Parameters to be Measured	Range of Specification	Units	Test Results			Comments
15. Antenna Characteristics						**Result: Non-Compliance***
Model: PLB-450, S/N: TA000011, TUV Ref: TSR014 and Modification State 0						
Test Configuration	As per C/S T.007		Configuration			*Measurement outside the limits stated in C/S T.007. However, the result is within the Test Facility Accuracy stated in C/S T.008.
			3 – Dry	3 - Wet	4	
Polarisation	linear or RHCP		Linear	Linear	Linear	
VSWR	≤ 1.5		N/A	N/A	N/A	Detachable Antennas Only
$EIRP_{LOSS}$		dB	-0.23	-0.23	-0.23	
$EIRP_{maxEOL}$	≤ 43**	dBm	42.21	41.20	39.92	**≤ 45 for PLB on PFD
$EIRP_{minEOL}$	≥ 32***	dBm	32.30	31.59*	33.24	***$EIRP_{minEOL}$ limit decreases to 30 dBm for Configuration 4
16. Beacon Coding Software						**Result: Pass**
Sample message for each coding option of the applicable coding types	correct	P / F	P			See manufacturer test report '921S-04041-PLB3 Navigation System, Beacon and Message Coding_01.02.pdf'
Sample self-test message for each coding option of the applicable coding types	correct	P / F	P			

Parameters to be Measured	Range of Specification	Units	Test Results			Comments
17. Navigation System						**Result: Pass***
Model: PLB3, S/N: TA000005, TUV Ref: TSR005 and Modification State 0						
Location protocol	C/S T.001		National	Standard	RLS	* Refer to OSL document 921S-04094 showing 4:10s due to non synchronisation between 406 and GNSS timings. The EUT complies with T.001 clause 4.5.5.4 and is compliant with T.007 clause A.3.8.3 but deviates from the requirements of Annex B Table F.1 element 17.
Position data default values	correct	P / F	P	P	P	
Configuration 7 (Wet)						
Position accuracy - A.3.8.2.1	C/S T.001	m	24	24	24	
Position Acquisition Time - A.3.8.2.1	<10/1	min	0.933	0.933	0.933	
Position accuracy - A.3.8.2.2	C/S T.001	m	32.5	32.5	32.5	
Position Acquisition Time - A.3.8.2.2	<10/1	min	0.916	0.916	0.916	
Configuration 8						
Position accuracy - A.3.8.2.1	C/S T.001	m	24	24	24	
Position Acquisition Time - A.3.8.2.1	<10/1	min	0.933	0.933	0.933	
Position accuracy - A.3.8.2.2	C/S T.001	m	32.5	32.5	32.5	
Position Acquisition Time - A.3.8.2.2	<10/1	min	0.916	0.916	0.916	
Encoded position data update interval (short)	>4m 25s, <16m 30s	min sec	8m 26s	12m 40s	10m 08s	See report section 2.14 (A.3.8.3 – Short Test)
Encoded position data update interval (long) - maximum	>4m 25s, <16m 30s	min sec	4m 10s	4m 10s	4m 54s	See report section 2.14 (A.3.8.3 – Long Test)
Encoded position data update interval (long) - minimum	>4m 25s, <16m 30s	min sec	8m 23s	8m 24s	5m 02s	See report section 2.14 (A.3.8.3 – Long Test)
Internal navigation device update intervals	C/S T.001	P/F	P	P	P	
Position clearance after deactivation	cleared	P / F	P	P	P	
Position data input update interval (as applicable)	20/1	Min	N/A	N/A	N/A	
Position data encoding	correct	P / F	P	P	P	See manufacturer test report '921S-04041-PLB3 Navigation System, Beacon and Message Coding_01.02.pdf'
Retained last valid position after navigation input lost	240(±5)	min	239.50	239.62	237.62	
Default position data transmitted after 240(±5) minutes without valid position data	cleared	P / F	P	P	P	
Information on protection against beacon degradation due to navigation device, interface or signal failure or malfunction	provided	Y / N	Y			See Annex A

