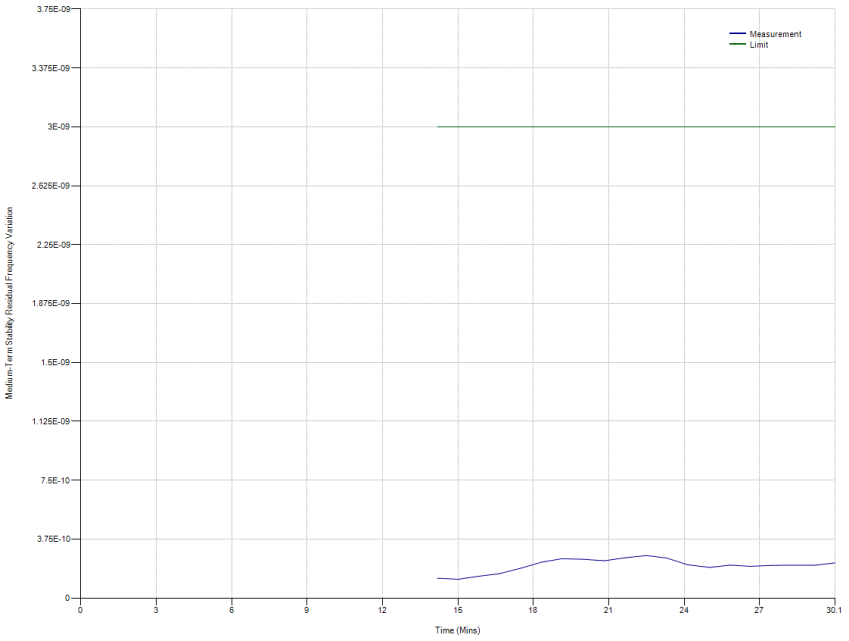
Short Term Stability



Medium Term Stability – Slope



Medium Term Stability – Residual Frequency Variation



Summary

The EUT complies with clause A.3.2.1 of Cospas-Sarsat T.007.

3.5 SPURIOUS EMISSIONS INTO 50 OHMS

3.5.1 Specification

Cospas-Sarsat T.007, Clause A.2.1 (f)

3.5.2 Equipment Under Test and Modification State

GlobalFix V6 Class 3 S/N: TA000014 - Modification State 2

3.5.3 Date of Test

11 May 2022

3.5.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 4.1.

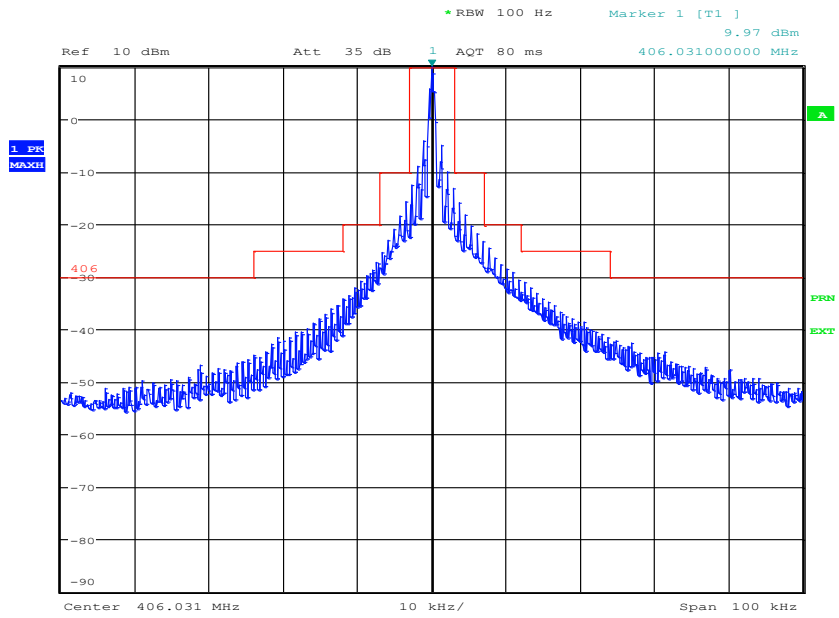
3.5.5 Laboratory Environmental Conditions

Ambient Temperature 24.8°C
Relative Humidity 38.3%

3.5.6 Test Results

Test Duration: 30 minutes
No. of bursts: 37

Ambient Temperature



Summary

The EUT complies with clause A.3.2.3.4 of Cospas-Sarsat T.007.

3.6 406 MHZ VSWR CHECK

3.6.1 Specification

Cospas-Sarsat T.007, Clause A.2.1 (g)

3.6.2 Equipment Under Test and Modification State

GlobalFix V6 Class 3 S/N: TA000014 - Modification State 2

3.6.3 Date of Test

11 May 2022

3.6.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 4.1.

