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Report On

Emergency Beacons Limited Testing of the
Safran Electronics & Defense Beacons SAS KANNAD ULTIMA-DT-06
In accordance with Cospas-Sarsat T.007

Document 75957724 Report 01 Issue 3

June 2023



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REPORT ON

Emergency Beacons Limited Testing of the
Safran Electronics & Defense Beacons SAS
KANNAD ULTIMA-DT-06

Document 75957724 Report 01 Issue 3

June 2023

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DATED

06 June 2023





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SECTION 1

REPORT SUMMARY

Emergency Beacons Limited Testing of the
Safran Electronics & Defense Beacons SAS
KANNAD ULTIMA-DT-06



1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Safran Electronics & Defense Beacons SAS KANNAD ULTIMA-DT-06 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 Limited 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 Beacons SAS
Model Number(s)	KANNAD ULTIMA-DT-06
Serial Number(s)	KA0040651003
Number of Samples Tested	1
Test Specification/Issue/Date	Cospas-Sarsat T.007 Issue 5 Rev 9 November 2022
Date of Receipt of Test Samples	14 February 2023
Order Number	54079
Date	08 February 2023
Start of Test	23 February 2023
Finish of Test	28 March 2023
Name of Engineer(s)	C Bland
Related Documents	Cospas-Sarsat T.001 Issue 4 Revision 10 November 2022



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-06
Additional Beacon Model Names	KANNAD ULTIMA-DT

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*	
	On ground and above ground	
ELT Survival	On ground and above ground and floating in water	
ELT Auto Fixed	Fixed ELT with aircraft external antenna	X
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.mnr)	406.031 MHz
Operating temperature range	Tmin = -40 °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*	Yes for 406MHz Yes for 121.5MHz N/A N/A
* this value is specified by National Administrations or International Organisations	24 hours, or 48 hours, or 168 hours, or Other hours Other hours, (specify)
Beacon power supply type (internal non-rechargeable, internal rechargeable, external, combined, other)	internal non-rechargeable
External power supply parameters (AC/DC, nominal voltage, nominal minimum and nominal maximum voltage)	<p>Current (AC / DC): DC</p> <p>Nominal Voltage (V): 28V</p> <p>Nominal Minimum Voltage (V): 17V</p> <p>Nominal Maximum Voltage (V): 32.5V</p>
Is external power supply needed to energise the beacon or its ancillary devices in any of operational modes (N/A or Yes or No)	<p>ARINC interface only</p> <p>GNSS before beacon activation</p> <p>Self-test / GNSS Self-test</p> <p>Not used for distress signal</p>
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	<p>Cell Model Name: LM 17500</p> <p>Cell Size: A size</p> <p>Number of Cells in Battery Pack: 8</p> <p>Details of the battery pack electrical configuration: 2 parallel of 4 in series</p>
Battery cell manufacturer	SAFT
Battery pack manufacturer and part number	<p>Battery Pack Manufacturer Name: SAFRAN Electronics & Defense Beacons SAS</p> <p>Battery Pack Part Number: S1865514-01</p>
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	RAKON	Model Name: E7913LF Part Number: E7913LF
Oscillator manufacturer			
Oscillator model name/ part number			
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	OEM Model Name: ELT10-903 OEM Part Number: ELT10-903	
Antenna part name and part number (OEM, if applicable, and beacon manufacturer's)		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)		
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. When beacon is turned in a ARM mode, the 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 homing (Yes or No)	Yes	No
Self-test results in transmission of a signal other than at 406 MHz (Yes & details or No)	Yes (if 28V presence ok)	No
Self-test can be activated directly at beacon (Yes or No)	Yes	Yes GNSS self-test limit number reached 28VDC presence GNSS failure
List of items checked by self-test		External antenna presence CS identification code healthiness 28VDC presence ARINC429 Trigger-in-Flight ARINC429 lat/long GNSS interface



Self-test/ GNSS self-test 406 MHz burst duration (440 or 520 ms)	520 ms	520 ms	520 ms
Self-test message length format flag in bit 25, ("0" or "1")	"1"	"1"	"1"
Maximum duration of a self-test mode, sec	32 seconds	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	Yes
Indication of self-test results (Yes or No)	Yes	Yes	Yes
Distinct indication of insufficient battery capacity (Yes or No)	Yes	Yes	N/A
Automatic termination of self-test mode immediately after completion of the self-test cycle (Yes or No)	Yes	Yes	Yes
GNSS Self-test results in transmission of a single burst, irrespectively of the test result (Yes or No)	N/A	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 button (only performed with on 28V presence); By short switching test button (<5sec)	Yes, activable from a Cockpit RCP switching test button >10sec	GNSS SELF-TEST : Manually by switching TEST button on RCP or beacon front panel less than 5sec
	Self-test : button >5sec & <10sec	EBIT (executed on 28V power supply) :	GNSS SELF-TEST : Manually by switching TEST button on RCP or beacon front panel between > 10 sec
		Manually by switching TEST button on RCP or beacon front panel less than 5sec	
List all methods of Self-test mode and GNSS Self-test modes activation. Provide details on a separate sheet to describe	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	EBIT test
Repetitive / Automated Interrogation of a Beacons Status (Yes & details per section 5.1, item (y), or No)	Yes	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	
Standard Location Protocol	National (Short Message Format)	
	National (Long Message Format)	
	EPIRB with MMSI	
	EPIRB with Serial Number	
	ELT with 24-bit Address	
	ELT with Aircraft Operator Designator	
	ELT with Serial Number	
	PLB with Serial Number	
	National Location: EPIRB	
	National Location: ELT	
National Location Protocol		



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



Other Declarations	Declared Value	Frequency	Power (dBm)	Yes / No
Beacon includes a homer transmitter(s) (Yes or No)	Yes	121.5 MHz	19 dBm minimum	Yes
- homer transmitter(s) frequency and power		243.0 MHz	-	No
		ALIS	-	No
		Other (MHz)	-	No
homer transmitter(s) duty cycle	N/A	N/A	N/A	No
duty cycle of homer swept tone	37	37	0%	0%
Beacon includes a high intensity flashing light (e.g. Strobe)	No	37	0%	0%
- light intensity	N/A	N/A	cd	cd
- flash rate	N/A	N/A	flashes per minute	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 51820513-29 Buzzer P/N 51820515-16 AIM Dongle P/N 51820514-15
	Yes / No :	Yes		
				Beacon includes automatic activation mechanism (Yes or No). Specify type of automatic beacon activation mechanism > 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:	Yes / No : If Yes, specify: (dBm) If Yes, specify: (MHz)	No N/A N/A
Voice transmitter nominal output power	Yes / No :	N/A
Voice transmitter operating frequencies	Yes / No :	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
- maximum 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	Description:	No
Beacon model hardware part number (P/N) and version		S1865501-06 A
Beacon model firmware P/N, version, date of issue/releases		uP: YLS1820 B, dated April 06th 2023 ; FPGA : FPGA_TRIGGER_IAD28_001, AD dated March 06th 2023
Beacon model software P/N, version, date of issue/releases		N/A
Beacon model printed circuit board P/N and version		S1865601-06 A
Beacon model multiple programmable options, except message coding protocols (Yes/No)	If Yes, List all programmable options associated with this type-approval application:	No
Known non-compliances with C/S T.001 requirements (Yes or No). If Yes, provide details (Submit C/S T.007 Section 5, part 1, if applicable)		No
Beacon Manufacturer Point of Contact (POC) for this Type Approval application:	Samuel Davenel - Project Manager +33 2 97 02 49 20 samuel.davenel@beacons.safrangroup.com	
Name and Job Title:		
Phone:		
E-mail:		