Parameters to be Measured	Range of Specification	Units	Test Results	Comments
18. Return Link Service (RLS)				**Result: Pass**
Model: PLB3, S/N: TA000003, TUV Ref: TSR026 and Modification State 0				
A.3.8.8.1 Moffset Test – Configuration 7				
Self-Test for correct 15 Hex ID	193BFFA11FBFDFF	N/A	193BFFA11FBFDFF	
a) RLS Indication RLS request unique distinct indication	≤ 5 seconds after activation, until a valid RLM Type 1 or Test RLM message is received	 s	 1	Test Start 11:05:34 UTC RLS Request 11:06:29 UTC RLS Indication 11:06:30 UTC
RLS indication is readily visible to the user when the beacon is operated in all declared operational configurations	Must be correct	P/F	P	
RLS indication is clearly visible to the user in direct sunlight, at a distance of 1 meter from the beacon.	Must be correct	P/F	P	
RLS indication remain inactive at all times when the beacon is encoded with any protocol other than RLS Location Protocol or RLS Location Test Protocol;	Must be correct	P/F	P	The LEDs flash a different colour when encoded with non-RLS protocol
Distinct indication that the RLM Type- 1 or Test RLM has been received	< 5 sec, after the RLM has been received until either the beacon is deactivated or the beacon battery is expired	s	1	RLM Reception 11:06:56 UTC RLM Indication 11:06:57 UTC
The beacon only provides the indication of receipt of the RLM Type 1 or Test RLM, which contain the beacon 15 Hex ID	Must be correct	P/F	Pass	
b) Transmitted Message Bits 109 – 114	100001	bits	100001	36 Hex message: FFFE2F8C9DFFD08FCCD012092FF84FBEA8E5
c) GNSS Receiver turns on	≤ 5 seconds after first transmission	s	1*	* GNSS receiver activates at beacon start up.

Parameters to be Measured	Range of Specification	Units	Test Results	Comments
d) Time to output UTC	Record time since receiver activation	s	8	UTC lock 11:05:42 UTC
e) GNSS Receiver on time	≥ 30 minutes after beacon activation	min	N/T	RLM was received at 11:06:56 UTC, the beacon only supports Type-1 RLM therefore parts e) and h) to k) do not apply.
f) Time to indicate RLM receipt	≤ 30 minutes after beacon activation	min	1.366	RLM Receipt 11:06:56 UTC
g) Transmitted Message Bits 109 to 114	101001	N/A	101001	36 Hex message: FFFE2F8C9DFFD08FCCD012092FFA4FBEA421
h) GNSS Receiver reactivation time	1 minutes +/- 5 seconds past next natural hour	min	N/A	
i) GNSS Receiver on time	≥ 15 minutes after reactivation	min	N/A	
j) GNSS Receiver reactivation time	1 minutes +/- 5 seconds past next natural hour	min	N/A	
k) GNSS Receiver on time	≥ 15 minutes after reactivation	min	N/A	

Parameters to be Measured	Range of Specification	Units	Test Results	Comments
18. Return Link Service (RLS)				**Result: Pass**
A.3.8.8.1 Moffset Test – Configuration 8				
Self-Test for correct 15 Hex ID	193BFFA11FBFDFF	N/A	193BFFA11FBFDFF	Moffset = 01
a) RLS Indication RLS request unique distinct indication	≤ 5 seconds after activation, until a valid RLM Type 1 or Test RLM message is received	 S	1	Test Start 09:06:35 UTC RLS Request 09:07:32 UTC RLS Indication 09:07:33 UTC
RLS indication is readily visible to the user when the beacon is operated in all declared operational configurations	Must be correct	P/F	P	
RLS indication is clearly visible to the user in direct sunlight, at a distance of 1 meter from the beacon.	Must be correct	P/F	P	
RLS indication remain inactive at all times when the beacon is encoded with any protocol other than RLS Location Protocol or RLS Location Test Protocol;	Must be correct	P/F	P	When the EUT is encoded with any other protocol that it supports, the RLS LED remains inactive
Distinct indication that the RLM Type- 1 or Test RLM has been received	< 5 sec, after the RLM has been received until either the beacon is deactivated or the beacon battery is expired	S	1	RLM Reception 09:08:05 UTC RLM Indication 09:08:06 UTC
The beacon only provides the indication of receipt of the RLM Type 1 or Test RLM, which contain the beacon 15 Hex ID	Must be correct		P	
b) Transmitted Message Bits 109 – 114	100001	N/A	100001	36 Hex message: FFFE2F8C9DFFD08FCCD012092FF84FBEA8E5 Moffset = 01
c) GNSS Receiver turns on	≤ 5 seconds after first transmission	S	1*	*GNSS receiver activates at beacon start up.

