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Report On

Emergency Beacons Limited Testing of the
Safran Electronics & Defense ULTIMA-DT-07 Beacon
In accordance with Cospas-Sarsat T.007



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REPORT ON

Emergency Beacons Limited Testing of the
Safran Electronics & Defense ULTIMA-DT-07 Beacon

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CONTENTS

Section	Page No
1	REPORT SUMMARY 3
1.1	Introduction 4
1.2	Application Form 5
1.3	Product Information 15
1.4	Test Locations 20
1.5	Modifications 20
1.6	Report Modification Record 20
2	TEST DETAILS 21
2.1	Power Output 29
2.2	Digital Message 31
2.3	Modulation 33
2.4	406 MHz Transmitted Frequency 35
2.5	Spurious Emissions into 50 Ohms 38
2.6	406 MHz VSWR Check 40
2.7	satellite qualitative test 43
3	TEST EQUIPMENT USED 52
3.1	Test Equipment 53
3.2	Measurement Uncertainty 55
4	PHOTOGRAPHS 56
4.1	Photographs of Equipment Under Test (EUT) 57
5	ACCREDITATION, DISCLAIMERS AND COPYRIGHT 61
5.1	Accreditation, Disclaimers and Copyright 62
6	Annex A – Battery Current Comparison 63
ANNEX A	Battery Current Comparison A.2



SECTION 1

REPORT SUMMARY

Emergency Beacons Limited Testing of the
Safran Electronics & Defense ULTIMA-DT-07 Beacon



1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Safran Electronics & Defense ULTIMA-DT-07 Beacon to the limited requirements of Cospas-Sarsat T.007.

The scope of testing was defined between C/S and the Manufacturer.

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.
Manufacturer	Safran Electronics & Defense Beacon
Model Number(s)	ULTIMA-DT-07
Serial Number(s)	KA0040651003 (0075959976-TSR001)
Number of Samples Tested	1
Test Specification/Issue/Date	Cospas-Sarsat T.007 Issue 5 Rev 10 October 2023
Incoming Release Date	Application Form 01 December 2023
Date of Receipt of Test Samples	11 December 2023
Order Number Date	Po. 58802 & QAF 31 November 2023
Start of Test	21 December 2023
Finish of Test	28 December 2023
Name of Engineer(s)	J Cumming
Related Documents	Cospas-Sarsat T.001 Issue 4 Revision 11 October 2023 Cospas-Sarsat T.IP (TCXO) Issue 1 Revision 5 October 2013



1.2 APPLICATION FORM

G.1 - Beacon Manufacturer and Beacon Model	
Beacon Manufacturer	SAFRAN Electronics & Defense Beacons SAS
Beacon Manufacturer's Address	ZI des 5 chemins 56520 GUIDEL
Beacon Model Name	KANNAD ULTIMA-DT-07
Additional Beacon Model Names	

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	
EPIRB Non-Float Free (automatic and manual activation)	Floating in water or on deck or in a safety raft	
EPIRB Non-Float Free (manual activation only)	Floating in water or on deck or in a safety raft	
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	X ELT(DT) Specifically Designed to Withstand a Crash Impact (T.001 Section 4.5.10)
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)		

* Applicable only to PLBs with integral antennas operated while attached to personal floatation 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 = -40 °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 -40°C	
Manufacturer-declared Minimum Operating Lifetime* * this value is specified by National Administrations or International Organisations	Yes for 406MHz	24 hours, or
	Yes for 121,5MHz	48 hours, or
	N/A	168 hours, or
	N/A	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):	DC
	Nominal Voltage (V):	28V
	Nominal Minimum Voltage (V):	17V
	Nominal Maximum Voltage (V):	32,5V
Is external power supply needed to energise the beacon or its ancillary devices in any of operational modes (N/A or Yes or No)	ARINC interface only GNSS before beacon activation Self-test / GNSS Self-test Not used for distress signal	
Battery cell chemistry	Lithium Manganese Dioxide	
Battery cell model name, cell size, number of cells in a battery pack, and details of the battery pack electrical configuration	Cell Model Name:	LM 17500
	Cell Size:	A size
	Number of Cells in Battery Pack:	8
	Details of the battery pack electrical configuration:	2 parallel of 4 in series
Battery cell manufacturer	SAFT	
Battery pack manufacturer and part number	Battery Pack Manufacturer Name:	SAFRAN Electronics & Defense Beacons SAS
	Battery Pack Part Number:	S1865514-01



Beacon manufacturers declared maximum allowed cell shelf-life (from date of cell manufacture to date of battery pack installation in the beacon)	4	years
Declared beacon battery replacement period (from date of installation in the beacon to expiry date marked on the beacon)	5	years
Oscillator type (e.g. OCXO, MCXO, TCXO)	TCXO	
Oscillator manufacturer	RAKON	
Oscillator model name/ part number	Model Name:	E7913LF
	Part Number:	E7913LF
Oscillator satisfies long-term frequency stability requirements (Yes or No)	Yes	
Antenna type: Integral or Other (e.g. External, Detachable – specify type)	External: tri-frequency antenna (406 MHz / 121.5MHz / GNSS)	
Antenna manufacturer	DAYTON GRANGER	
Antenna part name and part number (OEM, if applicable, and beacon manufacturer's)	OEM Model Name:	ELT10-903
	OEM Part Number:	ELT10-903
	Beacon Manufacturer's Model Name:	N/A
	Beacon Manufacturer's Part Number:	N/A
Antenna cable assembly min/max RF- losses at 406 MHz, if applicable	Minimum loss (dB):	0dB
	Maximum loss (dB):	1,8dB
Navigation device type (Internal, External or None)	Internal and External	
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)	In flight: GNSS permanently powered ON, permanent acquisition from GNSS and position encoded 2 seconds prior to every 406MHz burst Post-Crash: GNSS ON during 30 minutes, then 90sec every 15 min until 24h from beacon activation have passed	minutes
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)	No When beacon is turned in a ARM mode, the GNSS receiver cold start is forced. GNSS receiver remains ON and powered by the 28V aircraft power supply until the beacon is activated. Once distress is activated, the GNSS receiver cold start is not forced as beacon is an ELT-DT After Post-Crash, the GNSS cold start is not performed.	
Navigation device manufacturer	UBLOX	
Navigation device model name and part Number	Model Name:	NEO-M8N
	Part Number:	NEO-M8N
Internal navigation device antenna type(integrated, internal, external, passive/active) , manufacturer and model	External, passive	
GNSS system supported (e.g. GPS, GLONASS, Galileo)	GPS, Galileo	
For External Navigation Devices		
Data protocol for GNSS receiver to beacon interface	ARINC429 labels latitude/longitude 310/311, altitude 203, UTC :125/150	
Physical interface for beacon to navigation device	ARINC429 twisted pair	
Electrical interface for beacon to navigation device	Bipolar Return to Zero	
Part number of the external navigation interface device (if applicable)	From Aircraft	
Navigation device model and manufacturer (if beacon designed to use specific devices)	From Aircraft	
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 (if 28V presence ok)	Yes (if 28V presence ok)
Results of self-test / GNSS self-test are indicated by (provide details, e.g. Pass / Fail indicator light, strobe light, etc.)	Pass / Fail indicator light	Pass / Fail indicator light
The content of the encoded position data fields of the self-test message has default values	Yes	N/A
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, 121.5 MHz (if 28V presence ok)	No
Self-test can be activated directly at beacon (Yes or No)	Yes	Yes
List of Items checked by self-test	Battery Status RF Power External antenna presence CS identification code healthiness 28VDC presence ARINC429 Trigger-in-Flight ARINC429 lat/long GNSS interface	GNSS self-test limit number reached 28VDC presence GNSS failure
Self-test/ GNSS self-test 406 MHz burst duration (440 or 520 ms)	520 ms	520 ms
Self-test message length format flag in bit 25, ("0" or "1")	"1"	"1"
Maximum duration of a self-test mode, sec	32 seconds	190 seconds
Maximum recommended number of self-tests / GNSS self-tests during battery pack replacement period (as applicable)	One per month 60 (5 years*12months) over battery replacement period	60 over battery replacement period
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	Yes
Self-test / GNSS self-test can be activated from beacon remote activation points (Yes & details or No)	Yes, activable from a Cockpit RCP switching test Manual EBIT (only performed with on 28V presence) : By short switching test button (< 5sec) Self-test : button >5sec & <10sec	Yes, activable from a Cockpit RCP switching test button >10sec
List all methods of Self-test mode and GNSS Self-test modes activation. Provide details on a separate sheet to describe	EBIT (executed on 28V power supply) : Manually by switching TEST button on RCP or beacon front panel less than 5sec Automatically with presence of 28V, after turning the beacon in ARM mode, the EBIT will start after 60 sec and run for 10 seconds SELF-TEST : Manually by switching TEST button on RCP or beacon front panel between > 5sec and < 10sec	GNSS SELF-TEST : Manually by switching TEST button on RCP or beacon front panel between > 10 sec
Repetitive Automated Interrogation of a Beacons Status (Yes & details per section 5.1, item (y), or No)	Yes	EBIT test
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	
	EPIRB with Serial Number	
	ELT with 24-bit Address	
	ELT with Aircraft Operator Designator	