3.6.5 Laboratory Environmental Conditions

Ambient Temperature 24.6°C
Relative Humidity 39.4%

3.6.6 Test Results

Test Duration: 30 minutes
No. of bursts: 37

Ambient Temperature

Burst 1
Decoded Beacon Message

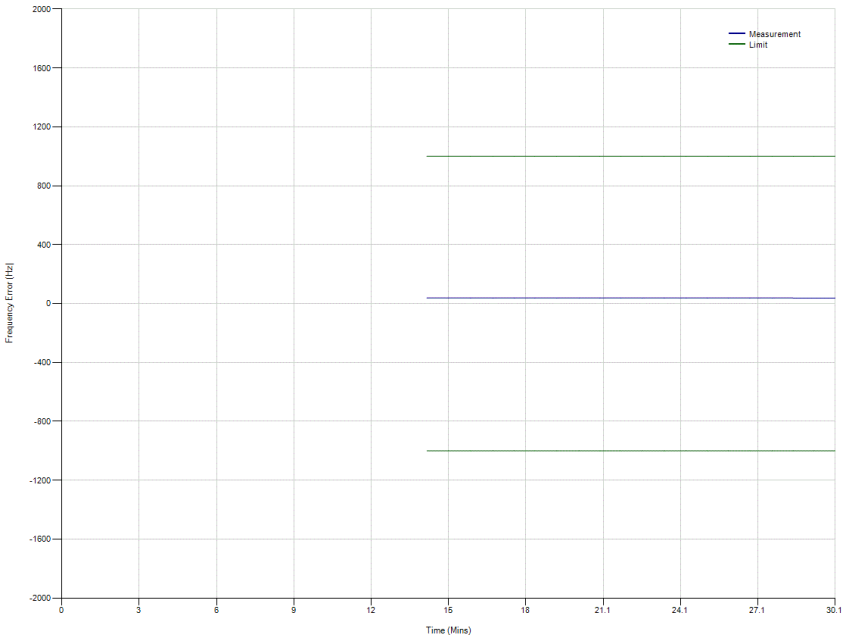
Hexadecimal code: **FFFE2F8C9DFE7018DFEFF8129DF861F0FABE**

The code consists of 36 hexadecimal characters representing a first generation beacon message with the format flag set to Long including bit and frame synchronization pattern prefix (24 bits) as defined by T.001 Issue 4 - Rev.6.

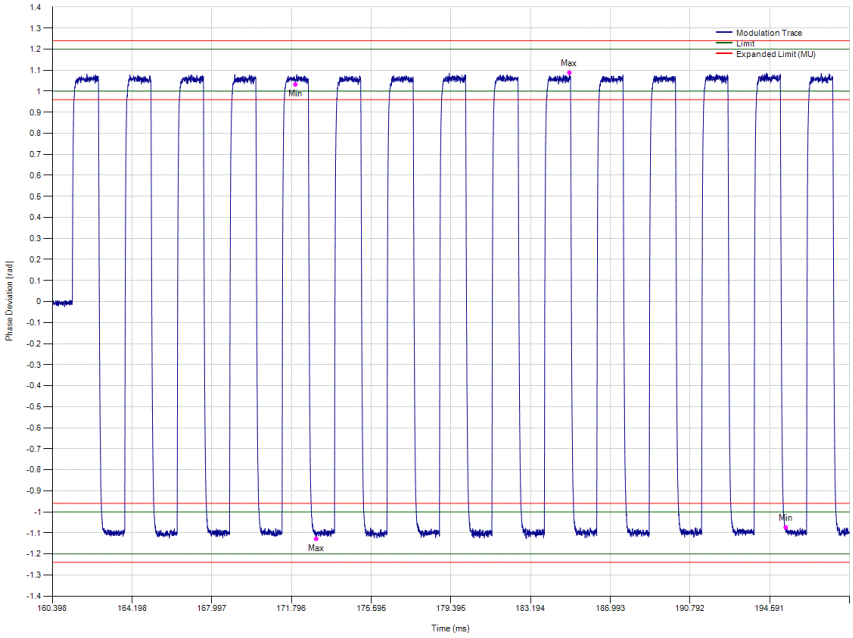
Unique identifier:
193BFCE031BFDFF

Binary Range	Binary Content	Field Name	Decoded Value
1-15	111111111111111	Bit-synchronization pattern consisting of "1"s shall occupy the first 15-bit positions	True
16-24	000101111	Frame Synchronization Pattern	Normal beacon operation
25	1	Format Flag	Long Message
26	0	Protocol Flag	Location, further information provided in "Protocol Code"
27-36	0011001001	Country code:	Albania - 201
		For associated SAR Points of Contact (SPOC) related to Albania - 201 :	Search Contact list here
37-40	1101	Protocol Code	RLS Location Protocol
41-42	11	Beacon type	RLS Test Location
43-46	1111	Identification type	RLS protocol coded with MMSI last 6 digits
47-66	10011100000001100011	Last 6 digits MMSI	639075
67-75	011111111	Latitude	Default - no location (Default - no location)
76-85	0111111111	Longitude	Default - no location (Default - no location)
86-106	00000010010100111011	BCH-1 error correcting code	BCH-1 code in message matches the recalculated BCH-1 from the PDF-1 field
107	1	Encoded position source	Encoded position data is provided by an internal navigation device
108	1	121.5 Mhz Homing Device	Included in beacon
109	1	Beacon capability to process and automatically generated RLM Type-1	Capable to process an automatically generated RLM Type-1
110	0	Beacon capability to process a manually generated RLM Type-1 RLM Type-2	Not capable to process a manually generated RLM Type-2
111	0	Beacon Feedback on receipt of RLM Type-1	RLM Type-1 (automatic) not received by this beacon
112	0	Beacon Feedback on receipt of RLM Type-2	RLM Type-2 (manual) not received by this beacon
113-114	01	RLS Provider Identification	GALILEO Return Link Service Provider
115-123	100001111	Latitude offset	Default value
124-132	100001111	Longitude offset	Default value
133-144	101010111110	BCH-2 error correcting code	BCH-2 code in message matches the recalculated BCH-2 from the PDF-2 field

Frequency Plot



Modulation Plot



Summary

The EUT complies with clause A.3.3 of Cospas-Sarsat T.007.

3.7 SELF-TEST MODES

3.7.1 Specification

Cospas-Sarsat T.007, Clause A.2.1 (h)

3.7.2 Equipment Under Test and Modification State

GlobalFix V6 Class 3 S/N: TA000014 - Modification State 2

3.7.3 Date of Test

11 May 2022

3.7.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 4.1.