Parameters to be Measured	Range of Specification	Units	Test Results	Comments
d) Time to output UTC	Record time since receiver activation	s	11	UTC Lock 09:06:46 UTC
e) GNSS Receiver on time	≥ 30 minutes after beacon activation	min	N/T	RLM was received at 09:08:05 UTC, the beacon only supports Type-1 RLM therefore parts e) and h) to k) do not apply.
f) Time to indicate RLM receipt	≤ 30 minutes after beacon activation	min	1.5	RLM Receipt 09:08:05 UTC
g) Transmitted Message Bits 109 to 114	101001	N/A	101001	36 Hex message: FFFE2F8C9DFFD08FCCD012092FFA4FBEA421 Moffset = 01
h) GNSS Receiver reactivation time	1 minutes +/- 5 seconds past next natural hour	min	N/A	
i) GNSS Receiver on time	≥ 15 minutes after reactivation	min	N/A	
j) GNSS Receiver reactivation time	1 minutes +/- 5 seconds past next natural hour	min	N/A	
k) GNSS Receiver on time	≥ 15 minutes after reactivation	min	N/A	

Parameters to be Measured	Range of Specification	Units	Test Results	Comments
A.3.8.8.2 UTC Test - Configuration 7				**Result: Pass**
a) Visual Indication	≤ 5 seconds after activation	sec	1	Test Start 12:10:57 UTC RLS Request 12:11:52 UTC RLS Request Indication 12:11:53 UTC
b) Transmitted Message Bits 109 to 114	100001	N/A	100001	36 Hex message: FFFE2F8C9DFFD08FCCD012092FF84FBEA8E5 Moffset = 01
c) GNSS Receiver turns on	≤ 5 seconds after first transmission	s	1*	* GNSS receiver activates at beacon start up.
d) Time to output UTC	Record time since receiver activation	s	10	UTC Lock 12:11:07
e) GNSS Receiver position output Deny Beacon further GNSS signals	Valid Lat/Long No further receiver outputs	N/A N/A	Pass Pass	
f) Transmitted message valid location Message Bits 109 to 114	≤ 500m of actual beacon location 100001	m N/A	21.9 100001	Actual Position: N 50.86903, W 1.24466 Encoded Position: N 50.86889, W 1.24444 Position Error: 21.9 m 36 Hex message: FFFE2F8C9DFFD08FCCD012092FF84FBEA8E5
g) GNSS Receiver on time	≥ 30 minutes after beacon activation	min	30.1	GNSS Sleep 12:41:03 UTC
h) GNSS Receiver reactivation time	1 minute +/- 5 seconds past next natural hour	min	0.75	GNSS Reactivation 13:00:45 UTC Already on
i) GNSS Receiver on time	≥ 15 minutes after reactivation	min	15.26	GNSS Sleep 13:16:01 UTC On for 15 minutes and 1 second past moffset on time.
j) Transmitted message valid location Message Bits 109 to 114	≤ 500m of actual beacon location 100001	m N/A	21.9 100001	Actual Position: N 50.86903, W 1.24466 Encoded Position: N 50.86889, W 1.24444 Position Error: 21.9 m 36 Hex message: FFFE2F8C9DFFD08FCCD012092FFA4FBEA421
k) GNSS Receiver reactivation time	1 minute +/- 5 seconds past next natural hour	min	0.28	GNSS Reactivation at 14:00:17 Already on
m) GNSS Receiver on time	≥ 15 minutes after reactivation	min	N/A	15 min period does not apply as the RLM was received at 14:09:57 UTC and beacon only accepts Type-1 RLM. Part m) is not applicable.
n) Time to indicate RLM receipt	≤ 15 minutes after receiver reactivation	min	9.96	RLM Indication at 14:09:58 UTC and the required reactivation time is taken as 14:01:00
o) Transmitted Message Bits 109 to 114 *	101001	N/A	101001	