National Location Protocol	ELT with Serial Number	
	PLB with Serial Number	
	National Location: EPIRB	
	National Location: ELT	
ELT(DT) Location Protocol	National Location: PLB	
	ELT with Serial Number	X
	ELT with Aircraft Operator and Serial Number	X
	ELT with Aircraft 24-bit Address	X
	ELT with Serial Number and 3LD in PDF-2	X
RLS Location Protocol (TAC or NRN and Serial Number)	ELT with Aircraft 24-bit Address and 3LD in PDF-2	X
	EPIRB	
	ELT	
RLS Location Protocol (MMSI)	PLB	
	EPIRB	
User Location Protocol	PLB	
	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)
	121.5 MHz	19 dBm minimum
	243.0 MHz	-
	AIS	-
	Other (MHz)	
	N/A	N/A
	Description:	N/A

homer transmitter(s) duty cycle	37	%
duty cycle of homer swept tone	37	%
Beacon includes a high intensity flashing light (e.g. Strobe)	No	
- light intensity	N/A	cd
- flash rate	N/A	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)	No, ELT(DT) repetition period is compliant with §2.2.1 of C/S T001 for ELT(DT)	
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.	Remote Control Panel RC820 P/N S1820513-29 Remote Control Panel RC825 P/N S1820513-30 Buzzer P/N S1820515-16 AIM Dongle P/N S1820514-15	
Beacon includes automatic activation mechanism (Yes or No). Specify type of automatic beacon activation mechanism	Yes / No :	Yes
	Description:	> By an automatic trigger event processed by aircraft avionics and transmitted on ARINC429 label 202 > loss of ARINC labels > loss of 28V > Crash sensor
Beacon includes a voice-transceiver (Yes or No), and if Yes specify: Voice transmitter nominal output power Voice transmitter operating frequencies - provides prevention against continuous operation of voice transmitter (Yes or No), and if Yes specify: - maximum continuous voice-transmission operation ("time-out timer") - maximum cumulative transmit-mode on-time ("On time")	Yes / No :	No
	If Yes, specify: (dBm)	N/A
	If Yes, specify: (MHz)	N/A
	Yes / No :	N/A
	"Time-out timer" (minutes):	N/A
	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	No	
	Description:	
Beacon model hardware part number (P/N) and version	S1865501-07 A	



Beacon model firmware P/N, version, date of issue/releases	YLS1820 C	
Beacon model software P/N, version, date of issue/releases	N/A	
Beacon model printed circuit board P/N and version	S1865601-07 A	
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:	Erwan THOMAS - Certification and Hardware Engineer	
Phone:	+33 (0)2 91 02 49 83	
E-mail:	erwan.thomas@beacons.safrangroup.com	



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: 01 December 2023

Applicable C/S Standards:

Document	Issue	Revision	Date
C/S T.001	4	11	October 2023
C/S T.007	5	10	October 2023
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:

None.

Deviations:

None.

Notes:

None.

Signed:

Name:

Martin Hardy

Position Held:

Authorised Signatory

Date:

24 April 2024

1.3 PRODUCT INFORMATION

1.3.1 Technical Description

The Equipment Under Test (EUT) was a Safran Electronics & Defense ULTIMA-DT-07 Beacon as shown in the photograph below. A full technical description can be found in the manufacturer's documentation.



Figure 1 - Equipment Under Test

1.3.2 Physical Test Configuration

The Equipment Under Test (EUT) was operated using its own power source (internal battery). No other power source is required to operate the EUT. For conducted tests, the EUT was configured so that the antenna port was connected to the 50 Ω test system using a coaxial cable. For radiated tests, the EUT was fitted with its proper antenna via a 3-meter coaxial cable.

To ensure ancillaries were active during tests, external navigation data was provided via the ARINC interface. However, no live navigation data was provided. Photographs below:



Figure 2 – Test Configuration

System Configurations

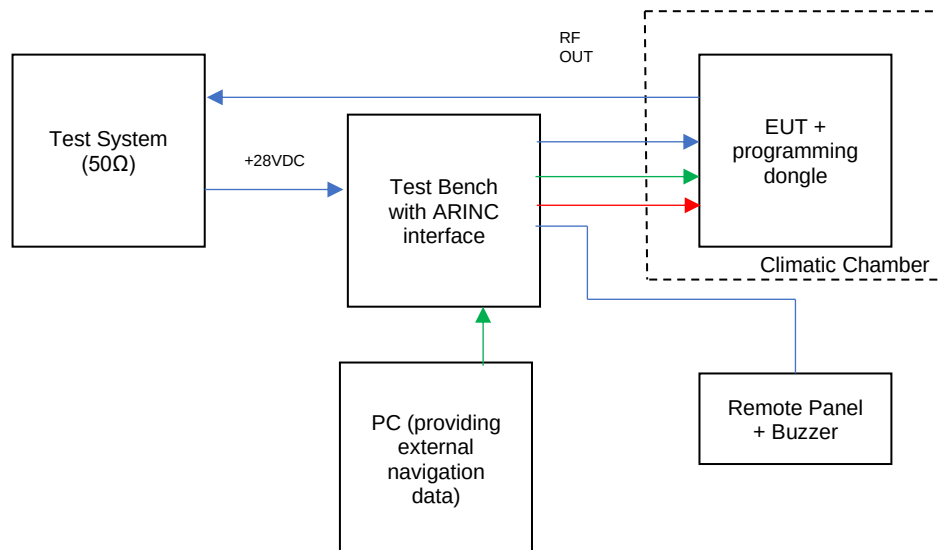
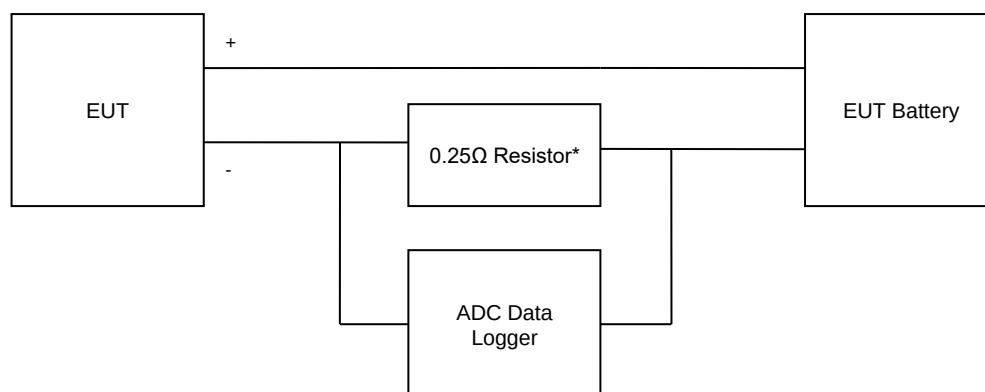


Figure 3 - Conducted Laboratory Tests

Battery Current Measurements



Note: The resistor in series with negative line of battery

* Removed for Standby mode measurements

For other Navigation, Satellite and Antenna test configurations, see photographs in section 4 of this report.



Further Information

All tests were carried out with all ancillaries connected and by activating the EUT via the EUT's Switch unless otherwise stated.

At the beginning of each test, the EUT is in armed mode for 100 seconds and measurements commence immediately after the EUT is activated.

Power Alignment

Only one conducted test sample was submitted by the manufacturer, therefore the power alignment measurement is not applicable.



1.3.3 Modes of Operation

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

Activation by Crash Sensor

- Activation by triggering the crash sensor.
- Homing signal active.
- External Navigation Input active
- GNSS receiver active

Operating (Active)

- Remote switch to "ON" position
- External Navigation Input active
- GNSS receiver active



1.4 TEST LOCATIONS

All tests: Octagon House Laboratory, Fareham, Hampshire, UK

1.5 MODIFICATIONS

Modification 0 - No modifications were made to the test sample during testing.

1.6 REPORT MODIFICATION RECORD

Issue 1 – First Issue.

Issue 2 – Update comments regarding Satellite Qualitative tests.

Issue 3 – Addition of Satellite Qualitative results to Summary Table.