Dated(*)	01/06/2023		
Signed(*)	Signature of Samuel DAVENEL		
(Name, Position and Representative)	Signature of Beacon	Manufacturer	Samuel DAVENEL - Design Authority

Signature numérotale de: Samuel DAVENEL
Date: 2023.06.01 14:43:54 +02:00

(*) The data on this form may be submitted electronically, but the submission must then be accompanied by the signed declaration as provided in Annex G of document C/S T.007, or by printing, signing, and scanning this form.

Data to be supplied by the Applicant
Fixed Form Information
Declaration Certification



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: 14 February 2023

Applicable C/S Standards:

Document	Issue	Revision	Date
C/S T.001	4	10	November 2022*
C/S T.007	5	9	November 2022*
IP (TCXO)	Not Applicable to ELT(DT)		

*The testing for clauses A.2.1, A.2.3, A.2.5 and A.3.9 of C/S T.007 was carried out in accordance with C/S T.001 Issue 4 Revision 8 and C/S T.007 Issue 5 Revision 7 as per Document 75954288 Report 01 for ULTIMA-DT-05.

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:

The test results for clause A.2.5 do not include information for the starting and ending azimuth and elevation of each MEOSAR satellite tracked during the Satellite Qualitative test. The provision of this information was required during the approval of ULTIMA-DT-05, however the test process was changed since and the test results comply with C/S T.007 Issues 5 Rev 9 (Nov 2022).

Notes:

None

Signed: M. Hardy

Name: Martin Hardy

Position Held: Authorised Signatory

Date: 06 June 2023



1.3 PRODUCT INFORMATION

1.3.1 Technical Description

The Equipment Under Test (EUT) was a Safran Electronics & Defense Beacons SAS KANNAD ULTIMA-DT-06 as shown in the photograph below. A full technical description can be found in the manufacturer's documentation.



ULTIMA-DT-06 Front View

1.3.2 Physical Test Configuration

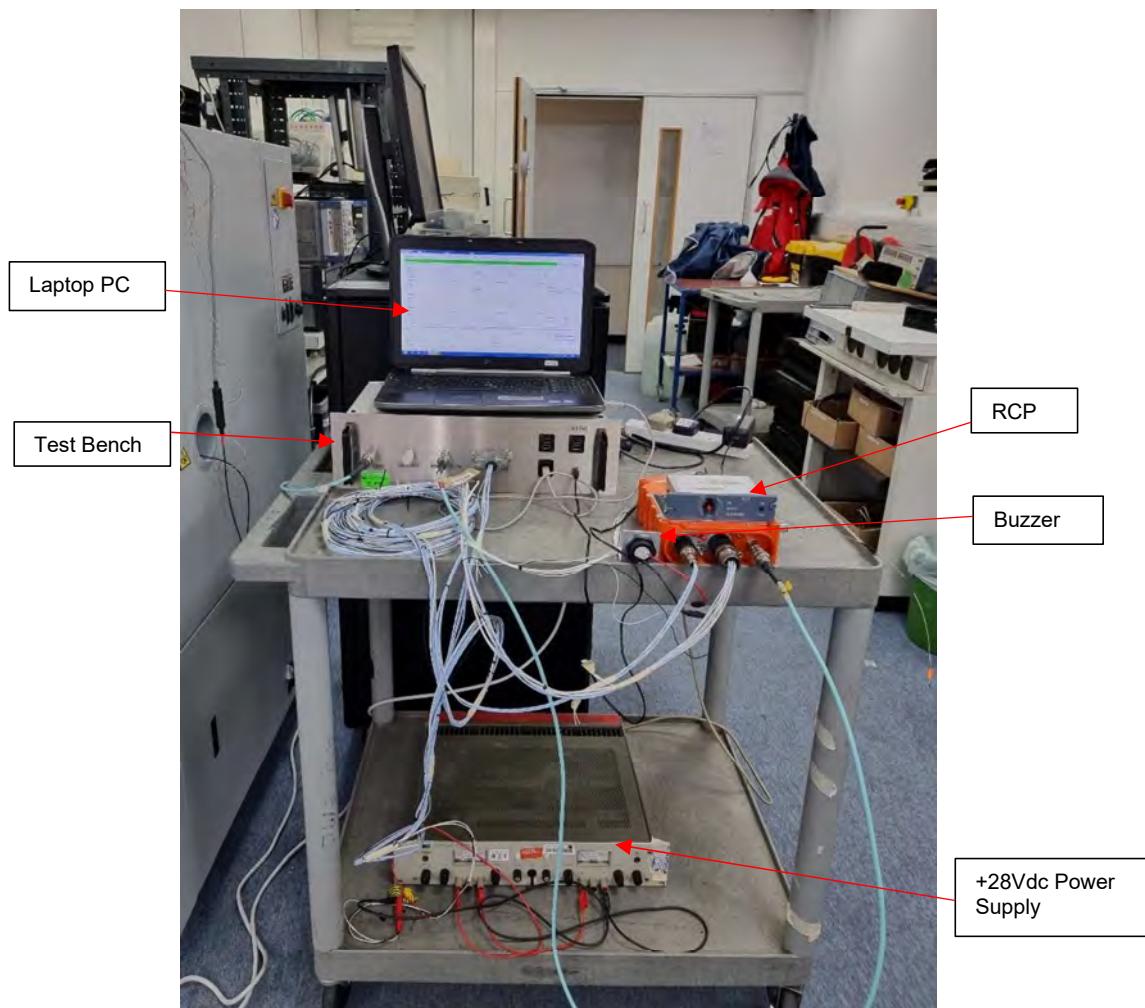
The Equipment Under Test (EUT) was operated using its own power source (internal battery). No other power source is required to operate the EUT. For conducted tests, the EUT was configured so that the antenna port was connected to the 50Ω test system using a coaxial cable. For radiated tests, the EUT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

The EUT was configured with a manufacturer supplied Test Bench, representative of an aircraft instrument panel. External Navigation data was supplied (where appropriate) to the test bench from a PC via an ARINC interface. This data was then relayed to the EUT from the test bench. The PC was also used to activate the EUT TIF (Triggered In Flight) feature when required. The ARINC interface required +28Vdc which was provided by an external power supply.