Parameters to be Measured	Range of Specification	Units	Test Results	Comments
A.3.8.8.2 UTC Test - Configuration 8				**Result: Pass**
a) Visual Indication	≤ 5 seconds after activation	sec	1	Test Start 14:16:06 UTC RLS Request 14:17:01 UTC RLS Request Indication 14:17:02 UTC
b) Transmitted Message Bits 109 to 114	100001	N/A	100001	36 Hex message: FFFE2F8C9DFFD08FCCD012092FF84FBEA8E5 Moffset =01
c) GNSS Receiver turns on	≤ 5 seconds after first transmission	s	1*	* GNSS receiver activates at beacon start up.
d) Time to output UTC	Record time since receiver activation	s	10	UTC Lock 14:16:16
e) GNSS Receiver position output Deny Beacon further GNSS signals	Valid Lat/Long No further receiver outputs	N/A N/A	Pass Pass	
f) Transmitted message valid location Message Bits 109 to 114	≤ 500m of actual beacon location 100001	m N/A	21.9 100001	Actual Position: N 50.86903, W 1.24466 Encoded Position: N 50.86889, W 1.24444 Position Error: 21.9 m 36 Hex message: FFFE2F8C9DFFD08FCCD012092FF84FBEA8E5
g) GNSS Receiver on time	≥ 30 minutes after beacon activation	min	30.06	
h) GNSS Receiver reactivation time	1 minute +/- 5 seconds past next natural hour	min	0.93	Reactivation Time 15:00:56 UTC Already on
i) GNSS Receiver on time	≥ 15 minutes after reactivation	min	15.08	GNSS Sleep 15:16:01 UTC On for 15 minutes and 1 second past moffset on time.
j) Transmitted message valid location Message Bits 109 to 114	≤ 500m of actual beacon location 100001	m N/A	21.9 100001	Actual Position: N 50.86903, W 1.24466 Encoded Position: N 50.86889, W 1.24444 Position Error: 21.9 m 36 Hex message: FFFE2F8C9DFFD08FCCD012092FFA4FBEA421
k) GNSS Receiver reactivation time	1 minute +/- 5 seconds past next natural hour	min	0.28	GNSS Reactivation at 16:00:17 UTC Already on
m) GNSS Receiver on time	≥ 15 minutes after reactivation	min	N/T	15 min period does not apply as the RLM was received at 16:06:25 UTC and beacon only accepts Type-1 RLM. Parts m) and n) are not applicable.
n) Time to indicate RLM receipt	≤ 15 minutes after receiver reactivation	min	6.43	RLM Indication at 16:06:26 UTC and the required reactivation time is taken as 16:01:00
o) Transmitted Message Bits 109 to 114 *	101001	N/A	101001	

Parameters to be Measured	Range of Specification	Units	Test Results	Comments
A.3.8.8.4 RLS GNSS Receiver Satellite Tracking	Correct	P/F	P	See Manufacturer document: 921S-04096 Issue 01.00 PLB3 RLS GNSS Receiver Satellite Tracking Report.pdf
19. Prevention of Continuous Transmission				Not Applicable
20. Activation and Cancellation Message Test (ELT (DT)) only)				Not Applicable
22. Testing Beacon Controls				**Result: Pass**
Model: PLB3, S/N: TA000005, TUV Ref: TSR005 and Modification State 2				
Self-Test Controls	Comply with A.3.10.1 (i)	P/F	P	
GNSS Self-Test Controls	Comply with A.3.10.1 (ii)	P/F	P	
Operational Controls	Comply with A.3.10.2	P/F	P	

2.2 POWER OUTPUT (ELECTRICAL AND FUNCTIONAL TESTS AT CONSTANT TEMPERATURE)

2.2.1 Specification

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

2.2.2 Equipment Under Test and Modification State

PLB3, S/N: TA000005 - Modification State 3 (Ambient Only)
PLB3, S/N: TA000005 - Modification State 0 (Low and High)