SECTION 2

TEST DETAILS

Emergency Beacons Limited Testing of the
Safran Electronics & Defense ULTIMA-DT-07 Beacon



TEST RESULTS TABLE

Parameters to be Measured	Range of Specification	Units	Test Results			Comments	
			Tmin	Tamb	Tmax		
			(-40°C)	(+21°C)	(+55°C)		
1. Power Output						Result: Pass	
Model: DT-07, S/N: KA0040651003 (0075959976-TSR001), Modification State 0, (ELT(DT) Location Protocol with 3LD)							
Transmitter power output	(maximum)	36 - 39	dBm	N/T	38.02	N/T	
	(minimum)			N/T	37.99	N/T	
Power output rise time	(maximum)	< 2	ms	N/T	0.098	N/T	
	(minimum)			N/T	0.096	N/T	
Power output 1ms before burst	(maximum)	< -10	dBm	N/T	-32.11	N/T	
	(minimum)			N/T	-48.51	N/T	
2. Digital Message Coding						Result: Pass	
Model: DT-07, S/N: KA0040651003 (0075959976-TSR001), Modification State 0, (ELT(DT) Location Protocol with 3LD)							
Bit Sync	1 - 15	15 bits “1”	P / F	N/T	P	N/T	3LD Protocol.
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	010101	N/T	Manufacturer provided position data to be applied to EUT during testing.
Additional data / BCH (if applicable)	112 - 144	32 bits	P / F	N/T	P	N/T	
Position Error (if applicable)		< 5	km	N/T	0.0	N/T	



Parameters to be Measured	Range of Specification	Units	Test Results			Comments
			Tmin	Tamb	Tmax	
			(-40°C)	(+21°C)	(+55°C)	
3c. Digital Message Generator (for ELT(DT) specifically designed to withstand crash)						Result: Non-compliance
Model: DT-07, S/N: KA0040651003 (0075959976-TSR001), TSR and Modification State 0, (ELT(DT) Location Protocol with 3LD), (ELT(DT) Location Protocol with 3LD)						
Repetition period TR (burst 1 to burst 24 after beacon activation by crash sensor)						1 st Test of repetition rate. Failures are presented in red text. See note below.
Minimum TR	4.8 ≤ TR ≤ 5.0	seconds	N/T	4.899	N/T	
Maximum TR	4.8 ≤ TR ≤ 5.0	seconds	N/T	4.902	N/T	
Repetition period TR (burst 24 to burst 42 after beacon activation by crash sensor)						Note: Repetitive testing is allowed as per A.3.1.1.8 Repetition Period – Repetitive testing.
Minimum TR	9.8 ≤ TR ≤ 10.0	seconds	N/T	9.900	N/T	
Maximum TR	9.8 ≤ TR ≤ 10.0	seconds	N/T	9.902	N/T	
Repetition rate TR, (after burst 42 to burst 95 after beacon activation by crash sensor):						
Minimum TR	27.0 ≤ TR ≤ 27.2	seconds	N/T	27.101	N/T	
Maximum TR	29.8 ≤ TR ≤ 30.0	seconds	N/T	29.902	N/T	
Standard Deviation	>0.8	seconds	N/T	0.862	N/T	
Repetition rate TR, (greater than 30 minutes after beacon activation by crash sensor):						
Minimum TR	115.0 ≤ TR ≤ 115.2	seconds	N/T	115.100	N/T	
Maximum TR	124.8 ≤ TR ≤ 125.0	seconds	N/T	124.323	N/T	
Standard Deviation	>2.5	seconds	N/T	2.824	N/T	
(Additionally, for ELT(DT)s with a rotating PDF-2 field)						
Repetition rate of 3LD bursts (between bursts 1 and 24)						
Minimum TR	19.2 ≤ TR ≤ 20.0	Seconds	N/T	19.604	N/T	
Maximum TR	19.2 ≤ TR ≤ 20.0	Seconds	N/T	19.605	N/T	
Repetition rate of 3LD bursts (between bursts 25 and 45)						
Minimum TR	58.3 ≤ TR ≤ 60.5	seconds	N/T	59.409	N/T	No 3LD messages transmitted after burst 95 in post-crash mode. The results presented are the repetition rate of the one recorded 3LD message in this time frame.
Maximum TR						



Parameters to be Measured	Range of Specification	Units	Test Results			Comments
			Tmin	Tamb	Tmax	
			(-40°C)	(+21°C)	(+55°C)	
3c. Digital Message Generator (for ELT(DT) specifically designed to withstand crash)						Result: Non-compliance
Model: ELT-5000, S/N: 3093, TUV Ref: TSR44 and Modification State 0, (ELT(DT) Location Protocol with 3LD), (ELT(DT) Location Protocol with 3LD)						
Repetition period TR (burst 1 to burst 24 after beacon activation by crash sensor)						2 nd Test of repetition rate. Failures are presented in red text. See note below.
Minimum TR	4.8 ≤ TR ≤ 5.0	seconds	N/T	4.900	N/T	
Maximum TR	4.8 ≤ TR ≤ 5.0	seconds	N/T	4.902	N/T	
Repetition period TR (burst 24 to burst 42 after beacon activation by crash sensor)						Note: Repetitive testing is allowed as per A.3.1.1.8 Repetition Period – Repetitive testing.
Minimum TR	9.8 ≤ TR ≤ 10.0	seconds	N/T	9.900	N/T	
Maximum TR	9.8 ≤ TR ≤ 10.0	seconds	N/T	9.903	N/T	
Repetition rate TR, (after burst 42 to burst 95 after beacon activation by crash sensor):						
Minimum TR	27.0 ≤ TR ≤ 27.2	seconds	N/T	27.101	N/T	
Maximum TR	29.8 ≤ TR ≤ 30.0	seconds	N/T	29.901	N/T	
Standard Deviation	>0.8	seconds	N/T	0.873	N/T	
Repetition rate TR, (greater than 30 minutes after beacon activation by crash sensor):						
Minimum TR	115.0 ≤ TR ≤ 115.2	seconds	N/T	115.676	N/T	
Maximum TR	124.8 ≤ TR ≤ 125.0	seconds	N/T	124.900	N/T	
Standard Deviation	>2.5	seconds	N/T	2.824	N/T	
(Additionally, for ELT(DT)s with a rotating PDF-2 field)						
Repetition rate of 3LD bursts (between bursts 1 and 24)						
Minimum TR	19.2 ≤ TR ≤ 20.0	Seconds	N/T	19.603	N/T	
Maximum TR	19.2 ≤ TR ≤ 20.0	Seconds	N/T	19.605	N/T	
Repetition rate of 3LD bursts (between bursts 25 and 45)						
Minimum TR	58.3 ≤ TR ≤ 60.5	seconds	N/T	59.407	N/T	
Maximum TR						No 3LD messages transmitted after burst 95 in post-crash mode. The results presented are the repetition rate of the one recorded 3LD message in this time frame.



Parameters to be Measured	Range of Specification	Units	Test Results			Comments
			Tmin	Tamb	Tmax	
			(-40°C)	(+21°C)	(+55°C)	
3c. Digital Message Generator (for ELT(DT) specifically designed to withstand crash)						Result: Pass
Model: ELT-5000, S/N: 3093, TUV Ref: TSR44 and Modification State 0, (ELT(DT) Location Protocol with 3LD), (ELT(DT) Location Protocol with 3LD)						
Repetition period TR (burst 1 to burst 24 after beacon activation by crash sensor)						3 rd Repetition of the testing of the repetition rate.
Minimum TR	4.8 ≤ TR ≤ 5.0	seconds	N/T	4.900	N/T	
Maximum TR	4.8 ≤ TR ≤ 5.0	seconds	N/T	4.902	N/T	
Repetition period TR (burst 24 to burst 42 after beacon activation by crash sensor)						
Minimum TR	9.8 ≤ TR ≤ 10.0	seconds	N/T	9.901	N/T	
Maximum TR	9.8 ≤ TR ≤ 10.0	seconds	N/T	9.902	N/T	
Repetition rate TR, (after burst 42 to burst 95 after beacon activation by crash sensor):						
Minimum TR	27.0 ≤ TR ≤ 27.2	seconds	N/T	27.101	N/T	
Maximum TR	29.8 ≤ TR ≤ 30.0	seconds	N/T	29.901	N/T	
Standard Deviation	>0.8	seconds	N/T	0.826	N/T	
Repetition rate TR, (greater than 30 minutes after beacon activation by crash sensor):						
Minimum TR	115.0 ≤ TR ≤ 115.2	seconds	N/T	115.100	N/T	
Maximum TR	124.8 ≤ TR ≤ 125.0	seconds	N/T	124.900	N/T	
Standard Deviation	>2.5	seconds	N/T	3.036	N/T	
Bit rate						
Minimum fb	≥ 399.6	bits/sec	N/T	399.99	N/T	
Maximum fb	≤ 400.4	bits/sec	N/T	400.01	N/T	
Total transmission time						
Long message (maximum)	514.8 - 525.2	ms	N/T	520.716	N/T	
Long message (minimum)		ms	N/T	520.695	N/T	
Unmodulated carrier						
Minimum T1	≥ 158.4	ms	N/T	160.786	N/T	
Maximum T1	≤ 161.6	ms	N/T	160.807	N/T	
First burst delay	≤5	seconds	N/T	4.1	N/T	



(Additionally, for ELT(DT)s with a rotating PDF-2 field)						
Repetition rate of 3LD bursts (between bursts 1 and 24)	$19.2 \leq T_R \leq 20.0$	Seconds	N/T	19.603	N/T	
Minimum T_R						
Maximum T_R	$19.2 \leq T_R \leq 20.0$	Seconds	N/T	19.605	N/T	
Repetition rate of 3LD bursts (between bursts 25 and 45)						
Minimum T_R	$58.3 \leq T_R \leq 60.5$	seconds	N/T	59.407	N/T	No 3LD messages transmitted after burst 95 in post-crash mode. The results presented are the repetition rate of the one recorded 3LD message in this time frame.
Maximum T_R						