The EUT is also fitted with an internal GNSS receiver. Navigation data to the internal navigation device can be provided across a radiated link to the EUT (when configured with its antenna), or via the Test Bench and GNSS Simulator.

A Programming Dongle (Aircraft Identification Module – AIM), which contains the EUT's programming information was connected to the EUT throughout the entire sequence of testing. The Programming Dongle was connected to the EUT's DIN 12 socket on the side of the EUT.

To ensure ancillaries were active during tests, external navigation data was provided via the ARINC interface. Photographs below:



System Configurations

Figure 1: Conducted Laboratory Tests

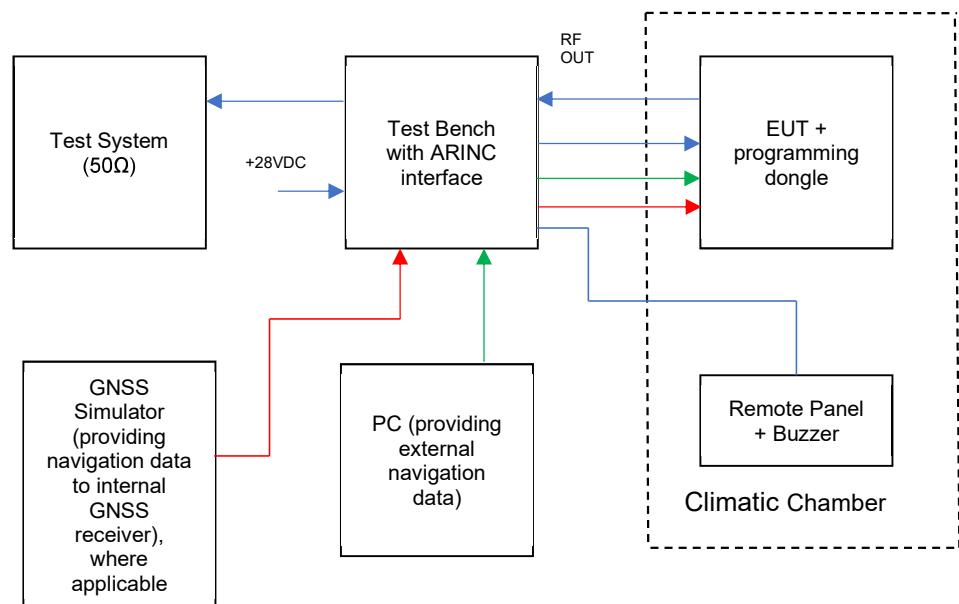
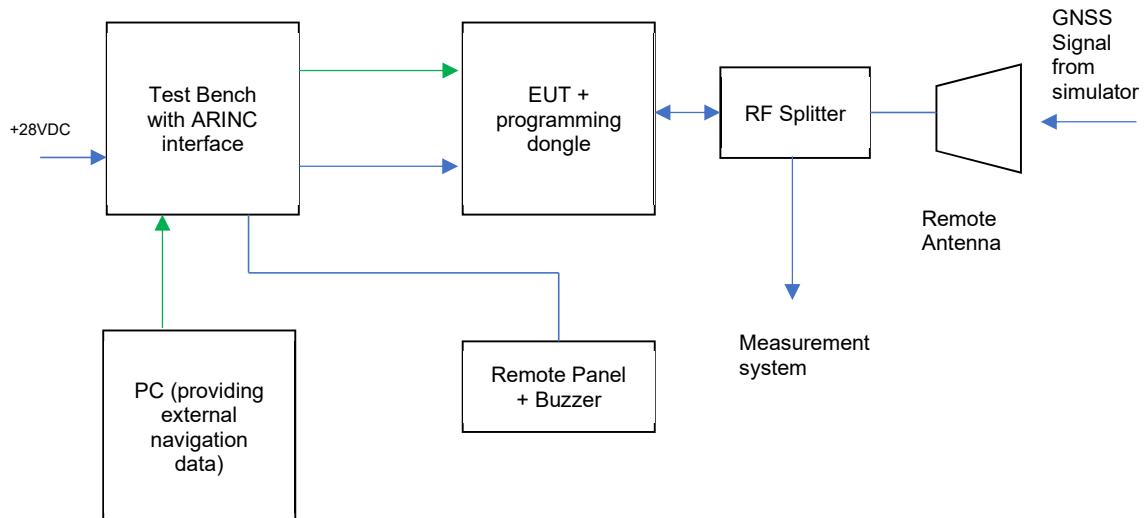
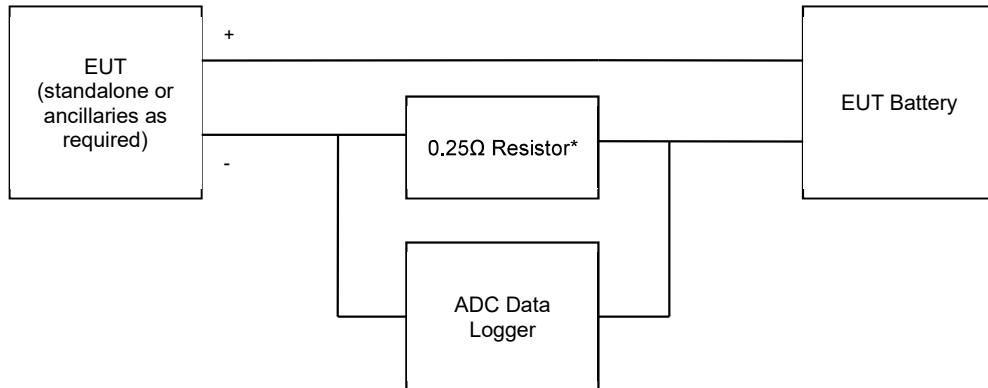


Figure 2: A.3.8.3 Navigation Test (See Note)



Note: The above configuration was used for Navigation tests where a GNSS Simulator and calibrated level were required at the EUT. The additional loss provided by the RF splitter was included as part of the calibrated level.