2.2.3 Date of Test

01 July 2021, 06 July 2021, 07 July 2021, 14 September 2021 & 19 April 2022

2.2.4 Test Equipment Used

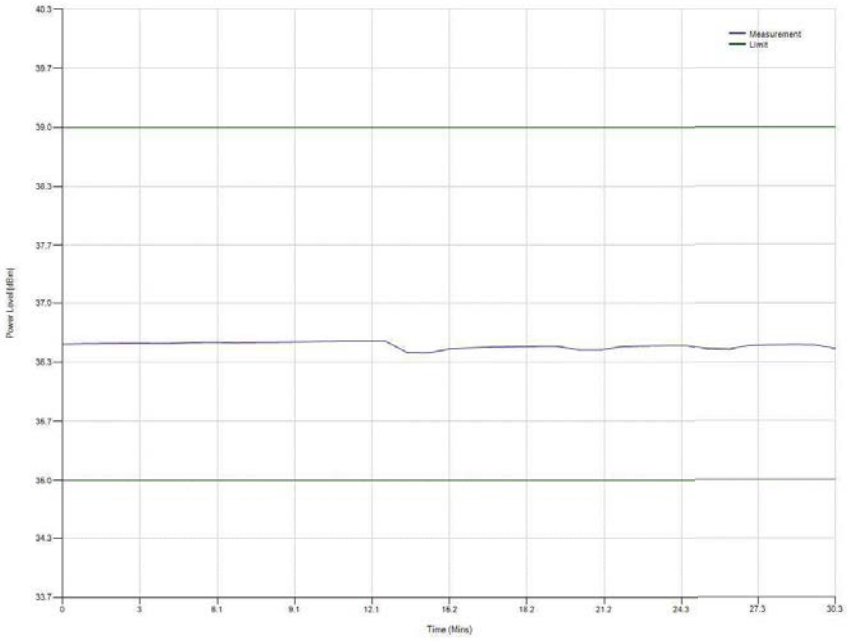
The major items of test equipment used for the above tests are identified in Section 3.1.

2.2.5 Laboratory Environmental Conditions

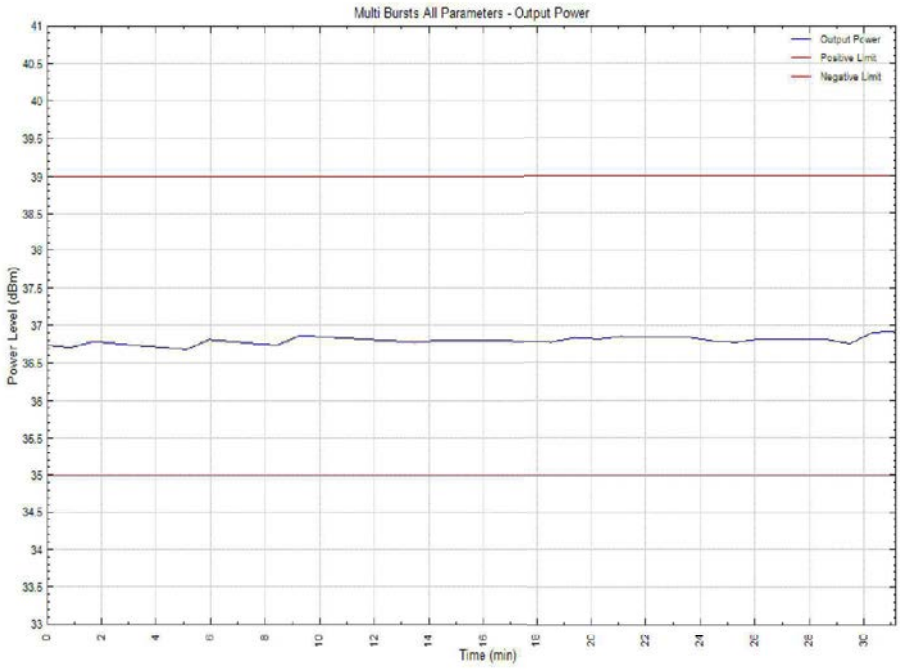
Ambient Temperature 22.8 - 24.3°C
Relative Humidity 32.4 - 62.4%