3.7.5 Laboratory Environmental Conditions

Ambient Temperature 24.6°C
Relative Humidity 39.4%

3.7.6 Test Results

Note: Self-test at ambient temperature was carried out with navigation data applied. The EUT was activated and allowed to obtain a fix. It was then deactivated and a Self-test was performed to show the EUT encoded default values. This is shown from the decoded message below.

Self-test Mode

Ambient Temperature

Burst 1
Decoded Beacon Message

Hexadecimal code: **FFFE2F8C9DFE7018CCF024AD44F84ECA2A3C**

The code consists of 36 hexadecimal characters representing a first generation beacon message with the format flag set to Long including bit and frame synchronization pattern prefix (24 bits) as defined by T.001 Issue 4 - Rev.6.

Unique identifier:
193BFCE031BFDFF

Binary Range	Binary Content	Field Name	Decoded Value
1-15	111111111111111	Bit-synchronization pattern consisting of "1"s shall occupy the first 15-bit positions	True
16-24	000101111	Frame Synchronization Pattern	Normal beacon operation
25	1	Format Flag	Long Message
26	0	Protocol Flag	Location, further information provided in "Protocol Code"
27-36	0011001001	Country code:	Albania - 201
		For associated SAR Points of Contact (SPOC) related to Albania - 201 :	Search Contact list here
37-40	1101	Protocol Code	RLS Location Protocol
41-42	11	Beacon type	RLS Test Location
43-46	1111	Identification type	RLS protocol coded with MMSI last 6 digits
47-66	10011100000001100011	Last 6 digits MMSI	639075
67-75	001100111	Latitude	51.5 Degrees North (51.5)
76-85	1000000100	Longitude	2.0 Degrees West (-2.0)
86-106	10010101101010001001	BCH-1 error correcting code	BCH-1 code in message matches the recalculated BCH-1 from the PDF-1 field
107	1	Encoded position source	Encoded position data is provided by an internal navigation device
108	1	121.5 Mhz Homing Device	Included in beacon
109	1	Beacon capability to process and automatically generated RLM Type-1	Capable to process an automatically generated RLM Type-1
110	0	Beacon capability to process a manually generated RLM Type-1 RLM Type-2	Not capable to process a manually generated RLM Type-2
111	0	Beacon Feedback on receipt of RLM Type-1	RLM Type-1 (automatic) not received by this beacon
112	0	Beacon Feedback on receipt of RLM Type-2	RLM Type-2 (manual) not received by this beacon
113-114	01	RLS Provider Identification	GALILEO Return Link Service Provider
115-123	001110110	Latitude offset	7.0 minutes 24.0 seconds (negative)
124-132	010100010	Longitude offset	10.0 minutes 8.0 seconds (negative)
133-144	101000111100	BCH-2 error correcting code	BCH-2 code in message matches the recalculated BCH-2 from the PDF-2 field
		Composite location	51.377 -1.831

Burst 3
Decoded Beacon Message

Hexadecimal code: **FFFED08C9DFE7018DFEFF8129DF861F0FABE**

The code consists of 36 hexadecimal characters representing a first generation beacon message with the format flag set to Long including bit and frame synchronization pattern prefix (24 bits) as defined by T.001 Issue 4 - Rev.6.

Unique identifier:
193BFCE031BFDFF

Binary Range	Binary Content	Field Name	Decoded Value
1-15	111111111111111	Bit-synchronization pattern consisting of "1"s shall occupy the first 15-bit positions	True
16-24	011010000	Frame Synchronization Pattern	Test protocol message coded for non-operational use
25	1	Format Flag	Long Message
26	0	Protocol Flag	Location, further information provided in "Protocol Code"
27-36	0011001001	Country code:	Albania - 201
		For associated SAR Points of Contact (SPOC) related to Albania - 201 :	Search Contact list here
37-40	1101	Protocol Code	RLS Location Protocol
41-42	11	Beacon type	RLS Test Location
43-46	1111	Identification type	RLS protocol coded with MMSI last 6 digits
47-66	10011100000001100011	Last 6 digits MMSI	639075
67-75	011111111	Latitude	Default - no location (Default - no location)
76-85	0111111111	Longitude	Default - no location (Default - no location)
86-106	00000010010100111011	BCH-1 error correcting code	BCH-1 code in message matches the recalculated BCH-1 from the PDF-1 field
107	1	Encoded position source	Encoded position data is provided by an internal navigation device
108	1	121.5 Mhz Homing Device	Included in beacon
109	1	Beacon capability to process and automatically generated RLM Type-1	Capable to process an automatically generated RLM Type-1
110	0	Beacon capability to process a manually generated RLM Type-1 RLM Type-2	Not capable to process a manually generated RLM Type-2
111	0	Beacon Feedback on receipt of RLM Type-1	RLM Type-1 (automatic) not received by this beacon
112	0	Beacon Feedback on receipt of RLM Type-2	RLM Type-2 (manual) not received by this beacon
113-114	01	RLS Provider Identification	GALILEO Return Link Service Provider
115-123	100001111	Latitude offset	Default value
124-132	100001111	Longitude offset	Default value
133-144	101010111110	BCH-2 error correcting code	BCH-2 code in message matches the recalculated BCH-2 from the PDF-2 field