Figure 3: Battery Current Measurements



Note: The resistor in series with negative line of battery

* Removed for Standby and Armed mode measurements

For Satellite Qualitative 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:

Off/Standby Mode

- Main switch to “OFF” position
- Remote Control Panel switch to “ARMED” position
- No apparent activity

Armed Mode

- Main switch to “ARM” position
- Remote Control Panel switch to “ARMED” position

Armed Mode (EBIT)

- Main switch to “ARM” position
- Remote Control Panel switch to “ARMED” position
- ADT not enabled on ARINC

Self-test

- Main switch to “ARM” position
- Test Switch to “RESET/TEST” position for between 5-10 seconds
- List of items checked as per Customer Supplied Information (Application Form)
- No navigation data applied (unless otherwise stated)

GNSS Self-test

- Main switch to “ARM” position
- Test Switch to “RESET/TEST” position for >10 seconds
- List of items checked as per Customer Supplied Information (Application Form)
- Navigation data applied as applicable (e.g. none applied for timeout or data applied for ‘fast acquisition’)

Operating (Active)

- Main or Remote switch to “ON” position
- 121.65 MHz Homer active and offset
- External Navigation Input active
- GNSS receiver active

Alternative activation methods

- Crash Sensor
- In Flight Activation – with the following means of activation:
 - a) Automatic activation via TiF (Triggered in Flight)
 - b) Loss of ARINC429
 - c) Loss of 28Vdc

When activation occurs ‘in flight’ via modes a), b) or c) listed above, there are no 121.5 MHz homing transmissions (406 MHz only). All other modes of activation include both 406 MHz and 121.5 MHz homing transmissions. If the EUT is activated via modes a), b) or c), then activated further via another method (Main or Remote Switch), the 406 MHz transmitter will continue without resetting the repetition rate and add 121.5 MHz homing transmissions. If the further activation method is through the Crash Sensor, the 406 MHz repetition rate is restarted as per C/S T.001.



1.3.4 Items List

Description	Manufacturer	Model No.	Serial No.
Test Bench	Orolia SAS	ELT-DT	MTS1960-4
Power Supply	TENMA	72-2700	Not Serialised
Laptop PC	DELL	Latitude	PC494
<i>Remote Switch</i>	OROLIA SAS	S1820513-29	PROTO 0038
<i>Buzzer</i>	Sonitron	S1820515-16	PROTO 10
<i>Programming Dongle (ICAO)</i>	Orolia SAS	S1820514-15	TM0000221660
<i>Programming Dongle (ELT DT Location Protocol with 3LD)</i>	Orolia SAS	S1820514-15	TM0000221669
<i>ELT DT Antenna</i>	Dayton Granger	ELT10-903	SN:E0067

Note: items listed in *italics* form part of the nominal EUT configuration and were considered to be 'under test'. Other items were support equipment provided by the manufacturer to assist with testing.



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.

Following the modification of the original EUT design an additional scope of testing was agreed between the Cospas-Sarsat Secretariat and the device manufacturer:

Modification State (Mod State)	Date of Implementation	Reasons for modification	Description of modification, HW/FW P/Ns, SW version/release after modification
0	14 February 2023	-	

1.6 REPORT MODIFICATION RECORD

Issue 1 – First Issue

Issue 2 – Second Issue to update Section 2.9 and include deviation statement for these changes.

Issue 3 – Third Issue to include updated Annex G and include Battery Current Measurement comparison between ULTIMA-DT-05 (Document 75954288 Report 01) and ULTIMA-DT-06 (Document 75957724 Report 01)



SECTION 2

TEST DETAILS

Emergency Beacons Limited Testing of the
Safran Electronics & Defense Beacons SAS
KANNAD ULTIMA-DT-06



TEST RESULTS TABLE

Parameters to be Measured	Range of Specification	Units	Test Results			Comments
			Tmin (-20°C)	Tamb (+21°C)	Tmax (+55°C)	
Model: KANNAD ULTIMA-DT-06, S/N: KA0040651003, TUV Ref: TSR1 and Modification State 0						
1. Power Output						Result: Pass
Transmitter power output	(maximum) (minimum)	36 - 39	dBm	N/T	38.04 37.81	N/T N/T
Power output rise time	(maximum) (minimum)	< 2	ms	N/T	0.100 0.097	N/T N/T
Power output 1ms before burst	(maximum) (minimum)	< -10	dBm	N/T	-31.35 -51.01	N/T N/T
2. Digital Message Coding						Result: Pass
Model: KANNAD ULTIMA-DT-06, S/N: KA0040651003, TUV Ref: TSR1 and Modification State 0						
Bit Sync	1 - 15	15 bits "1"	P / F	N/T	P	N/T
Frame sync	16 - 24	"0010111"	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/supplm. Data	107 - 114	8 bits	bit value	N/T	01010111	N/T
Additional data / BCH (if applicable)	115 - 144	30 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 (-20°C)	Tamb (+21°C)	Tmax (+55°C)				
3c. Digital Message Generator (for ELT(DT) specifically designed to withstand crash)									
Model: KANNAD ULTIMA-DT-06, S/N: KA0040651003, TUV Ref: TSR1 and Modification State 0									
Repetition period TR (burst 1 to burst 24 after beacon activation by crash sensor)	4.8≤ TR ≤5.0	seconds	N/T	4.915	N/T	N/T			
Repetition period TR (after burst 24 to burst 42 seconds after beacon activation by crash sensor)	9.8≤ TR ≤10.0	seconds	N/T	9.911	N/T	N/T			
Repetition rate T_R (after burst 42 to burst 95 after beacon activation by crash sensor)			N/T			N/T			
Minimum T_R	27.0 ≤ T_{Rmin} ≤ 27.2	seconds	N/T	27.085	N/T	N/T			
Maximum T_R	29.8 ≤ T_{Rmax} ≤ 30.0	seconds	N/T	29.907	N/T	N/T			
Standard deviation	>0.8	seconds	N/T	0.879	N/T	N/T			
Repetition rate T_R (greater than 30 minutes after beacon activation by crash sensor)						N/T			
Minimum T_R	115.0≤ T_{Rmin} ≤ 115.2	seconds	N/T	115.105	N/T	N/T			
Maximum T_R	124.8≤ T_{Rmax} ≤ 125.0	seconds	N/T	124.889	N/T	N/T			
Standard deviation	>2.5	seconds	N/T	2.937	N/T	N/T			
Bit Rate	(minimum) ≥399.6 (maximum) ≤400.4	bit/sec	N/T	399.91	N/T	N/T			
Long message	(maximum) 514.8 - 525.2 (minimum)	bit/sec	N/T	400.00	N/T	N/T			
Unmodulated carrier									
Minimum T1									
Maximum T1									
First burst delay									