Parameters to be Measured	Range of Specification	Units	Test Results			Comments
			Tmin	Tamb	Tmax	
			(-40°C)	(+21°C)	(+55°C)	
4. Modulation						Result: Pass
Model: DT-07, S/N: KA0040651003 (0075959976-TSR001), Modification State 0, (ELT(DT) Location Protocol with 3LD)						
Biphase-L	P / F	P / F	N/T	P	N/T	
Rise time (maximum)	50 - 150	µs	N/T	112.4	N/T	
(minimum)	50 - 150	µs	N/T	109.9	N/T	
Fall time (maximum)	50 - 150	µs	N/T	110.6	N/T	
(minimum)	50 - 150	µs	N/T	107.7	N/T	
Phase deviation: positive (maximum)	+(1.0 to 1.2)	radians	N/T	1.107	N/T	
(minimum)	+(1.0 to 1.2)	radians	N/T	1.075	N/T	
Phase deviation: negative (maximum)	-(1.0 to 1.2)	radians	N/T	-1.107	N/T	
(minimum)	-(1.0 to 1.2)	radians	N/T	-1.071	N/T	
Symmetry measurement	≤ 0.05		N/T	0.03536	N/T	
5. 406 MHz Transmitted Frequency						Result: Pass
Model: DT-07, S/N: KA0040651003 (0075959976-TSR001), Modification State 0, (ELT(DT) Location Protocol with 3LD)						
Nominal Value (maximum)	C/S T.001	MHz	N/T	406.0309562	N/T	
(minimum)			N/T	406.0309516	N/T	
Short-term stability (maximum)	≤ 2x10 ⁻⁹	/100ms	N/T	1.28E-10	N/T	
(minimum)			N/T	6.76E-11	N/T	
Medium-term stability – Slope (maximum)	(-1 to +1)x10 ⁻⁹	/minutes	N/T	N/A	N/T	
(minimum)			N/T	N/A	N/T	
Medium-term stability – Residual frequency variation (maximum)	≤ 3x10 ⁻⁹		N/T	N/A	N/T	
(minimum)			N/T	N/A	N/T	
6. Spurious Emissions into 50ohms						Result: Pass
Model: , S/N: KA0040651003 (0075959976-TSR001), Modification State 0, (ELT(DT) Location Protocol with 3LD)						
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			
			(-40°C)	(+21°C)	(+55°C)			
7. 406 MHz VSWR Check						Result: Pass		
Model: DT-07, S/N: KA0040651003 (0075959976-TSR001), Modification State 0, (ELT(DT) Location Protocol with 3LD)								
Nominal Value	(maximum)	C/S T.001	MHz	N/T	406.0309474	N/T		
	(minimum)			N/T	406.0309454	N/T		
Modulation rise time	(maximum)	50-150	µs	N/T	112.3	N/T		
	(minimum)	50-150	µs	N/T	109.6	N/T		
Modulation fall time	(maximum)	50-150	µs	N/T	110.9	N/T		
	(minimum)	50-150	µs	N/T	108.2	N/T		
Modulation phase deviation: positive	(maximum)	+ (1.0 to 1.2)	radians	N/T	1.102	N/T		
	(minimum)	+ (1.0 to 1.2)	radians	N/T	1.071	N/T		
Modulation phase deviation: negative	(maximum)	- (1.0 to 1.2)	radians	N/T	-1.111	N/T		
	(minimum)	- (1.0 to 1.2)	radians	N/T	-1.078	N/T		
Modulation symmetry measurement		≤ 0.05		N/T	0.03799	N/T		
Digital Message		correct	P / F	N/T	P	N/T		
14. Satellite Qualitative Tests						Result: Pass		
Model: DT-07, S/N: KA0040651003 (0075959976-TSR001), Modification State 0, (ELT(DT) Location Protocol with 3LD)								
Test Configuration	As per C/S T.007		Configuration				See Section 2.7 for full results of all three test runs.	
			5	6	7	8		
Produce an alert with a complete valid beacon message at least once per minute for >90% of the time	>90%		%	N/T	100	N/T		N/T
Encoded location provided accurate within 200m 2D for >90% of the alerts encoded location provided by the MEOLUT as per the pass/fail criteria A.2.5 c) (i, ii, and iii) for altitude	>90%		%	N/T	100	N/T		N/T
Produce an alert with a complete valid beacon message at least once per minute for >90% of the time encoded location provided accurate within 200m 2D for >90% of the alerts encoded location provided by the MEOLUT as per the pass/fail criteria A.2.5 c) (i, ii, and iii) for altitude	>90%	%	N/T	100	N/T	N/T		



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

Model: DT-07, S/N: KA0040651003 (0075959976-TSR001) - Modification State 0, (ELT(DT) Location Protocol with 3LD)

2.1.3 Date of Test

21 December 2023

2.1.4 Test Equipment Used

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

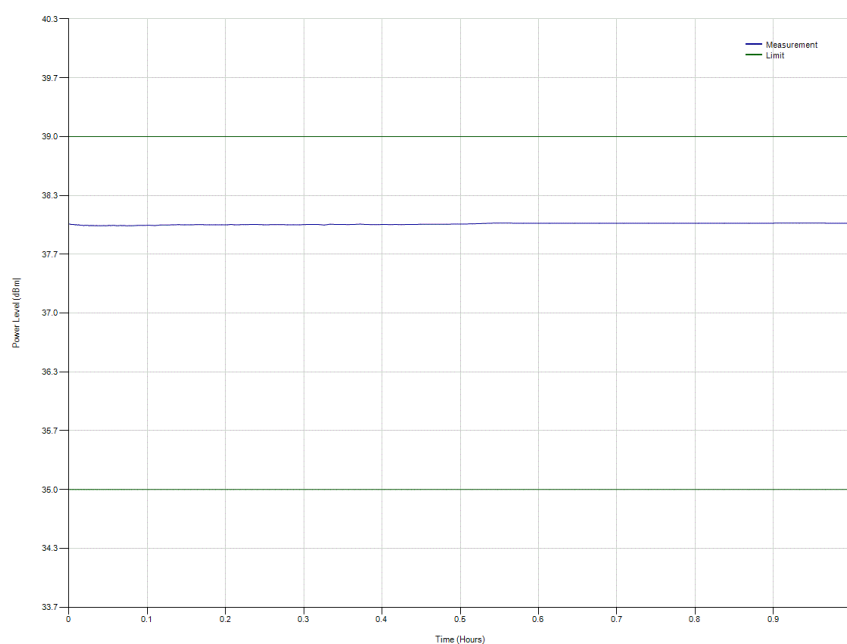
2.1.5 Laboratory Environmental Conditions

Ambient Temperature 22.8°C
Relative Humidity 40.1%

2.1.6 Test Results

Ambient Temperature

Power Plot



Summary

The EUT complies with clause A.3.2.2 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

Model: DT-07, S/N: KA0040651003 (0075959976-TSR001) - Modification State 0, (ELT(DT) Location Protocol with 3LD)

2.2.3 Date of Test

21 December 2023

2.2.4 Test Equipment Used

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

2.2.5 Laboratory Environmental Conditions

Ambient Temperature 22.8°C
Relative Humidity 40.1%

2.2.6 Test Results

Test Duration: 60 minutes
No. of bursts: 112



Ambient Temperature

Decoded Message

Message	FFFE2F8C99000000147648E3D395E00F0F75		
Hex ID	193200000028EC9		
Position	81°30'0" N 100°15'0" W		
Parameter	Bit	Data Bits	Decoded Value
Bit synchronization	1-15	111111111111111	111111111111111
Frame synchronization	16-24	000101111	000101111
Format Flag	25	1	1
Protocol Flag	26	0	0
Country Code	27-36	0011001001	Albania (Republic of)
Protocol Code	37-40	1001	ELT(DT) Location Protocol
Type of Beacon Identity	41-42	00	Aircraft 24 Bit Address
Identification Data	43-66	000000000000000000000000	ELT(DT) Location Test Protocol
N/S	67	0	North
Latitude Degrees	68-75	10100011	81.5
E/W	76	1	West
Longitude Degrees	77-85	011001001	100.5
BCH Code (21 Bit)	86-106	000111000111101001110	000111000111101001110
Calculated BCH Code (21 Bit)	-	000111000111101001110	000111000111101001110
Means of Activation	107-108	01	Automatic Activation by the Beacon
Altitude	109-112	0101	altitude is between 2200 m (7218 ft) and 2800 m (9186 ft)
Encoded Location Freshness	113-114	11	Encoded location in message is current
Delta Latitude +/-	115	1	+
Delta Latitude Minutes	116-119	0000	0
Delta Latitude Seconds	120-123	0000	0
Delta Longitude +/-	124	0	-
Delta Longitude Minutes	125-128	1111	15
Delta Longitude Seconds	129-132	0000	0
BCH Code (12 Bit)	133-144	111101110101	111101110101
Calculated BCH Code (12 Bit)	-	111101110101	111101110101

3LD Message

Message	FFFE2F8C99000000147648E3D39504578491		
Hex ID	193200000028EC9		
Position	81°30' N 100°30' W		
Parameter	Bit	Data Bits	Decoded Value
Bit synchronization	1-15	111111111111111	111111111111111
Frame synchronization	16-24	000101111	000101111
Format Flag	25	1	1
Protocol Flag	26	0	0
Country Code	27-36	0011001001	Albania (Republic of)
Protocol Code	37-40	1001	ELT(DT) Location Protocol
Type of Beacon Identity	41-42	00	Aircraft 24 Bit Address
Identification Data	43-66	000000000000000000000000	ELT(DT) Location Test Protocol
N/S	67	0	North
Latitude Degrees	68-75	10100011	81.5
E/W	76	1	West
Longitude Degrees	77-85	011001001	100.5
BCH Code (21 Bit)	86-106	000111000111101001110	000111000111101001110
Calculated BCH Code (21 Bit)	-	000111000111101001110	000111000111101001110
Means of Activation	107-108	01	Automatic Activation by the Beacon
Altitude	109-112	0101	altitude is between 2200 m (7218 ft) and 2800 m (9186 ft)
Encoded Location Freshness	113-114	00	PDF-2 rotating field indicator
3LD	115-132	00010001010111000	ZGA
BCH Code (12 Bit)	133-144	010010010001	010010010001
Calculated BCH Code (12 Bit)	-	010010010001	010010010001