Table F-E.3: Self-test Mode Actions and Indications

No.	Action/Indication	Time-stamp (HH:MM:SS)	Description of action/indication	Duration of action/indication (sec)	Notes
1	Self-Test mode initiation (distinct action)	00:00:00	Hold the 'Test' button in until the red LED starts flashing, then release it	3 Sec	
2	Distinct indication of the Self-test initiation	00:00:04	LED flashes white	1 Sec	
3	Self-test single burst transmission	00:00:05		520mS	Observed on Spectrum Analyser
4	Self-test message default values	00:00:05	Self-test message structure and bit values confirmed correct		Decoded using TUV test system
5	Distinct indication of RF transmission	00:00:05		None	121.5 MHz 406 MHz
6	Distinct indication of the Self-test PASS result	00:00:06	A series of Blue LED flashes (if RLS) or Green LED flashes (if NON RLS)	Up to 10 Sec	Dependent on number of flashes. See manufacturers user manual for description of self-test indications.
7	Distinct indication of the Self-test FAIL result	00:00:06	A series of Magenta (if RLS) or Orange (if non RLS) LED flashes	Up to 10 Sec	Dependent on number of flashes. See manufacturers user manual for description of self-test indications.
8	Distinct indication of Insufficient Battery Energy	00:00:06	A series of Magenta (if RLS) or Orange (if non RLS) LED flashes	Up to 10 Sec	Dependent on number of flashes. See manufacturers user manual for description of self-test indications.
9	Automatic termination of the Self-test mode, irrespectively of the switch position		'Test' button held in	21 seconds	If the 'Test' button is held in, the EUT turns off. The EUT ceases to draw residual current after this. See battery current measurements for details.
10	Duration of the Self-test mode				Dependent on number of flashes. See manufacturers user manual for description of self-test indications.

GNSS Self-test mode

General

All duration measurements below include activation method time, i.e. they start from test switch press and include any “hold for x seconds” requirement and they end when all visual and audible activity appeared to cease.

All positional accuracy values below were calculated using the Haversine Formula; the Earth’s radius was taken as 6367 km.

Example decodes are shown only for RLS Location Protocol at ambient temperature, however all protocols were measured, decoded, and found to be compliant.

GNSS Self-test Observations

Parameter	Actual	Declared
GNSS Self-test count	N/T	60
GNSS Self-test maximum duration (s) incl. activation method	114	140
Indication of GNSS Self-test activation/completion	A GNSS self-test activation is activated by holding the TEST button in until the red LED stops flashing and becomes steady, then it should be released. If navigation data is detected, the LED will flash green a number of times as described below. If no navigation data is detected, the LED will flash red a number of times as described below. The number of flashes indicates the number of GNSS Self-Tests remaining, up to a maximum of 10 times. The test result will then be repeated after 2 seconds.	
Indication of GNSS Self-test count limit reached	If there are no tests remaining the LED will either flash green or red 13 times depending on whether the GNSS Self-Test was successful.	

Summary: GNSS Self-test with Valid Navigation Input

Protocol	RLS Location Protocol		
Temperature (°C)	-20	+22	+55
Frame sync verification	N/T	011010000	N/T
Format Flag (1 bit)	N/T	1	N/T
Single Radiated burst (ms)	N/T	519.516	N/T
Position data	N/T	P	N/T
Single burst verification	N/T	P	N/T
Actual duration (s) incl. activation method	N/T	57	N/T
Position Input Latitude	N 51° 22' 35”		
Position Input Longitude	W 1° 49' 50”		
Position Output Latitude	N/T	N 51° 22’ 36”	N/T
Position Output Longitude	N/T	W 1° 49’ 52”	N/T
Position Error (m)	N/T	49.3	N/T

Protocol	Standard Location Protocol		
Temperature (°C)	-20	+22	+55
Frame sync verification	N/T	011010000	N/T
Format Flag (1 bit)	N/T	1	N/T
Single Radiated burst (ms)	N/T	519.508	N/T
Position data	N/T	P	N/T
Single burst verification	N/T	P	N/T
Actual duration (s) incl. activation method	N/T	51	N/T
Position Input Latitude	N 51° 22' 35”		
Position Input Longitude	W 1° 49' 50”		
Position Output Latitude	N/T	N 51° 22’ 36”	N/T
Position Output Longitude	N/T	W 1° 49’ 52”	N/T
Position Error (m)	N/T	49.3	N/T

Summary: GNSS Self-test without Valid Navigation Input

Protocol	RLS Location Protocol		
Temperature (°C)	-20	+22	+55
Frame sync verification	N/A	N/A	N/A
Format Flag (1 bit)	N/A	N/A	N/A
Single Radiated burst (ms)	N/A	N/A	N/A
Default Position data	N/A	N/A	N/A
Single burst verification	N/A	N/A	N/A
Actual duration (s) incl. activation method	N/T	113	N/T

Protocol	Standard Location Protocol		
Temperature (°C)	-20	+22	+55
Frame sync verification	N/A	N/A	N/A
Format Flag (1 bit)	N/A	N/A	N/A
Single Radiated burst (ms)	N/A	N/A	N/A
Default Position data	N/A	N/A	N/A
Single burst verification	N/A	N/A	N/A
Actual duration (s) incl. activation method	N/T	113	N/T

Full Hex Messages	
RLS Protocol with Navigation data applied	
Ambient	FFFED08C9DFE7018CCF024AD44F84ECA2A3C
RLS Protocol without Navigation data applied	
Ambient	N/A
Standard Location Protocol with Navigation data applied	
Ambient	FFFED08C9EF9C06333A03ECA66771DA4D4D0
Standard Location Protocol without Navigation data applied	
Ambient	N/A

Decoded Message for RLS Location Protocol at Ambient Temperature

Decoded Beacon Message

Hexadecimal code: **FFFED08C9DFE7018CCF024AD44F84ECA2A3C**

The code consists of 36 hexadecimal characters representing a first generation beacon message with the format flag set to Long including bit and frame synchronization pattern prefix (24 bits) as defined by T.001 Issue 4 - Rev.6.