2.2.6 Test Results

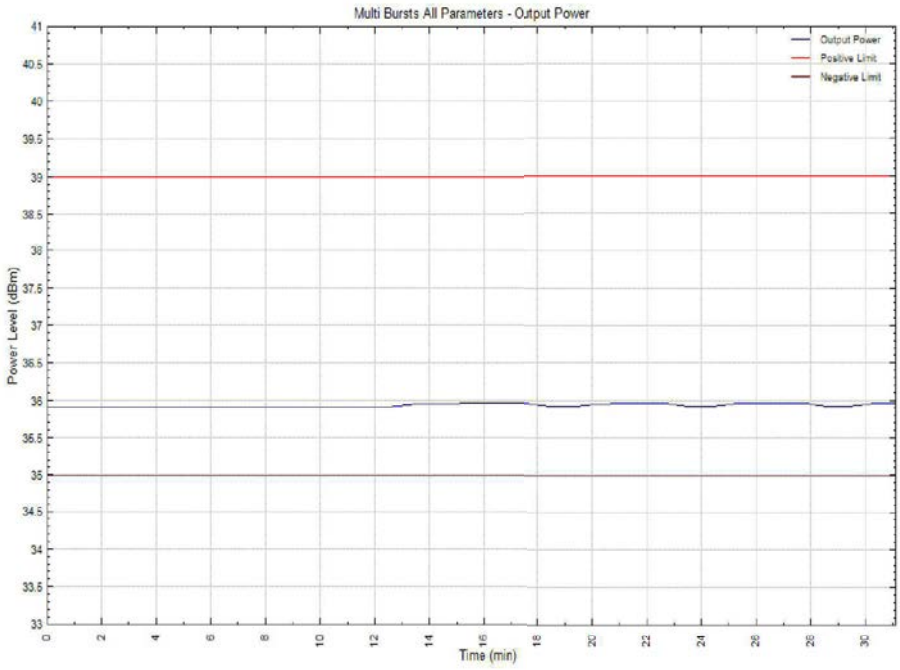
<u>Ambient Temperature</u>



Low Temperature (-20°C)



High Temperature (+55°C)



Summary

The EUT complies with clause A.3.2.2 of Cospas-Sarsat T.007.

2.3 DIGITAL MESSAGE (ELECTRICAL AND FUNCTIONAL TESTS AT CONSTANT TEMPERATURE)

2.3.1 Specification

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

2.3.2 Equipment Under Test and Modification State

PLB3, S/N: TA000005 - Modification State 3 (Ambient Only)
PLB3, S/N: TA000005 - Modification State 0 (Low and High)

2.3.3 Date of Test

01 July 2021, 06 July 2021, 07 July 2021, 14 September 2021 & 19 April 2022

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 - 24.3°C
Relative Humidity 32.4 - 62.4%

2.3.6 Test Results

Test Duration: 30 minutes
No. of bursts: 38

Ambient Temperature

Decoded Beacon Message

Hexadecimal code: **FFFE2F8C9DFFD08FDFEFFF28917861F0FABE**

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

Unique identifier:
193BFFA11FBFDFF

Bit numbers in message	Binary content	Field Name	Description
1-15	111111111 111111	Bit-synchronization pattern consisting of "1"s shall occupy the first 15-bit positions	True
16-24	000101111	Frame Synchronization Pattern	Correct. Operational Message
25	1	Format Flag	Long Message
26	0	Protocol Flag	Location, further information provided in "Protocol Code"
27-36	0011001001	Country code:	Albania - 201
37-40	1101	Protocol Code	Location: RLS Location Protocol
41-42	11	Beacon type	RLS Test Location
43-46	1111	Identification type	RLS protocol coded with MMSI last 6 digits
47-66	11110100001000111111	Last 6 digits MMSI	999999
67-75	011111111	Latitude	Default - no location (Default - no location)
76-85	0111111111	Longitude	Default - no location (Default - no location)
86-106	11100101000100100101	BCH-1 error correcting code	BCH-1 code in message matches the recalculated BCH-1 from the PDF-1 field
107	1	Encoded position source	Encoded position data is provided by an internal navigation device
108	1	121.5 Mhz Homing Device	Included in beacon
109	1	Beacon capability to process and automatically generated RLM Type-1	Capable to process an automatically generated RLM Type-1
110	0	Beacon capability to process a manually generated RLM Type-1 RLM Type-2	Not capable to process a manually generated RLM Type-2
111	0	Beacon Feedback on receipt of RLM Type-1	RLM Type-1 (automatic) not received by this beacon
112	0	Beacon Feedback on receipt of RLM Type-2	RLM Type-2 (manual) not received by this beacon
113-114	01	RLS Provider Identification	GALILEO Return Link Service Provider
115-123	100001111	Latitude offset	Default value
124-132	100001111	Longitude offset	Default value
133-144	101010111110	BCH-2 error correcting code	BCH-2 code in message matches the recalculated BCH-2 from the PDF-2 field