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

Model: DT-07, S/N: KA0040651003 (0075959976-TSR001) - Modification State 0, (ELT(DT) Location Protocol with 3LD)

2.3.3 Date of Test

22 December 2023

2.3.4 Test Equipment Used

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

2.3.5 Laboratory Environmental Conditions

Ambient Temperature 22.8°C
Relative Humidity 40.1%

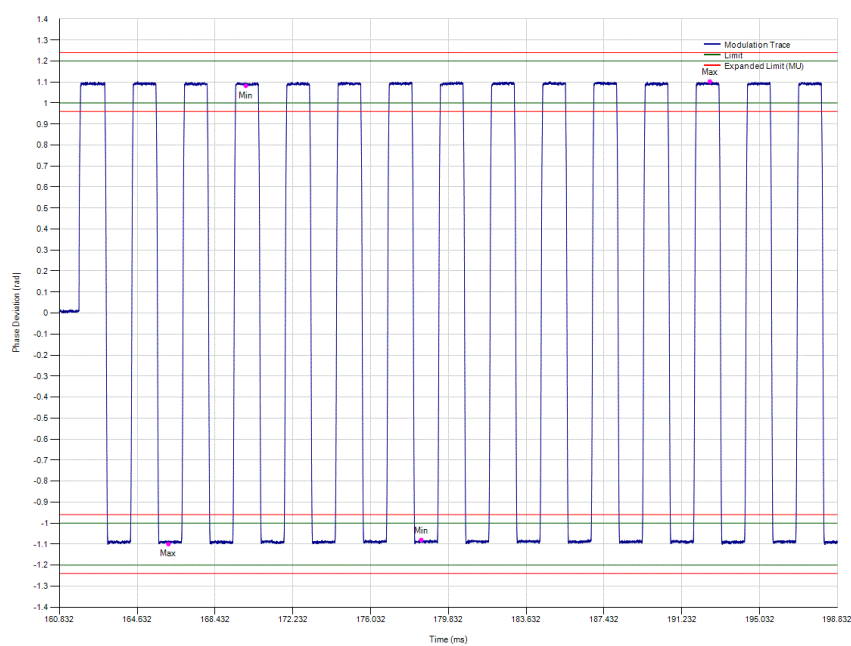
2.3.6 Test Results

Test Duration: 60 minutes

No. of bursts: 112

Ambient Temperature

Modulation Plot



Summary

The EUT complies with clause A.3.2.5 of Cospas-Sarsat T.007.



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

Model: DT-07, S/N: KA0040651003 (0075959976-TSR001) - Modification State 0, (ELT(DT) Location Protocol with 3LD)

2.4.3 Date of Test

22 December 2023

2.4.4 Test Equipment Used

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

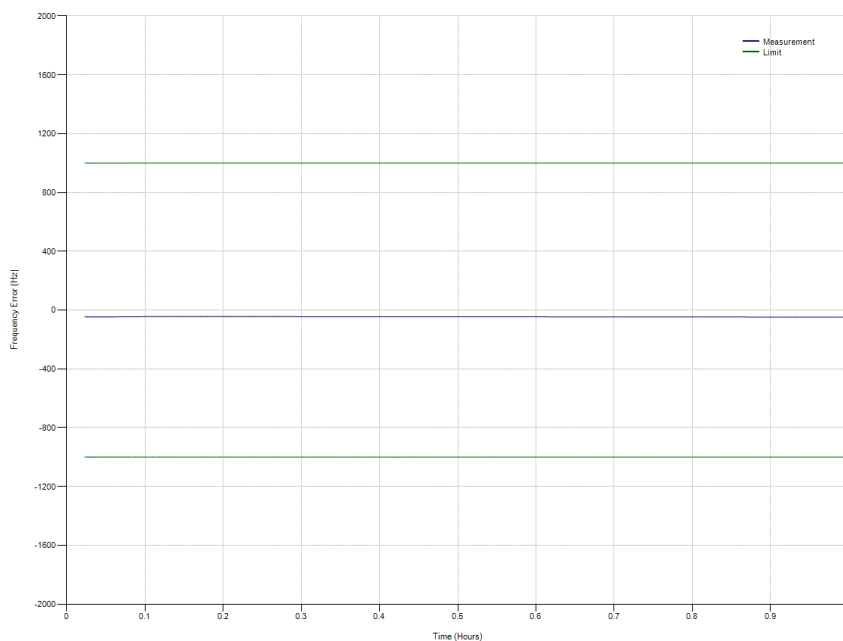
2.4.5 Laboratory Environmental Conditions

Ambient Temperature 22.8°C
Relative Humidity 40.1%

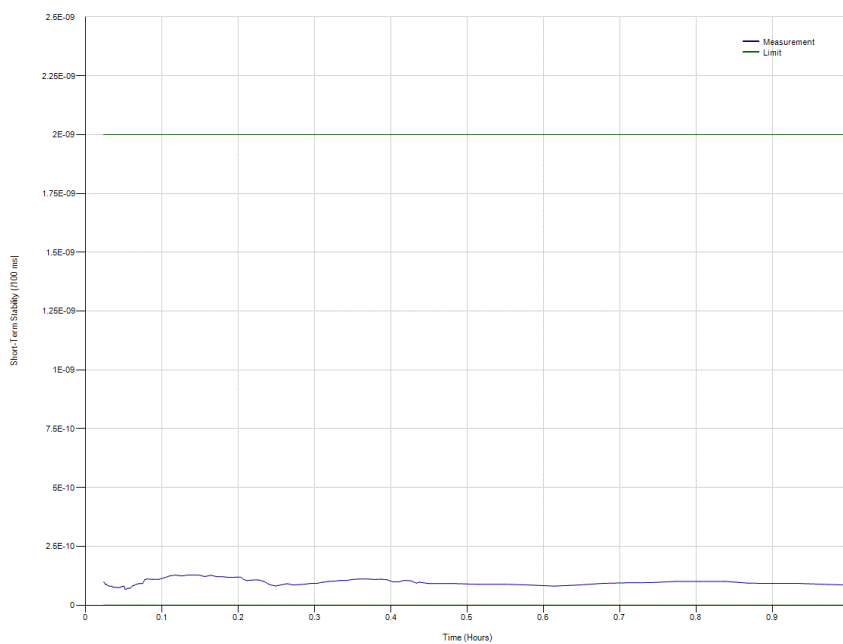
2.4.6 Test Results

Ambient Temperature

Nominal Frequency



Short Term Stability





Medium Term Stability – Slope

Not Applicable to ELT(DT)s

Medium Term Stability – Residual Frequency Variation

Not Applicable to ELT(DT)s

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

Model: DT-07, S/N: KA0040651003 (0075959976-TSR001) - Modification State 0, (ELT(DT) Location Protocol with 3LD)

2.5.3 Date of Test

22 December 2023

2.5.4 Test Equipment Used

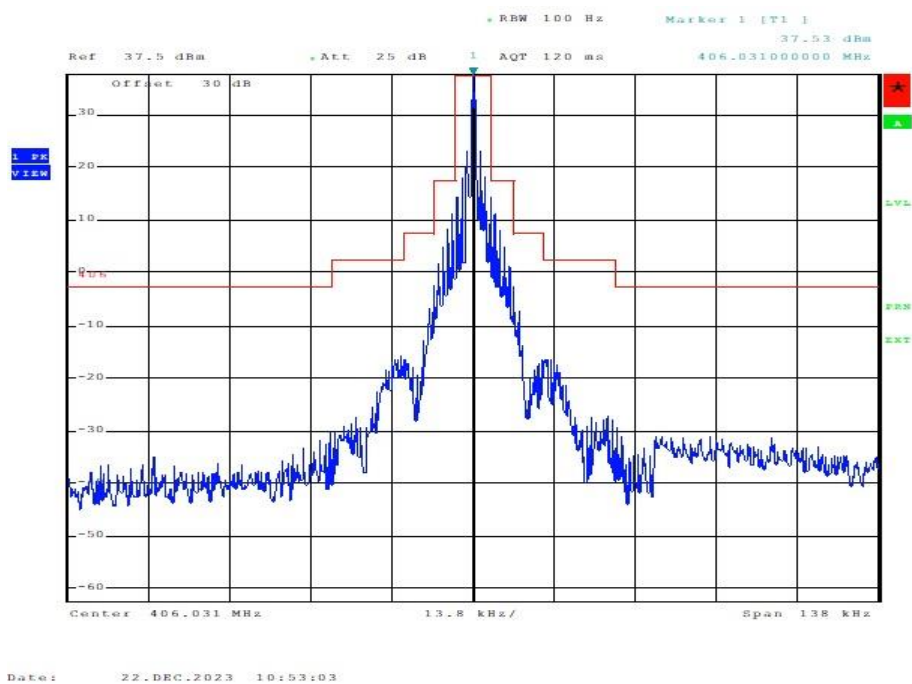
The major items of test equipment used for the above tests are identified in Section 3.1.