Unique identifier:
193BFCE031BFDFF

Binary Range	Binary Content	Field Name	Decoded Value
1-15	111111111111111	Bit-synchronization pattern consisting of "1"s shall occupy the first 15-bit positions	True
16-24	011010000	Frame Synchronization Pattern	Test protocol message coded for non-operational use
25	1	Format Flag	Long Message
26	0	Protocol Flag	Location, further information provided in "Protocol Code"
27-36	0011001001	Country code:	Albania - 201
		For associated SAR Points of Contact (SPOC) related to Albania - 201 :	Search Contact list here
37-40	1101	Protocol Code	RLS Location Protocol
41-42	11	Beacon type	RLS Test Location
43-46	1111	Identification type	RLS protocol coded with MMSI last 6 digits
47-66	10011100000001100011	Last 6 digits MMSI	639075
67-75	001100111	Latitude	51.5 Degrees North (51.5)
76-85	1000000100	Longitude	2.0 Degrees West (-2.0)
86-106	10010101101010001001	BCH-1 error correcting code	BCH-1 code in message matches the recalculated BCH-1 from the PDF-1 field
107	1	Encoded position source	Encoded position data is provided by an internal navigation device
108	1	121.5 Mhz Homing Device	Included in beacon
109	1	Beacon capability to process and automatically generated RLM Type-1	Capable to process an automatically generated RLM Type-1
110	0	Beacon capability to process a manually generated RLM Type-1 RLM Type-2	Not capable to process a manually generated RLM Type-2
111	0	Beacon Feedback on receipt of RLM Type-1	RLM Type-1 (automatic) not received by this beacon
112	0	Beacon Feedback on receipt of RLM Type-2	RLM Type-2 (manual) not received by this beacon
113-114	01	RLS Provider Identification	GALILEO Return Link Service Provider
115-123	001110110	Latitude offset	7.0 minutes 24.0 seconds (negative)
124-132	010100010	Longitude offset	10.0 minutes 8.0 seconds (negative)
133-144	101000111100	BCH-2 error correcting code	BCH-2 code in message matches the recalculated BCH-2 from the PDF-2 field
		Composite location	51.377 -1.831

Table F-E.4: GNSS Self-test Mode Actions and Indications

No.	Action/Indication	Time-stamp (HH:MM:SS)	Description of action/indication	Duration of action/indication (sec)	Notes
1	GNSS Self-test mode initiation (distinct action)	00:00:00	Hold the 'TEST' button in and when the red LED stops flashing and becomes steady, release the 'TEST' button	7 sec	
2	Distinct indication of the GNSS Self-test initiation	00:00:07	The LED will flash green once and then goes into it's LED sequence	1 sec	
3	GNSS Self-test single burst transmission			520ms (with Nav input)	Observed on spectrum analyser
4	GNSS Self-test message position encoding		GNSS self-test message structure and bit values confirmed correct	1 sec (with Nav input)	Decode using TUV test system
5	Distinct indication of the GNSS Self-test PASS result	00:00:42	The LED flashes green to indicate a pass result and how many GNSS Self-Tests remain	15 sec	406 MHz burst with navigation acknowledgment
6	Distinct indication of the GNSS Self-test FAIL result	00:01:39	The LED flashes red twice and then goes into it's normal LED sequence for a failed result	15 sec	
7	Distinct indication that the manufacturer-declared limited number of GNSS Self-tests is attained				The LED will either flash green or red 13 times depending on whether the GNSS Self-Test was successful.
8	Automatic termination of the Self-test mode, irrespectively of the switch position		'Test' button held in	21 sec	If the 'Test' button is held in, the EUT turns off. The EUT ceases to draw residual current after this. See battery current measurements for details.
9	Duration of the GNSS Self-test mode	00:00:57 (with Nav input) 00:01:54 (without Nav input)			

Summary

The EUT complies with clause A.3.6 of Cospas-Sarsat T.007.

3.8 SATELLITE QUALITATIVE TESTS

3.8.1 Specification

Cospas-Sarsat T.007, Clause A.2.5

3.8.2 Equipment Under Test and Modification State

GlobalFix V6 Class 3 S/N: TA000007 - Modification State 1

3.8.3 Date of Test

23 March 2022 & 24 March 2022

3.8.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 4.1.

3.8.5 Laboratory Environmental Conditions

Ambient Temperature 13.0 - 21.4°C
Relative Humidity 23.6 - 49.6%

3.8.6 Test Results

Configuration 7

Test Start: 15:42
Test End: 08:46
15 Hex ID: 193DF380C6FFBFF

Actual location of the test beacon: 50.814305
(Daedalus Airfield, Lee-on-the-Solent, Central) -1.2017598

Satellite ID	Satellite Pass Number	15 Hex ID Provided by LUT	Doppler Latitude	Doppler Longitude	TCA	CTA (deg)	Location Error (km)
12	67635	193DF380C665C05*	50.818	-1.203	2022-03-23 17:22:21	13.373	0.420
12	67636	193DF380C665C05*	50.813	-1.206	2022-03-23 19:02:27	-1.174	0.331
10	86800	193DF380C665C05*	50.816	-1.204	2022-03-23 19:17:34	18.287	0.245
13	49357	193DF380C665C05*	50.817	-1.196	2022-03-23 19:43:49	10.091	0.503
12	67637	193DF380C665C05*	50.826	-1.221	2022-03-23 20:43:59	-17.177	1.874
10	86801	193DF380C665C05*	50.817	-1.201	2022-03-23 20:57:06	4.769	0.304
13	49358	193DF380C665C05*	50.817	-1.201	2022-03-23 21:23:40	-4.957	0.304
10	86802	193DF380C665C05*	50.821	-1.203	2022-03-23 22:38:04	-10.908	0.749
114	14126	193DF380C665C05*	50.816	-1.203	2022-03-24 03:21:09	-2.948	0.208
114	14127	193DF380C665C05*	50.815	-1.205	2022-03-24 05:00:41	11.829	0.240
12	67643	193DF380C665C05*	50.815	-1.194	2022-03-24 07:18:47	-10.47	0.550