Low Temperature

Decoded Beacon Message

Hexadecimal code: **FFFE2F8C9DFFD08FDFEFFF28917861F0FABE**

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

Unique identifier:
193BFFA11FBFDFF

Bit numbers in message	Binary content	Field Name	Description
1-15	111111111 111111	Bit-synchronization pattern consisting of "1"s shall occupy the first 15-bit positions	True
16-24	000101111	Frame Synchronization Pattern	Correct. Operational Message
25	1	Format Flag	Long Message
26	0	Protocol Flag	Location, further information provided in "Protocol Code"
27-36	0011001001	Country code:	Albania - 201
37-40	1101	Protocol Code	RLS Location Protocol
41-42	11	Beacon type	RLS Test Location
43-46	1111	Identification type	RLS protocol coded with MMSI last 6 digits
47-66	11110100001000111111	Last 6 digits MMSI	999999
67-75	011111111	Latitude	Default - no location (Default - no location)
76-85	0111111111	Longitude	Default - no location (Default - no location)
86-106	11100101000100100 0101	BCH-1 error correcting code	BCH-1 code in message matches the recalculated BCH-1 from the PDF-1 field
107	1	Encoded position source	Encoded position data is provided by an internal navigation device
108	1	121.5 Mhz Homing Device	Included in beacon
109	1	Beacon capability to process and automatically generated RLM Type-1	Capable to process an automatically generated RLM Type-1
110	0	Beacon capability to process a manually generated RLM Type-1 RLM Type-2	Not capable to process a manually generated RLM Type-2
111	0	Beacon Feedback on receipt of RLM Type-1	RLM Type-1 (automatic) not received by this beacon
112	0	Beacon Feedback on receipt of RLM Type-2	RLM Type-2 (manual) not received by this beacon
113-114	01	RLS Provider Identification	GALILEO Return Link Service Provider
115-123	100001111	Latitude offset	Default value
124-132	100001111	Longitude offset	Default value
133-144	101010111 110	BCH-2 error correcting code	BCH-2 code in message matches the recalculated BCH-2 from the PDF-2 field

High Temperature (+55°C)

Decoded Beacon Message

Hexadecimal code: **FFFE2F8C9DFFD08FDFEFFF28917861F0FABE**

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

Unique identifier:
193BFFA11FBFDFF

Bit numbers in message	Binary content	Field Name	Description
1-15	111111111 111111	Bit-synchronization pattern consisting of "1"s shall occupy the first 15-bit positions	True
16-24	000101111	Frame Synchronization Pattern	Correct. Operational Message
25	1	Format Flag	Long Message
26	0	Protocol Flag	Location, further information provided in "Protocol Code"
27-36	0011001001	Country code:	Albania - 201
37-40	1101	Protocol Code	RLS Location Protocol
41-42	11	Beacon type	RLS Test Location
43-46	1111	Identification type	RLS protocol coded with MMSI last 6 digits
47-66	11110100001000111111	Last 6 digits MMSI	999999
67-75	011111111	Latitude	Default - no location (Default - no location)
76-85	0111111111	Longitude	Default - no location (Default - no location)
86-106	11100101000100100 0101	BCH-1 error correcting code	BCH-1 code in message matches the recalculated BCH-1 from the PDF-1 field
107	1	Encoded position source	Encoded position data is provided by an internal navigation device
108	1	121.5 Mhz Homing Device	Included in beacon
109	1	Beacon capability to process and automatically generated RLM Type-1	Capable to process an automatically generated RLM Type-1
110	0	Beacon capability to process a manually generated RLM Type-1 RLM Type-2	Not capable to process a manually generated RLM Type-2
111	0	Beacon Feedback on receipt of RLM Type-1	RLM Type-1 (automatic) not received by this beacon
112	0	Beacon Feedback on receipt of RLM Type-2	RLM Type-2 (manual) not received by this beacon
113-114	01	RLS Provider Identification	GALILEO Return Link Service Provider
115-123	100001111	Latitude offset	Default value
124-132	100001111	Longitude offset	Default value
133-144	101010111 110	BCH-2 error correcting code	BCH-2 code in message matches the recalculated BCH-2 from the PDF-2 field

Summary

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

2.4 MODULATION (ELECTRICAL AND FUNCTIONAL TESTS AT CONSTANT TEMPERATURE)

2.4.1 Specification

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

2.4.2 Equipment Under Test and Modification State

PLB3, S/N: TA000005 - Modification State 3 (Ambient Only)
PLB3, S/N: TA000005 - Modification State 0 (Low and High)