2.5.5 Laboratory Environmental Conditions

Ambient Temperature 22.4°C
Relative Humidity 38.7%

2.5.6 Test Results

Ambient Temperature



Summary

The EUT complies with clause A.3.2.4 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

Model: DT-07, S/N: KA0040651003 (0075959976-TSR001) - Modification State 0, (ELT(DT) Location Protocol with 3LD)

2.6.3 Date of Test

22 December 2023

2.6.4 Test Equipment Used

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

2.6.5 Laboratory Environmental Conditions

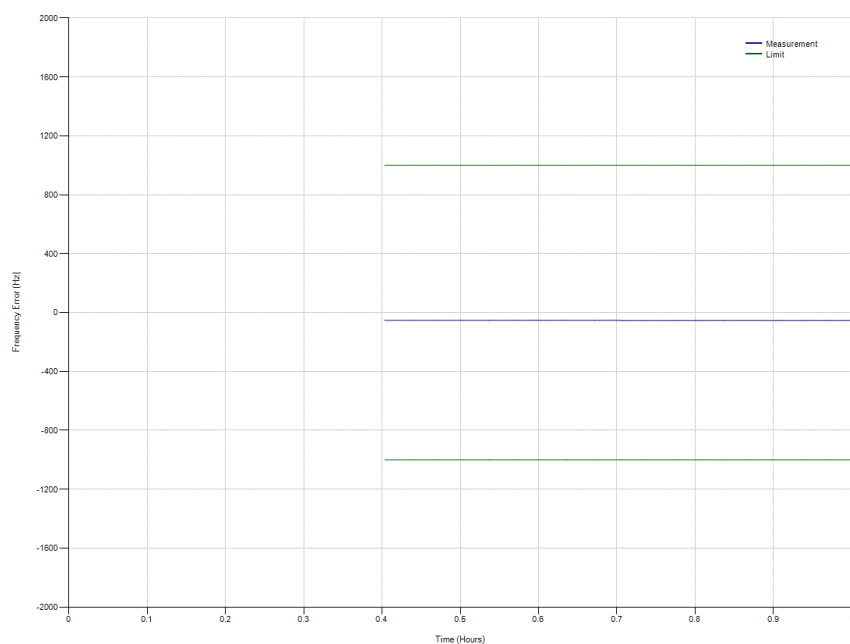
Ambient Temperature 20.8°C
Relative Humidity 40.3%

2.6.6 Test Results

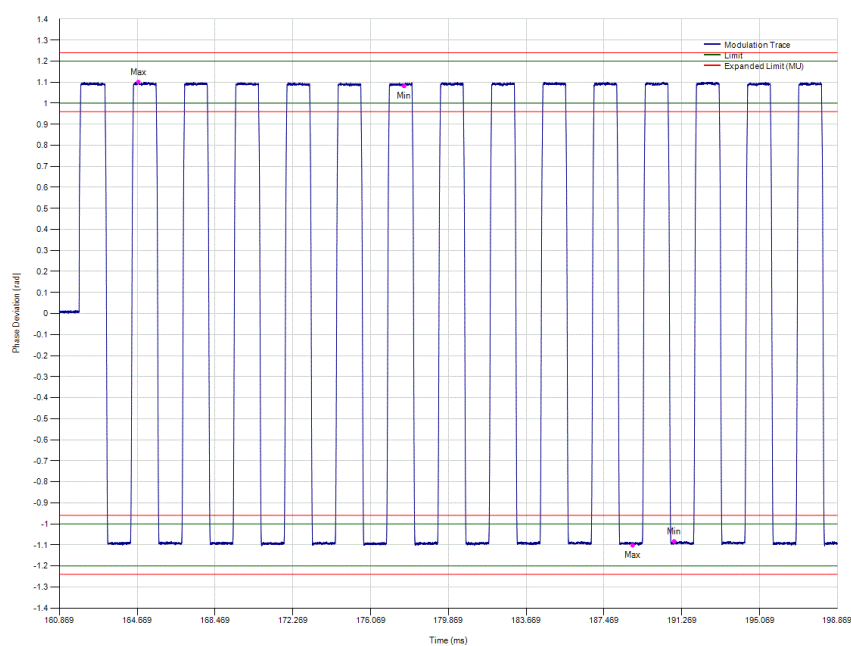
Test Duration: 60 minutes
No. of bursts: 36

Ambient Temperature

Frequency Plot



Modulation Plot





Decoded Message

Message	FFFE2F8C99000000147648E3D395E00F0F75		
Hex ID	19320000028EC9		
Position	81°30'0" N 100°15'0" W		
Parameter	Bit	Data Bits	Decoded Value
Bit synchronization	1-15	111111111111111	111111111111111
Frame synchronization	16-24	000101111	000101111
Format Flag	25	1	1
Protocol Flag	26	0	0
Country Code	27-36	0011001001	Albania (Republic of)
Protocol Code	37-40	1001	ELT(DT) Location Protocol
Type of Beacon Identity	41-42	00	Aircraft 24 Bit Address
Identification Data	43-66	000000000000000000000000	ELT(DT) Location Test Protocol
N/S	67	0	North
Latitude Degrees	68-75	10100011	81.5
E/W	76	1	West
Longitude Degrees	77-85	011001001	100.5
BCH Code (21 Bit)	86-106	000111000111101001110	000111000111101001110
Calculated BCH Code (21 Bit)	-	000111000111101001110	000111000111101001110
Means of Activation	107-108	01	Automatic Activation by the Beacon
Altitude	109-112	0101	altitude is between 2200 m (7218 ft) and 2800 m (9186 ft)
Encoded Location Freshness	113-114	11	Encoded location in message is current
Delta Latitude +/-	115	1	+
Delta Latitude Minutes	116-119	0000	0
Delta Latitude Seconds	120-123	0000	0
Delta Longitude +/-	124	0	-
Delta Longitude Minutes	125-128	1111	15
Delta Longitude Seconds	129-132	0000	0
BCH Code (12 Bit)	133-144	111101110101	111101110101
Calculated BCH Code (12 Bit)	-	111101110101	111101110101

3LD Message

Message	FFFE2F8C99000000147648E3D39504578491		
Hex ID	19320000028EC9		
Position	81°30' N 100°30' W		
Parameter	Bit	Data Bits	Decoded Value
Bit synchronization	1-15	111111111111111	111111111111111
Frame synchronization	16-24	000101111	000101111
Format Flag	25	1	1
Protocol Flag	26	0	0
Country Code	27-36	0011001001	Albania (Republic of)
Protocol Code	37-40	1001	ELT(DT) Location Protocol
Type of Beacon Identity	41-42	00	Aircraft 24 Bit Address
Identification Data	43-66	000000000000000000000000	ELT(DT) Location Test Protocol
N/S	67	0	North
Latitude Degrees	68-75	10100011	81.5
E/W	76	1	West
Longitude Degrees	77-85	011001001	100.5
BCH Code (21 Bit)	86-106	000111000111101001110	000111000111101001110
Calculated BCH Code (21 Bit)	-	000111000111101001110	000111000111101001110
Means of Activation	107-108	01	Automatic Activation by the Beacon
Altitude	109-112	0101	altitude is between 2200 m (7218 ft) and 2800 m (9186 ft)
Encoded Location Freshness	113-114	00	PDF-2 rotating field indicator
3LD	115-132	000100010101111000	ZGA
BCH Code (12 Bit)	133-144	010010010001	010010010001
Calculated BCH Code (12 Bit)	-	010010010001	010010010001

Summary

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



2.7 SATELLITE QUALITATIVE TEST

2.7.1 Specification

Cospas-Sarsat T.007, Clause A.2.5

2.7.2 Equipment Under Test and Modification State

Model: DT-07, S/N: KA0040651003 (0075959976-TSR001) - Modification State 0, (ELT(DT) Location Protocol with 3LD)

2.7.3 Date of Test

09 January 2024

2.7.4 Test Equipment Used

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

2.7.5 Laboratory Environmental Conditions

Ambient Temperature 1.5°C
Relative Humidity 66.3%

2.7.6 Test Results



Test Period 1

Actual location of the test beacon: 50.869039
(TÜV Product Service Ltd, Fareham Site, -1.244664
Central)

Burst No.	Beacon TX Time	15 Hex ID	Complete Beacon Message	Encoded Location reported in the MEOLUT alert			2D Location Error (meters)	Valid altitude Band
				Latitude	Longitude	Altitude Band*		
1	07:25:40	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
2	07:25:44	1932000003FDFF	FFFE2F8C99000000CD0134FA580045783CD					
3	07:25:49	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
4	07:25:54	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
5	07:25:59	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
6	07:26:04	1932000003FDFF	FFFE2F8C99000000CD0134FA580045783CD					
7	07:26:09	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
8	07:26:14	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
9	07:26:19	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
10	07:26:24	1932000003FDFF	FFFE2F8C99000000CD0134FA580045783CD					
11	07:26:29	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
12	07:26:33	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
13	07:26:38	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
14	07:26:43	1932000003FDFF	FFFE2F8C99000000CD0134FA580045783CD					
15	07:26:48	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
16	07:26:53	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
17	07:26:58	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
18	07:27:03	1932000003FDFF	FFFE2F8C99000000CD0134FA580045783CD					
19	07:27:08	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
20	07:27:13	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
21	07:27:18	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
22	07:27:23	1932000003FDFF	FFFE2F8C99000000CD0134FA580045783CD					
23	07:27:27	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
24	07:27:32	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
25	07:27:42	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
26	07:27:47	1932000003FDFF	FFFE2F8C99000000CD0134FA580045783CD					
27	07:27:52	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
28	07:28:02	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
29	07:28:12	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
30	07:28:22	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
31	07:28:32	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
32	07:28:42	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
33	07:28:47	1932000003FDFF	FFFE2F8C99000000CD0134FA580045783CD					
34	07:28:52	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass



Burst No.	Beacon TX Time	15 Hex ID	Complete Beacon Message	Encoded Location reported in the MEOLUT alert			2D Location Error (meters)	Valid altitude Band
				Latitude	Longitude	Altitude Band*		
35	07:29:01	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
36	07:29:11	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
37	07:29:21	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
38	07:29:31	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
39	07:29:41	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
40	07:29:46	1932000003FDFF	FFFE2F8C99000000CD0134FA580045783CD					
41	07:29:51	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
42	07:30:11	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
43	07:30:21	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
44	07:30:31	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
45	07:30:59	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
46	07:31:28	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
47	07:31:57	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
48	07:32:25	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
49	07:32:54	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
50	07:33:23	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
51	07:33:52	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
52	07:34:20	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
53	07:34:47	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
54	07:35:15	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
55	07:35:44	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
56	07:36:11	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
57	07:36:41	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
58	07:37:09	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
59	07:37:36	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
60	07:38:04	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
61	07:38:19	1932000003FDFF	FFFE2F8C99000000CD0134FA580045783CD					
62	07:38:34	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
63	07:39:04	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
64	07:39:32	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
65	07:40:01	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.179	0000	46.8	Pass
66	07:40:30	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.219	0000	46.8	Pass
67	07:40:58	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.248	0000	46.8	Pass
68	07:41:27	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.247	0000	46.8	Pass
69	07:41:56	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.259	0000	46.8	Pass
70	07:42:25	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.240	0000	46.8	Pass
71	07:42:53	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.237	0000	46.8	Pass
72	07:43:20	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.245	0000	46.8	Pass
73	07:43:48	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.203	0000	46.8	Pass



Burst No.	Beacon TX Time	15 Hex ID	Complete Beacon Message	Encoded Location reported in the MEOLUT alert			2D Location Error (meters)	Valid altitude Band
				Latitude	Longitude	Altitude Band*		
74	07:44:17	19320000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.208	0000	46.8	Pass
75	07:44:44	19320000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.259	0000	46.8	Pass

Measurements highlighted **Blue** contain 3LD in PDF-2 and may be discarded from the results.



Test 2

Actual location of the test beacon: 50.869039
(TÜV Product Service Ltd, Fareham Site, -1.244664
Central)

Burst No.	Beacon TX Time	15 Hex ID	Complete Beacon Message	Encoded Location reported in the MEOLUT alert			2D Location Error (meters)	Valid altitude Band
				Latitude	Longitude	Altitude Band*		
1	12:49:08	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
2	12:49:13	1932000003FDFF	FFFE2F8C99000000CD0134FA580045783CD					
3	12:49:18	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
4	12:49:23	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
5	12:49:28	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
6	12:49:33	1932000003FDFF	FFFE2F8C99000000CD0134FA580045783CD					
7	12:49:38	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
8	12:49:42	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
9	12:49:47	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
10	12:49:52	1932000003FDFF	FFFE2F8C99000000CD0134FA580045783CD					
11	12:49:57	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
12	12:50:02	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
13	12:50:07	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
14	12:50:12	1932000003FDFF	FFFE2F8C99000000CD0134FA580045783CD					
15	12:50:17	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
16	12:50:22	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
17	12:50:27	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
18	12:50:31	1932000003FDFF	FFFE2F8C99000000CD0134FA580045783CD					
19	12:50:36	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
20	12:50:41	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
21	12:50:46	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
22	12:50:51	1932000003FDFF	FFFE2F8C99000000CD0134FA580045783CD					
23	12:50:56	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
24	12:51:01	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
25	12:51:11	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
26	12:51:16	1932000003FDFF	FFFE2F8C99000000CD0134FA580045783CD					
27	12:51:21	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
28	12:51:31	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
29	12:51:40	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
30	12:51:50	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
31	12:52:00	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
32	12:52:10	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
33	12:52:15	1932000003FDFF	FFFE2F8C99000000CD0134FA580045783CD					



Burst No.	Beacon TX Time	15 Hex ID	Complete Beacon Message	Encoded Location reported in the MEOLUT alert			2D Location Error (meters)	Valid altitude Band
				Latitude	Longitude	Altitude Band*		
34	12:52:20	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
35	12:52:30	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
36	12:52:40	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
37	12:52:50	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
38	12:53:00	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
39	12:53:10	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
40	12:53:15	1932000003FDFF	FFFE2F8C99000000CD0134FA580045783CD					
41	12:53:19	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
42	12:53:29	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
43	12:53:39	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
44	12:53:49	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
45	12:53:59	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
46	12:54:29	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
47	12:54:58	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
48	12:55:27	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
49	12:55:54	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
50	12:56:22	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
51	12:56:51	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
52	12:57:19	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
53	12:57:48	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
54	12:58:15	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
55	12:58:42	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
56	12:59:10	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
57	12:59:38	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
58	13:00:07	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
59	13:00:36	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
60	13:01:05	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
61	13:01:34	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
62	13:01:49	1932000003FDFF	FFFE2F8C99000000CD0134FA580045783CD					
63	13:02:02	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
64	13:02:32	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
65	13:03:02	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.179	0000	46.8	Pass
66	13:03:31	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.219	0000	46.8	Pass
67	13:04:00	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.248	0000	46.8	Pass
68	13:04:27	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.247	0000	46.8	Pass
69	13:04:55	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.259	0000	46.8	Pass
70	13:05:24	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.240	0000	46.8	Pass
71	13:05:52	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.237	0000	46.8	Pass
72	13:06:21	1932000003FDFF	FFFE2F8C99000000CD0134FA580CFBEA427	50.869	-1.245	0000	46.8	Pass



Burst No.	Beacon TX Time	15 Hex ID	Complete Beacon Message	Encoded Location reported in the MEOLUT alert			2D Location Error (meters)	Valid altitude Band
				Latitude	Longitude	Altitude Band*		
73	13:06:48	19320000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.203	0000	46.8	Pass
74	13:07:15	19320000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.208	0000	46.8	Pass
75	13:07:43	19320000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.259	0000	46.8	Pass
76	13:08:40	19320000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.259	0000	46.8	Pass

Measurements highlighted **Blue** contain 3LD in PDF-2 and may be discarded from the results.



Test 3

Actual location of the test beacon: 50.869039
(TÜV Product Service Ltd, Fareham Site, -1.244664
Central)

Burst No.	Beacon TX Time	15 Hex ID	Complete Beacon Message	Encoded Location reported in the MEOLUT alert			2D Location Error (meters)	Valid altitude Band
				Latitude	Longitude	Altitude Band*		
1	18:10:10	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
2	18:10:15	1932000003FDFF	FFFE2F8C990000000CD0134FA580045783CD					
3	18:10:20	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
4	18:10:25	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
5	18:10:30	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
6	18:10:35	1932000003FDFF	FFFE2F8C990000000CD0134FA580045783CD					
7	18:10:39	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
8	18:10:44	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
9	18:10:49	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
10	18:10:54	1932000003FDFF	FFFE2F8C990000000CD0134FA580045783CD					
11	18:10:59	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
12	18:11:04	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
13	18:11:09	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
14	18:11:14	1932000003FDFF	FFFE2F8C990000000CD0134FA580045783CD					
15	18:11:19	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
16	18:11:24	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
17	18:11:29	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
18	18:11:33	1932000003FDFF	FFFE2F8C990000000CD0134FA580045783CD					
19	18:11:38	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
20	18:11:43	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
21	18:11:48	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
22	18:11:53	1932000003FDFF	FFFE2F8C990000000CD0134FA580045783CD					
23	18:11:58	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
24	18:12:03	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
25	18:12:13	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
26	18:12:18	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
27	18:12:23	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
28	18:12:33	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
29	18:12:42	1932000003FDFF	FFFE2F8C990000000CD0134FA580045783CD	50.869	-1.244	0000	46.8	Pass
30	18:12:52	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
31	18:13:02	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
32	18:13:12	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
33	18:13:17	1932000003FDFF	FFFE2F8C990000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass



Burst No.	Beacon TX Time	15 Hex ID	Complete Beacon Message	Encoded Location reported in the MEOLUT alert			2D Location Error (meters)	Valid altitude Band
				Latitude	Longitude	Altitude Band*		
34	18:13:22	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
35	18:13:32	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
36	18:13:42	19320000003FDFF	FFFE2F8C9900000000CD0134FA580045783CD					
37	18:13:52	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
38	18:14:02	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
39	18:14:12	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
40	18:14:17	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
41	18:14:21	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
42	18:14:31	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
43	18:14:41	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
44	18:14:51	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
45	18:15:01	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
46	18:15:30	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
47	18:15:59	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
48	18:16:27	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
49	18:16:55	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
50	18:17:23	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
51	18:17:51	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
52	18:18:20	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
53	18:18:47	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
54	18:19:14	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
55	18:19:42	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
56	18:20:10	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
57	18:20:40	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
58	18:21:09	19320000003FDFF	FFFE2F8C9900000000CD0134FA580045783CD					
59	18:21:37	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
60	18:22:06	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
61	18:22:34	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
62	18:22:49	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
63	18:23:04	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.244	0000	46.8	Pass
64	18:23:34	19320000003FDFF	FFFE2F8C9900000000CD0134FA580045783CD					
65	18:24:03	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.179	0000	46.8	Pass
66	18:24:32	19320000003FDFF	FFFE2F8C9900000000CD0134FA580CFBEA427	50.869	-1.219	0000	46.8	Pass

Measurements highlighted **Blue** contain 3LD in PDF-2 and may be discarded from the results.