Location Errors greater than 5 km are marked in red text.

$$\text{Ratio of Successful Solutions} = \frac{\text{number of Doppler solutions within 5 km with } 1° < \text{CTA} < 21°}{\text{number of satellite passes over test duration with } 1° < \text{CTA} < 21°}$$

$$= \frac{11}{11}$$

$$= 100\%$$

*NOTE: Hex ID is provided with location - the Hex ID with default values is 193DF380C6FFBFF.

Summary

The EUT complies with clause A.2.5 of Cospas-Sarsat T.007.

3.9 NAVIGATION SYSTEM TEST

3.9.1 Specification

Cospas-Sarsat T.007, Clause A.2.7

3.9.2 Equipment Under Test and Modification State

GlobalFix V6 Class 3 S/N: TA000007 - Modification State 1 (A.3.8.2.1)
GlobalFix V6 Class 3 S/N: TA000007 - Modification State 2 (A.3.8.2.2)

3.9.3 Date of Test

01 April 2022 & 19 April 2022

3.9.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 4.1.

3.9.5 Laboratory Environmental Conditions

Ambient Temperature 9.2°C
Relative Humidity 74.3%

3.9.6 Test Results

Position Acquisition Time and Position Accuracy (C/S T.007 A.3.8.2)

Locations:

A.3.8.2.1:	50° 52.1423' N	1° 14.6799' W	①
A.3.8.2.2:	50° 48.8584' N	1° 12.1056' W	①

The appropriate position was applied, the EUT activated and time to first message containing valid position data timed.

Configuration as per C/S T.007	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 metres	Time to Acquire Position (sec)	Location Error in metres
Configuration 7	52.8	22.9	54.2	35.4

Positional accuracy was calculated using the Haversine Formula, The Earth's radius was taken as 6367 km.

① GPS Site Survey – Live Location

Summary

The EUT complies with clause A.2.7 of Cospas-Sarsat T.007.

3.10 BEACON ANTENNA TEST (EIRP RECALCULATION ONLY)

3.10.1 Specification

Cospas-Sarsat T.007, Clause A.2.6

3.10.2 Equipment Under Test and Modification State

GlobalFix V6 Class 3 S/N: TA000007 - Modification State 2

3.10.3 Date of Test

N/A

3.10.4 Test Equipment Used

N/A

3.10.5 Laboratory Environmental Conditions

N/A

3.10.6 Test Results

Configuration 1

Legend: ~~**Strikeout**~~ **Under-range** **Over-range** Vv-Vh < 10 dB

	Elevation Angle (degrees)									
	10		20		30		40		50	
Azimuth Angle (Degrees)	EIRP dBm	Ant dBi	EIRP dBm	Ant dBi	EIRP dBm	Ant dBi	EIRP dBm	Ant dBi	EIRP dBm	Ant dBi
0	39.98	3.98	41.52	5.52	42.05	6.05	40.54	4.54	34.71	-1.29
30	40.14	4.14	41.61	5.61	41.96	5.96	40.61	4.61	35.02	-0.98
60	40.32	4.32	42.04	6.04	41.94	5.94	40.54	4.54	34.47	-1.53
90	40.60	4.60	42.02	6.02	41.80	5.80	40.31	4.31	34.04	-1.96
120	40.57	4.57	42.02	6.02	42.00	6.00	40.37	4.37	34.04	-1.96
150	40.28	4.28	42.17	6.17	41.95	5.95	40.71	4.71	33.81	-2.19
180	40.23	4.23	42.09	6.09	42.11	6.11	40.81	4.81	33.49	-2.51
210	40.38	4.38	41.97	5.97	41.73	5.73	40.69	4.69	34.10	-1.90
240	40.61	4.61	41.97	5.97	41.73	5.73	40.08	4.08	33.92	-2.08
270	40.58	4.58	41.96	5.96	41.63	5.63	39.95	3.95	34.02	-1.98
300	40.25	4.25	41.71	5.71	41.62	5.62	40.29	4.29	34.49	-1.51
330	40.04	4.04	41.57	5.57	41.84	5.84	40.72	4.72	34.92	-1.08

	Elevation Angle (degrees)									
	10		20		30		40		50	
Azimuth Angle (Degrees)	Vv	Vh	Vv	Vh	Vv	Vh	Vv	Vh	Vv	Vh
0	108.07	81.61	109.19	85.33	109.02	81.19	106.45	75.00	98.90	85.55
30	108.23	80.47	109.28	84.84	108.94	76.90	106.51	79.63	99.26	84.86
60	108.41	78.38	109.72	83.85	108.92	71.62	106.43	84.20	98.76	82.50
90	108.69	79.63	109.69	84.70	108.78	73.47	106.19	85.72	98.33	82.01
120	108.66	75.24	109.69	84.87	108.98	78.23	106.25	85.76	98.36	80.34
150	108.37	74.66	109.85	83.66	108.93	73.93	106.60	83.86	98.11	81.22
180	108.32	74.38	109.76	85.37	109.09	77.02	106.72	79.64	97.73	83.23
210	108.47	72.96	109.64	86.66	108.70	82.29	106.60	78.34	98.26	85.70
240	108.70	76.86	109.63	87.14	108.69	84.64	105.98	79.78	98.00	86.67
270	108.67	78.64	109.62	87.49	108.59	85.60	105.85	80.97	98.04	87.48
300	108.34	80.32	109.36	88.27	108.58	85.15	106.19	79.76	98.60	86.77
330	108.13	76.53	109.23	86.95	108.81	82.91	106.63	79.31	99.09	86.33
Min (Vv-Vh)	26.5		21.1		23.0		20.5		10.6	