Parameters to be Measured	Range of Specification	Units	Test Results			Comments			
			Tmin (-20°C)	Tamb (+21°C)	Tmax (+55°C)				
3c. Digital Message Generator (for ELT(DT) with rotating PDF-2 field)									
Model: KANNAD ULTIMA-DT-06, S/N: KA0040651003, TUV Ref: TSR1 and Modification State 0									
Repetition rate of 3LD bursts (between bursts 1 and 24)	19.2≤ TR ≤20.0	seconds	N/T	19.609	N/T				
Repetition rate of 3LD bursts (between bursts 25 and 45)	58.3≤ TR ≤60.5	seconds	N/T	59.416	N/T				
Repetition rate of 3LD bursts (from burst 46 onwards)	809.5≤ TR ≤900.5	seconds	N/T	857.148	N/T				



Parameters to be Measured	Range of Specification	Units	Test Results			Comments
			Tmin (-20°C)	Tamb (+21°C)	Tmax (+55°C)	
4. Modulation						
Model: KANNAD ULTIMA-DT-06, S/N: KA0040651003, TUV Ref: TSR1 and Modification State 0						Result: Pass
Biphase-L	P / F	P / F	N/T	P	N/T	N/T
Rise time	(maximum) 50 - 150 (minimum) 50 - 150	μs	N/T	113.2	N/T	N/T
Fall time	(maximum) 50 - 150 (minimum) 50 - 150	μs	N/T	110.1	N/T	N/T
Phase deviation: positive	(maximum) +(1.0 to 1.2) (minimum) +(1.0 to 1.2)	radians	N/T	108.2	N/T	N/T
Phase deviation: negative	(maximum) -(1.0 to 1.2) (minimum) -(1.0 to 1.2)	radians	N/T	1.098	N/T	N/T
Symmetry measurement	≤ 0.05	radians	N/T	1.065	N/T	N/T
		radians	N/T	-1.113	N/T	N/T
		radians	N/T	-1.082	N/T	N/T
		N/T	0.03538	N/T	N/T	N/T
5. 406 MHz Transmitted Frequency						
Model: KANNAD ULTIMA-DT-06, S/N: KA0040651003, TUV Ref: TSR1 and Modification State 0						Result: Pass
Nominal Value	C/S T.001	MHz	N/T	406.0309688	N/T	N/T
Short-term stability	(maximum) ≤ 2x10 ⁻⁹ (minimum) (-1 to +1)x10 ⁻⁹	/100ms	N/T	406.0309607	N/T	N/T
Medium-term stability – Slope	(maximum) ≤ 3x10 ⁻⁹ (minimum) (maximum) (minimum)	/minutes	N/T	2.54E-10	N/T	N/T
Medium-term stability – Residual frequency variation	(maximum) (minimum)		N/T	2.07E-10	N/T	N/T
			N/T	N/A	N/A	N/A
			N/T	N/A	N/A	N/A
			N/T	N/A	N/A	N/A
6. Spurious Emissions into 50ohms						
Model: KANNAD ULTIMA-DT-06, S/N: KA0040651003, TUV Ref: TSR1 and Modification State 0						Result: Pass
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 (-20°C)	Tamb (+21°C)	Tmax (+55°C)	
7. 406 MHz VSWR Check						
Model: KANNAD ULTIMA-DT-06, SN: KA0040651003, TUV Ref: TSR1 and Modification State 0						Result: Pass
Nominal Value	C/S T.001 (maximum) (minimum)	MHz	N/T	406.0309699 406.0309685	N/T	N/T
Modulation rise time	(maximum) (minimum)	µs	N/T	111.5	N/T	N/T
Modulation fall time	(maximum) (minimum)	µs	N/T	109.2	N/T	N/T
Modulation phase deviation: positive	(maximum) + (1.0 to 1.2) (minimum) + (1.0 to 1.2)	radians	N/T	110.3	N/T	N/T
Modulation phase deviation: negative	(maximum) - (1.0 to 1.2) (minimum) - (1.0 to 1.2) ≤ 0.05	radians	N/T	107.8	N/T	N/T
Modulation symmetry measurement	correct	P / F	N/T	1.097	N/T	N/T
Digital Message			P	1.067	N/T	N/T
				-1.114	N/T	N/T
				-1.084	N/T	N/T
				0.03634	N/T	N/T



Parameters to be Measured	Range of Specification	Units	Test Results			Comments
			Tmin (-20°C)	Tamb (+21°C)	Tmax (+55°C)	
8(a). Self-test Mode						Result: Pass
Model: KANNAD ULTIMA-DT-06, SN: KA0040651003, TUV Ref: TSR1 and Modification State 0						
Frame sync	011010000 1 / 0	P / F bit value ms	N/T N/T N/T	P 1 520.711 P	P N/T	N/T N/T N/T
Format flag	≤ 440 / 520 ($\pm 1\%$)					
Single radiated burst	correct					
Default position data (if applicable)	provided					
Description	provided					
Design data on protection against repetitive self-test mode transmissions	provided					
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	Y	N/T	
Distinct indication if the beacon is coded with the RLS Location protocol (i.e. if the RLS function is enabled), and the RLS and RLM indicator(s) are operating as described in section 4.5.4. e) of document C/S T.001	provided	Y / N	N/A			For RLS-capable beacons
Maximum duration of Self-Test mode	\leq maximum duration of Self-Test	sec	N/T	26.1	N/T	
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		Y		



Parameters to be Measured	Range of Specification	Units	Test Results			Comments
			Tmin (-20°C)	Tamb (+21°C)	Tmax (+55°C)	
Model: KANNAD ULTIMA-DT-06, SN: KA0040651003, TUV Ref: TSR1 and Modification State 0						
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	520.711	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/T	P	N/T	
Design data showing how GNSS Self-test is limited in number of transmissions and duration	provided	Y / N	N/T	Y	N/T	
Single burst verification (if applicable)	one burst	P / F	N/T	P	N/T	
12.5 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	190	N/T	
Actual duration of Self-test with encoded location	Less than maximum duration	S	N/T	36	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		Y		
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/N		Y		



Parameters to be Measured	Range of Specification	Units	Test Results	Comments
10. Operating Lifetime at Minimum Temperature				
Model: KANNAD ULTIMA-DT-06, SN: KA004051003, TUV Ref: TSR1 and Modification State 0				
Pre-test battery discharge duration (at 100mA) required		Hours	7.688	
Pre-test battery discharge duration (at 100mA)		Hours	7.75	
Duration	>370	min	1450.8 mins at Tmin = -40°C	Time to EUT self terminated.
Effective Operating Lifetime duration	>370	min	1450.8 mins at Tmin = -40°C	Min/Max results are up to the manufacturer declared lifetime of 24hrs.
Transmitted Frequency		MHz	Min	Max
Nominal value	C/S T.001	/100ms	406.0309036	406.0309336
Short-term stability	$\leq 2 \times 10^{-9}$	/min	1.22E-10	3.92E-10
Medium-term stability – Slope	$(-1 \text{ to } +1) \times 10^{-9}$		N/A	N/A
Medium-term stability – Residual frequency variation	$\leq 3 \times 10^{-9}$		N/A	N/A
Transmitter power output	36 - 39	dBm	38.07	38.20
P _{t EOL} is the minimum transmitter power output observed during the operating lifetime at minimum temperature test	36 - 39	dBm	38.07	
Digital message	correct	P/F	P	
Homer transmitter continuous operation during the lifetime test		hours	63.88	End of test taken as 54h10m (Manufacturer declared worst case scenario (48hrs + 6h10m)).
		Start of Test	End of Test	
Homer frequency	MHz	121.498496994	121.49749499	
Homer peak power level	dBm	20.6	20.5	
Homer transmitter duty cycle	%	34.44	37.25	