Summary

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



SECTION 3

TEST EQUIPMENT USED



3.1 TEST EQUIPMENT

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

Beacons - Constant Temperature Tests					
Rubidium Frequency Standard	Quartzlock	A10-B	92	12	23-Mar-2024
Signal Generator	Rohde & Schwarz	SMY 01	118	12	16-Feb-2024
Termination (50ohm)	Meca	405-1	364	12	11-Dec-2024
Power Meter	Rohde & Schwarz	NRP	3491	12	13-Jan-2024
Thermocouple Data Logger	Pico Technology Ltd	TC-08	3783	12	26-Jun-2024
Type T PFA Insulated Thermocouple	TC Limited	Type-T	4739	12	15-Aug-2024
Cable (18 GHz)	Rosenberger	LU7-036-1000	5032	-	O/P Mon
Cable (18 GHz)	Rosenberger	LU7-036-4000	5037	-	O/P Mon
USB Power Sensor	Boonton	RTP5006	5187	12	16-Jun-2024
Analyser (Spectrum)	Rohde & Schwarz	FPL1003	5349	12	2-Jan-2024
ACS 4 Climatic Chamber	ACS	DY110C	5448	-	O/P Mon
Desktop Stopwatch	Radio Spares	RS Pro	5572	12	15-Sep-2024
RF Distribution Box	TUV SUD	N/A	5904	-	O/P Mon
Beacons - Satellite Qualitative Test					
30m LMR-300-DB COAXIAL CABLE	IntelliConnect Limited	C-NPNP-LMR300DB-30M	5588	12	14-Apr-2024
Beacons - Spurious Emissions					
Spectrum Analyser	Rohde & Schwarz	FSU26	2747	12	15-Mar-2024
Cable (18 GHz)	Rosenberger	LU7-036-4000	5037	-	O/P Mon
Attenuator 30dB 10w	Pasternack	NPE7010-30	5929	12	20-Apr-2024
Rubidium Frequency Standard	Symmetricom	8040C	3490	12	24-Nov-2024
Beacons - VSWR					
Rubidium Frequency Standard	Quartzlock	A10-B	92	12	23-Mar-2024
Signal Generator	Rohde & Schwarz	SMY 01	118	12	16-Feb-2024
Termination (50ohm)	Meca	405-1	364	12	11-Dec-2024
Short Circuit	TUV SUD	Short Circuit	3272	-	TU
Power Meter	Rohde & Schwarz	NRP	3491	12	15-Jan-2025
Thermocouple Data Logger	Pico Technology Ltd	TC-08	3783	12	26-Jun-2024
Type T PFA Insulated Thermocouple	TC Limited	Type-T	4739	12	15-Aug-2024
Cable (18 GHz)	Rosenberger	LU7-036-1000	5032	-	O/P Mon
Cable (18 GHz)	Rosenberger	LU7-036-4000	5037	-	O/P Mon
USB Power Sensor	Boonton	RTP5006	5187	12	16-Jun-2024
Analyser (Spectrum)	Rohde & Schwarz	FPL1003	5349	12	1-Feb-2024
ACS 4 Climatic Chamber	ACS	DY110C	5448	-	O/P Mon
Desktop Stopwatch	Radio Spares	RS Pro	5572	12	15-Sep-2024
RF Distribution Box	TUV SUD	N/A	5904	-	O/P Mon
50 ohm Termination Load (10 Watt)	Telegartner	N/A	5905	6	14-Apr-2024
50 ohm Termination Load (10 Watt)	Telegartner	N/A	5910	12	14-Apr-2024



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



3.2 MEASUREMENT UNCERTAINTY

The following table shows the measurement uncertainties for two signal analysers that are supported by DBT1.

Parameter	R&S FPL	Keysight MXA	C/S T.008 Requirement	Unit of Measurement
Repetition Time	1.134	1.134	± 10.0	ms
Total Transmission Time	0.012	0.009	± 1.0	ms
Fist Burst Delay	1.134	1.134	± 10.0	ms
CW Preamble	0.001	0.009	± 1.0	ms
Bit Rate	0.010	0.100	± 0.6	bps
Nominal frequency	34.00	1.70	± 100.0	Hz
Frequency stability	0.05	0.05	< 0.1	ppb
Transmitted Power	0.26	0.26	± 0.5	dB
Spurious Power Level	1.17	0.92	± 2.0	dB
Power Output Rise time	0.012	0.009	± 0.2	ms
Power Level 1 ms before Burst	1.17	0.92	± 2.0	dB
Modulation Rise	0.924	9.238	± 25.0	µs
Modulation Symmetry	0.005	0.002	< 0.01	-
Phase Modulation	0.004	0.006	± 0.04	rad

Parameter	Height	Distance (d)	C/S T.008 Requirement	Unit of Measurement
EIRP Antenna Setup Measurement Distances	0.6	0.2	± 1	%

Parameter	R&S FPL	Keysight MXA	C/S T.008 Requirement	Unit of Measurement
Internal Navigation Timing	85.1	85.1	Up to 1 hour ±1 sec	ms
Internal Navigation Timing	340.2	340.2	> 1 hour ±10 sec	ms

Parameter	Fluke 51 Digital Thermometer	C/S T.008 Requirement	Unit of Measurement
Temperature (near beacon)	0.84	± 2°C	°C

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



SECTION 4

PHOTOGRAPHS

4.1 PHOTOGRAPHS OF EQUIPMENT UNDER TEST (EUT)



Figure 4 - Satellite Qualitative Setup



Figure 5 - Radiating Antenna Position for Satellite Qualitative Setup



Figure 6 – EUT Top Face



Figure 7 – EUT Front Face

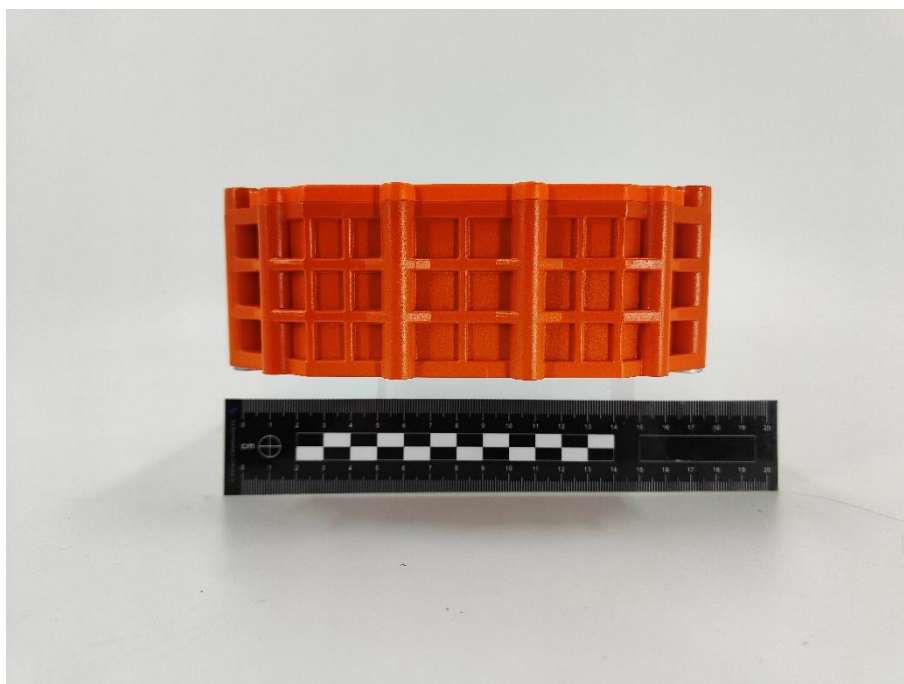


Figure 8 – EUT Rear Face



Figure 9 – EUT Right Face



Figure 10 – EUT Left Face



SECTION 5

ACCREDITATION, DISCLAIMERS AND COPYRIGHT



5.1 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.

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Annex A – Battery Current Comparison



Presented in the table below is the battery current comparison between the DT-06 and DT-07 variants. The operating mode used was 'On at Crash Sensor, with no external navigation data applied'. Please see comments below:

Operating Mode	DT-06	DT-07	% Difference
	Average Current (mA)	Average Current (mA)	DT-06 to DT-07
On at Crash Sensor with no external navigation data applied.	113.68	113.12	-0.49

Comments:

Current measurement test has been performed on the DT-06 beacon which was then upgraded to DT-07 with a software update.

Current measurement was therefore performed on the same beacon, showing that the software update from DT-06 to DT-07 has no influence on the current drawn by the beacon.

Current measurement test was performed in the worst-case current consumption mode.