$EIRP_{LOSS} = Pt_{ambient} - Pt_{EOL} =$ 36.00 - 35.95* = 0.05 dB

$EIRP_{maxEOL} = Max[EIRP_{max}, (EIRP_{max} - EIRP_{LOSS})] =$ Max[42.17 42.12]= 42.17 dBm

$EIRP_{minEOL} = Min[EIRP_{min}, (EIRP_{min} - EIRP_{LOSS})] =$ Min[33.49 33.44]= 33.44 dBm

Configuration 4

Legend: ~~**Strikeout**~~ **Under-range** **Over-range** Vv-Vh < 10 dB

	Elevation Angle (degrees)									
	10		20		30		40		50	
Azimuth Angle (Degrees)	EIRP dBm	Ant dBi	EIRP dBm	Ant dBi	EIRP dBm	Ant dBi	EIRP dBm	Ant dBi	EIRP dBm	Ant dBi
0	38.81	2.81	40.77	4.77	39.63	3.63	37.31	1.31	32.98	-3.02
90	38.57	2.63	40.82	4.88	39.28	3.28	36.81	0.87	31.94	-4.00
180	38.49	2.49	40.57	4.57	38.62	2.62	35.68	-0.32	~~**28.62**~~	-7.38
270	38.80	2.80	40.92	4.92	39.19	3.19	36.62	0.62	30.74	-5.26

$EIRP_{LOSS} = Pt_{ambient} - Pt_{EOL}$ = 36.00 - 35.95* = 0.05 dB

$EIRP_{maxEOL} = Max[EIRP_{max}, (EIRP_{max} - EIRP_{LOSS})]$ = Max[40.92, 40.93]= 40.93dBm

$EIRP_{minEOL} = Min[EIRP_{min}, (EIRP_{min} - EIRP_{LOSS})]$ = Min[30.74, 30.75]= 30.74dBm

*The raw results and PTeol figure were taken from the original submission (see Document 75953445-01 Issue 05) and a recalculation was performed with the Ptambient measured in this report.

Summary

The EUT complies with clause A.2.6 of Cospas-Sarsat T.007.

SECTION 4

TEST EQUIPMENT USED

4.1 TEST EQUIPMENT

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

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Expiry Date
Section 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7 Beacons - Constant Temperature Tests					
Signal Generator	Marconi	2031	53	12	23-Dec-2022
Attenuator (20dB, 10W)	Weinschel	37-20-34	482	12	17-Jan-2023
Spectrum Analyser	Rohde & Schwarz	FSU26	2747	12	11-Mar-2023
Hygromer	Rotronic	I-1000	2891	12	04-Nov-2022
Termination (50ohm, 1W)	Suhner	50ohm 1W	3080	12	04-May-2023
Termination (50ohm, 15W)	Diamond Antenna	DL-30N	3098	12	03-Aug-2022
Attenuator (20dB, 10W)	Aeroflex / Weinschel	23-20-34	3160	12	19-Aug-2022
Short Circuit	TUV SUD	Short Cicuit	3272	-	TU
Rubidium Frequency Standard	Symmetricom	8040C	3490	12	27-May-2022
Power Meter	Rohde & Schwarz	NRP	3491	12	29-Nov-2022
Wideband Power Sensor, 50MHz - 18GHz	Rohde & Schwarz	NRP-Z81	3492	12	29-Nov-2022
Multi-GNSS Simulator (GPS)	Spirent	GSS6700	4596	12	20-Aug-2022
Cable (18 GHz)	Rosenberger	LU7-036-1000	5027	-	O/P Mon
Cable (18 GHz)	Rosenberger	LU7-036-2000	5035	-	O/P Mon
Cable (18 GHz)	Rosenberger	LU7-036-2000	5037	-	O/P Mon
Wideband Power Sensor	Rohde & Schwarz	NRP-Z81	5357	12	18-Jan-2023
Climatic Chamber	Rotronic	DY110C	5448	-	O/P Mon
Digital Timer	Radio Spares	RS Pro	5602	12	26-Aug-2022
RF distribution box	TUV SUD		5626	12	Unknown
Thermocouple Data Logger	Pico Technology Ltd	TC-08 + Type T Thermocouple	5740	12	04-Mar-2023
Signal Analyzer	Keysight Technologies	N9020B-ATO-43105	5743	24	10-Feb-2024
Section 2.8, 3.8 Beacons – Satellite Qualitative					
Copper GRP	TUV SUD	27cm Diameter	3538	-	TU
Tester (Beacon)	WS Technologies	BT200-1100Y	5395	-	TU
Humidity & Temperature meter	Rotronic	HP31 HygroPalm	5902	12	17-Feb-2023
Section 2.9, 3.9 Beacons - Navigation System					
Copper GRP	TUV SUD	27cm Diameter	3538	-	TU
Tester (Beacon)	WS Technologies	BT200-1100Y	5395	-	TU
Desktop Stopwatch	Radio Spares	RS Pro	5571	12	16-Jul-2022
Humidity & Temperature meter	Rotronic	HP31 HygroPalm	5902	12	17-Feb-2023

Note: some tests took place over one or more days and consequently it may appear that some of the test equipment could have been outside of the valid calibration period at the time of testing. However, we confirm that all equipment held a valid and in-date calibration when used, and we hold this information on record.