Parameters to be Measured	Range of Specification	Units	Test Results	Comments
14. Satellite Qualitative Tests				Result: Pass
Model: KANNAD ULTIMA-DT-06, S/N: KA0040651003, TÜV Ref: TSR1 and Modification State 0				
Test Configuration	As per C/S T.007	%	Configuration	
Produce an alert with a complete valid beacon message at least once per minute for >90% of the time	≥ 90	%	Test 1	Test 2
Encoded location provided accurate within 200m 2D for >90% of the alerts	≥ 90	%	100	100
Encoded location provided by the MEOLUT as per the pass/fail criteria A.2.5 c) (i, ii, and iii) for altitude	Correct	P/F	P	P



Parameters to be Measured	Range of Specification	Units	Test Results	Comments
20. Activation and Cancellation Message Test (ELT (DT) only)				
Model: KANNAD ULTIMA-DT-06, S/N: KA0040651003, TUV Ref: TSR1 and Modification State 0				
Activation and De-activation Tests	Message Bits 107-108 comply with Table A.2	P/F	P	
Cancellation Message Tests	Comply with A.3.9.2	P/F	P	
Nominal transmitted frequency	maximum C/S T.001	MHz	406.0309658	
	minimum		406.0309621	
Transmitter Output Power	maximum 36-39	dBm	37.96	
	minimum		37.96	
Modulation Rise Time (min and max)	maximum 50-150	µsec	113.0	
	minimum		110.8	
Modulation Fall Time (min and max)	maximum 50-150	µsec	110.4	
	minimum		108.4	
Phase Deviation: positive (min and max)	maximum + (1.0 to 1.2)	radians	1.095	
	minimum		1.070	
Phase Deviation: negative (min and max)	maximum - (1.0 to 1.2)	radians	-1.087	
	minimum		-1.110	
Modulation Symmetry	≤ 0.05		0.03481	
Digital Message	Correct	P/F	P	
Transmission of First Cancellation Message	Within 5 seconds of deactivation	P/F	P	
Number of Cancellation Messages	10	P/F	P	
Interval between Cancellation Messages	10 seconds ± 0.5 seconds	P/F	P	
Reactivation Test	Comply with section A.3.9.3	P/F	P	

KEY

N/T = Not Tested
N/A = Not Applicable



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

ULTIMA-DT-06, S/N: KA0040651003 - Modification State 0

2.1.3 Date of Test

20 March 2023

2.1.4 Test Equipment Used

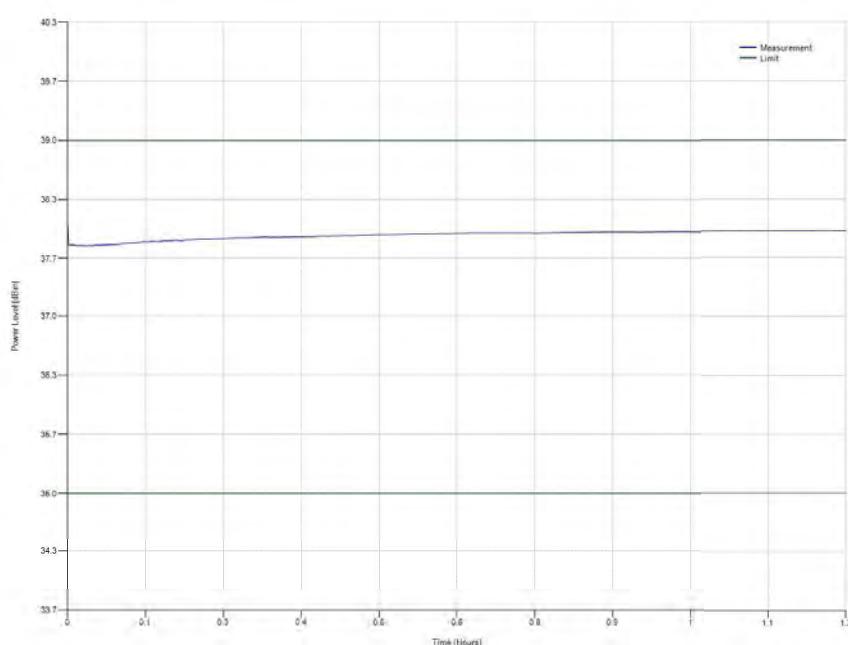
The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.5 Laboratory Environmental Conditions

Ambient Temperature 21.7°C
Relative Humidity 41.2%

2.1.6 Test Results

Ambient Temperature



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

ULTIMA-DT-06, S/N: KA0040651003 - Modification State 0

2.2.3 Date of Test

20 March 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 21.7°C
Relative Humidity 41.2%

2.2.6 Test Results

Test Duration: 75 minutes
No. of bursts: 119



Ambient Temperature Standard Distress Message

Message	FFFE2F8C99000000147648E3D395E00F0F75		
Hex ID	193200000028EC9		
Position	81°30' N 100°15' W		
Parameter	Bit	Data Bits	Decoded Value
Bit synchronization	1-15	1111111111111111	1111111111111111
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	00000000000000000000000000000000	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 Distress Message

Message	FFFE2F8C99000000147648E3D3950452A17E		
Hex ID	193200000028EC9		
Position	81°30' N 100°30' W		
Parameter	Bit	Data Bits	Decoded Value
Bit synchronization	1-15	1111111111111111	1111111111111111
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	00000000000000000000000000000000	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	000100010100101010	ZLR
BCH Code (12 Bit)	133-144	000101111110	000101111110
Calculated BCH Code (12 Bit)	-	000101111110	000101111110

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

ULTIMA-DT-06, S/N: KA0040651003 - Modification State 0

2.3.3 Date of Test

20 March 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 21.7°C

Relative Humidity 41.2%

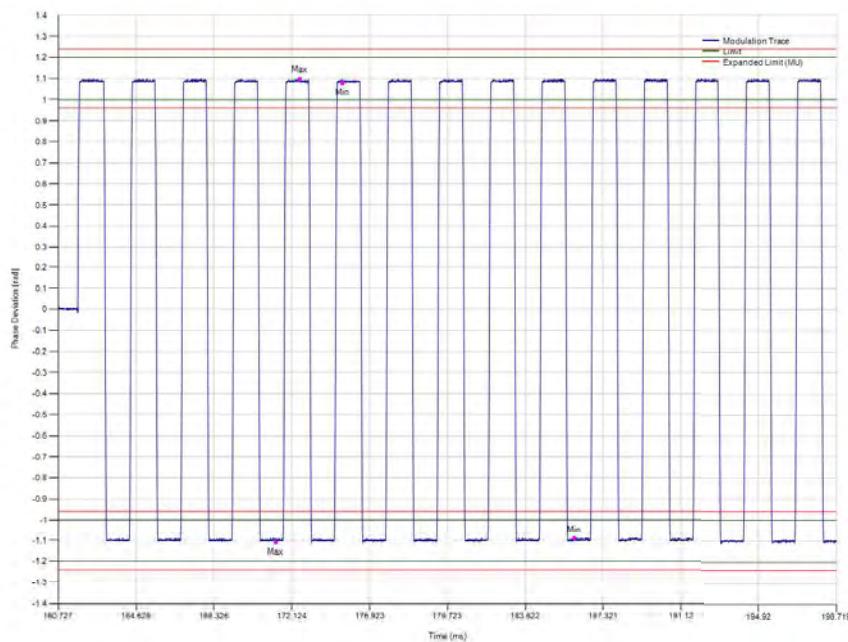


2.3.6 Test Results

Test Duration: 75 minutes

No. of bursts: 119

Ambient Temperature



Summary

The EUT complies with clause A.3.2.3 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

ULTIMA-DT-06, S/N: KA0040651003 - Modification State 0

2.4.3 Date of Test

20 March 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

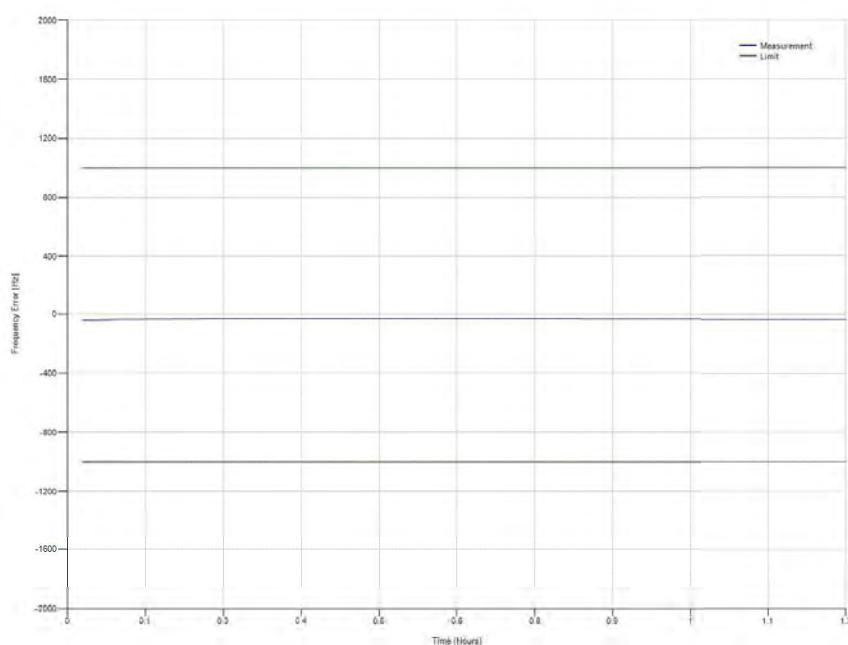
Ambient Temperature 21.7°C

Relative Humidity 41.2%

2.4.6 Test Results

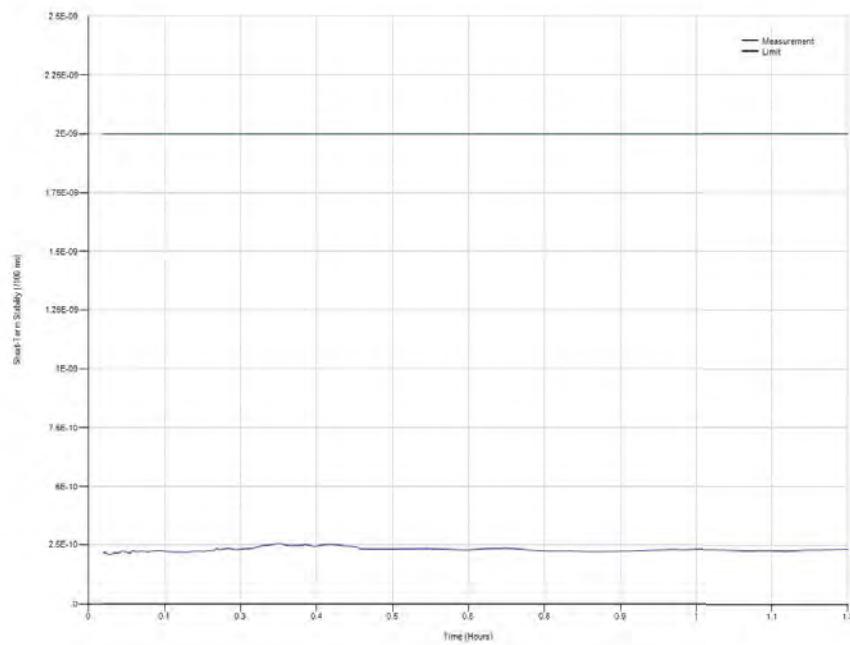
Ambient Temperature

Nominal Frequency





Short Term Stability



Medium Term Stability, Mean Slope

Not applicable for ELT(DT).

Medium Term Stability, Residual Frequency Variation

Not applicable for ELT(DT).