TU – Traceability Unscheduled
OP MON – Output Monitored with Calibrated Equipment

4.2 MEASUREMENT UNCERTAINTY

Summary of Uncertainty Values

Measured Parameter	C/S Required Uncertainty	Calculated Lab Uncertainty
Repetition Time	± 0.01 seconds	± 0.0006 seconds CL 95%
Total Transmission Time	± 1.0 ms	± 0.062 ms CL 95%
CW Preamble	± 1.0 ms	± 0.062 ms CL 95%
Bit Rate	± 0.6 bps	± 0.0014 bps CL 95%
Nominal frequency	± 100 Hz	± 1.24 Hz CL 95%
Short-Term Stability	± 1 * 10-10	± 0.79 * 10-10 CL 95%
Medium-Term Stability – MS	± 1 * 10-10	± 2.04 * 10-11 CL 95%
Medium-Term Stability – RFV	± 1 * 10-10	± 3.34 * 10-11 CL 95%
Conducted Transmitted Power	± 0.5 dB	± 0.49 dB CL 95%
Carrier Power Rise Time	± 0.5 ms	± 0.051 ms CL 95%
Modulation Rise / Fall Time	± 25 µs	± 4.32 µs CL 95%
Modulation Symmetry	± 0.01	± 0.0014 CL 95%
Modulation Phase Deviation	± 0.04 radians	± 0.0384 radians CL 95%

All uncertainty calculations were carried out in accordance with UKAS M3003.

SECTION 5

PHOTOGRAPHS

5.1 PHOTOGRAPHS OF EQUIPMENT UNDER TEST (EUT)

Satellite Qualitative Test – Configuration 7 GlobalFix V6

Satellite Qualitative Test – Configuration 7 GlobalFix V6 Class 3

Position Acquisition Time and Position Accuracy Test – Configuration 7 – A.3.8.2.1 GlobalFix V6

Position Acquisition Time and Position Accuracy Test – Configuration 7 – A.3.8.2.1 GlobalFix V6 Class 3

Position Acquisition Time and Position Accuracy Test – Configuration 7 – A.3.8.2.2 GlobalFix V6

Position Acquisition Time and Position Accuracy Test – Configuration 7 – A.3.8.2.2 GlobalFix V6 Class 3

SECTION 6

ACCREDITATION, DISCLAIMERS AND COPYRIGHT

6.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

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

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation.

Results of tests not covered by our UKAS Accreditation Schedule are marked NUA (Not UKAS Accredited).

ANNEX A

BATTERY CURRENT COMPARISON MEASUREMENTS

Test measurements have been carried out on the GlobalFix V5 in Modification State 1 with limited repeat measurements made on the GlobalFix V6 in Modification State 2. The table below displays the difference in current drawn between the two models and Modification States:

Operating Mode	Modification State 1 - V5	Modification State 2 - V6	% Difference
	Average Current (mA)	Average Current (mA)	Mod State 2 to 1
D1, Standby	0.00001901	0.00001264	-33.51
D2, On at Main, Average	38.42	36.93	-3.88
B3, On at Main, GNSS Search	43.67	43.32	-0.80
B4, On at Main, GNSS Sleep	35.16	30.24	-13.99
A5, On at Water Contacts, Average	37.03	35.38	-4.46
A6, On at Water Contacts, GNSS Search	41.51	40.46	-2.53
B7, On at Water Contacts, GNSS Sleep	31.36	30.42	-3.00
D8, Self-test	75.03	69.56	-7.29
A9, GNSS Self-Test (Timeout)	26.88	18.29	-31.96
D10, GNSS Self-Test (Burst)	29.8	24.45	-17.95
A11, Self-Test Held	0	0	N/A
D12, NFC Interrogation	0.00001829	0.00001272	-30.45
B13, On at EUT, GNSS fix, waiting RLM acknowledgement	43.75	41.6	-4.91
C14, On at EUT, GNSS fix, RLM acknowledgement received	32.01	31.95	-0.19

Comments:

Measurements conclude that the current drawn on the GlobalFix V6 in Modification State 2 is lower than what was measured on the GlobalFix V5 in Modification State 1. As the current measurements are lower than those of the AIS models, the Operating Lifetime at Minimum Temperature Test is not required as it is considered valid for these models.

Table F-E.1 can be seen below showing the operating mode and system configuration that would have been used for this comparison measurement testing.

System Configurations and Operating Modes

System Configuration/Operating Mode Matrix (SCOMM):

System Configuration → / Operational Mode ↓	A, Non RLS No Ancillaries	B, RLS No Ancillaries	C, RLS in Free Float Case	D, RLS in Manual Bracket
1, Standby	A1	B1	C1	D1
2, ON at EUT Average	A2	B2	C2	D2
3, ON at EUT (GNSS Search)	A3	B3	C3	D3
4, ON at EUT (GNSS Sleep)	A4	B4	C4	D4
5, ON at EUT Water Contacts Average	A5	B5	N/A	N/A
6, ON at EUT Water Contacts (GNSS Search)	A6	B6	N/A	N/A
7, ON at EUT Water Contacts (GNSS Sleep)	A7	B7	N/A	N/A
8, Self-Test	A8	B8	C8	D8
9, GNSS Self-Test (Timeout)	A9	B9	C9	D9
10, GNSS Self-Test (Burst)	A10	B10	C10	D10
11, Self-Test Held	A11	B11	C11	D11
12, NFC Interrogation	A12	B12	C12	D12
13, ON at EUT (GNSS fix, waiting RLM acknowledgement)	N/A	B13	C13	D13
14, ON at EUT (GNSS fix, RLM acknowledgement received)	N/A	B14	C14	D14