Summary

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



2.5 SPURIOUS EMISSION 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

ULTIMA-DT-06, S/N: KA0040651003 - Modification State 0

2.5.3 Date of Test

20 March 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 22.3°C

Relative Humidity 41.8%

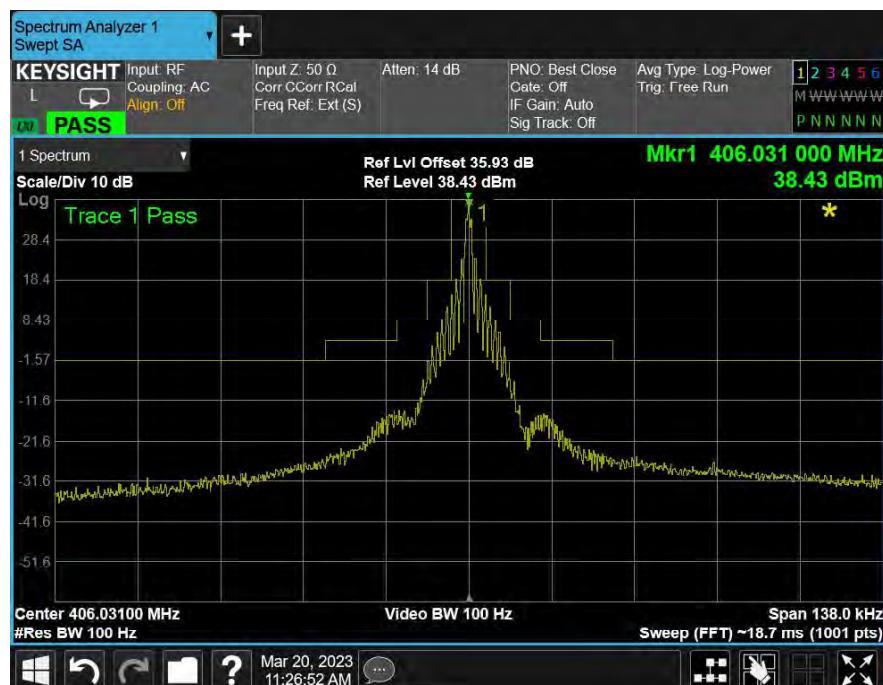


2.5.6 Test Results

Test Duration: 30 minutes

No. of bursts: 96

Ambient Temperature



Summary

The EUT complies with clause A.3.2.2.4 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

ULTIMA-DT-06, S/N: KA0040651003 - Modification State 0

2.6.3 Date of Test

20 March 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 22.3°C

Relative Humidity 41.9%



2.6.6 Test Results

Test Duration: 75 minutes

No. of bursts: 119

Ambient Temperature

Standard Distress Message

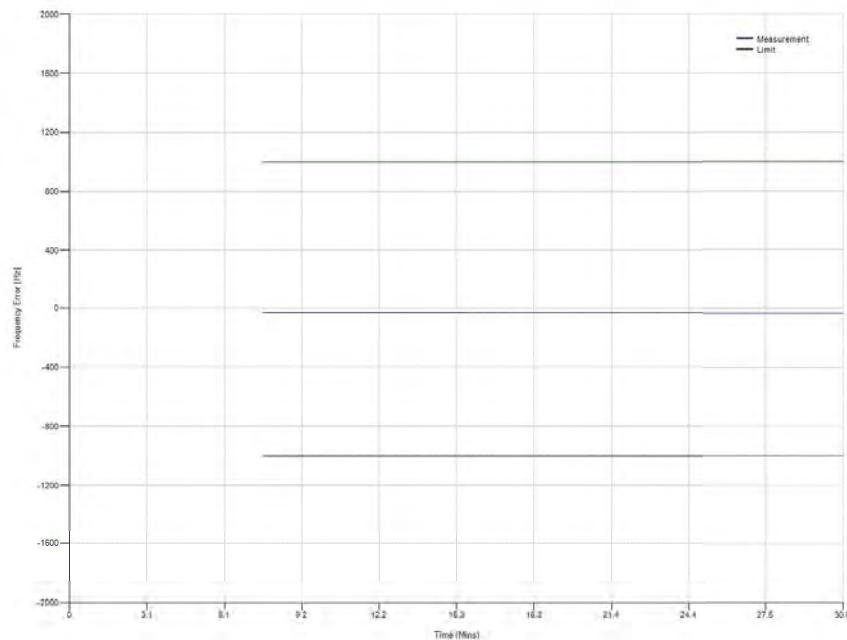
Message	FFFE2F8C99000000147648E3D395E00F0F75		
Hex ID	193200000028EC9		
Position	81°30'0" N 100°15'0" W		
Parameter	Bit	Data Bits	Decoded Value
Bit synchronization	1-15	111111111111111	111111111111111
Frame synchronization	16-24	000101111	000101111
Format Flag	25	1	1
Protocol Flag	26	0	0
Country Code	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	00000000000000000000000000000000	ELT(DT) Location Test Protocol
N/S	67	0	North
Latitude Degrees	68-75	101000111	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 Distress Message

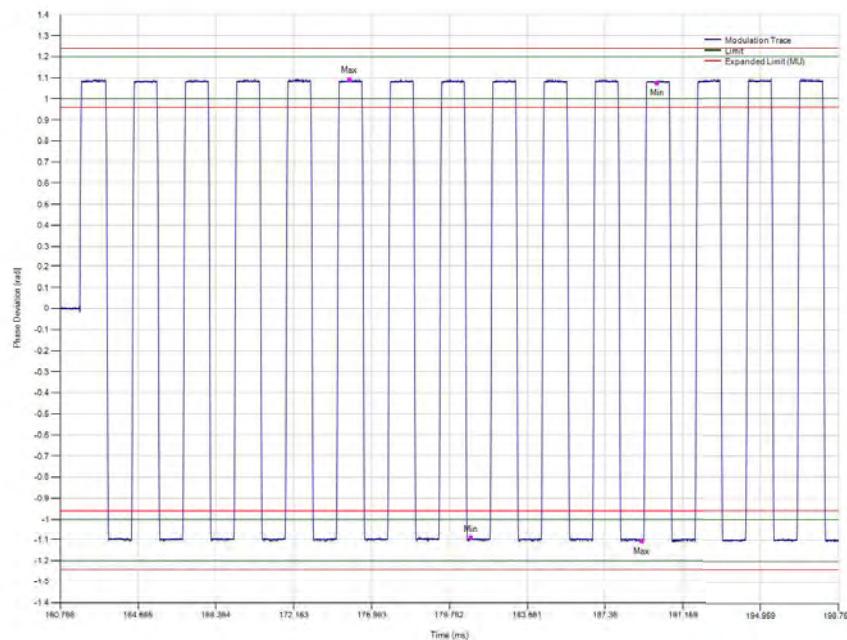
Message	FFFE2F8C99000000147648E3D3950452A17E		
Hex ID	193200000028EC9		
Position	81°30' N 100°30' W		
Parameter	Bit	Data Bits	Decoded Value
Bit synchronization	1-15	111111111111111	111111111111111
Frame synchronization	16-24	000101111	000101111
Format Flag	25	1	1
Protocol Flag	26	0	0
Country Code	27-36	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	00000000000000000000000000000000	ELT(DT) Location Test Protocol
N/S	67	0	North
Latitude Degrees	68-75	101000111	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	000100010100101010	ZLR
BCH Code (12 Bit)	133-144	000101111110	000101111110
Calculated BCH Code (12 Bit)	-	000101111110	000101111110



Frequency Plot



Modulation Plot



Summary

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