2.4.3 Date of Test

01 July 2021, 06 July 2021, 07 July 2021, 14 September 2021 & 19 April 2022

2.4.4 Test Equipment Used

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

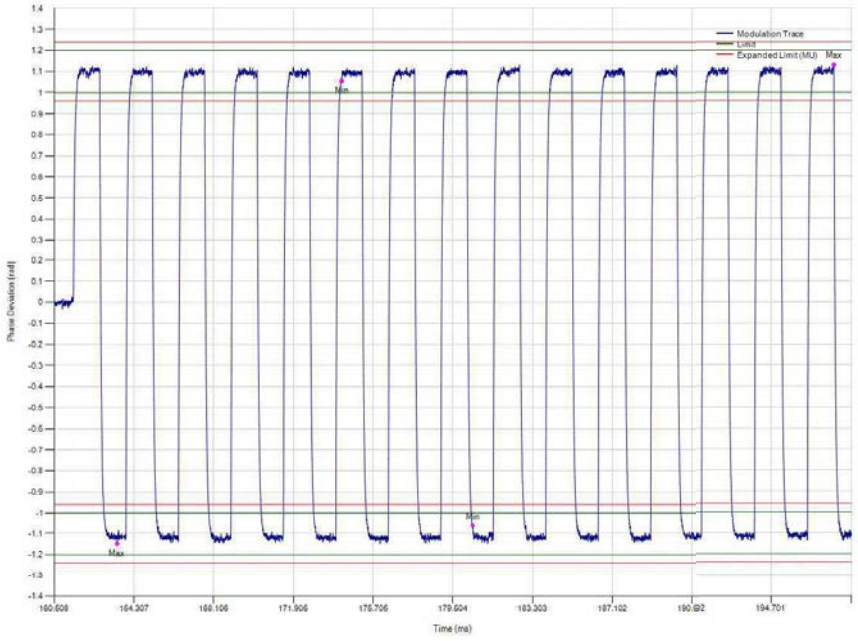
2.4.5 Laboratory Environmental Conditions

Ambient Temperature 22.8 - 24.3°C
Relative Humidity 32.4 - 62.4%

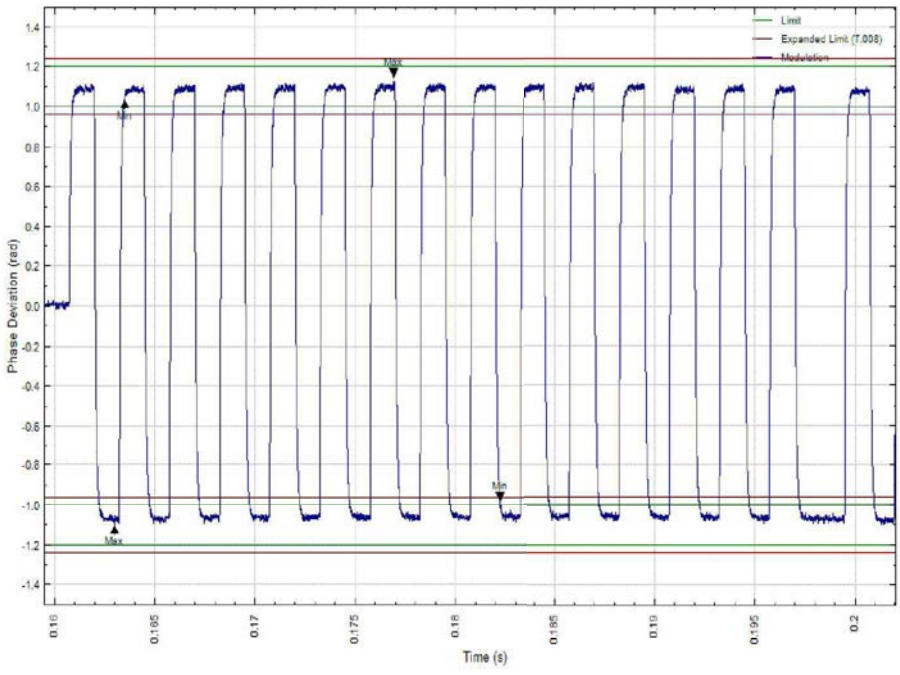
2.4.6 Test Results

Test Duration: 30 minutes
No. of bursts: 38

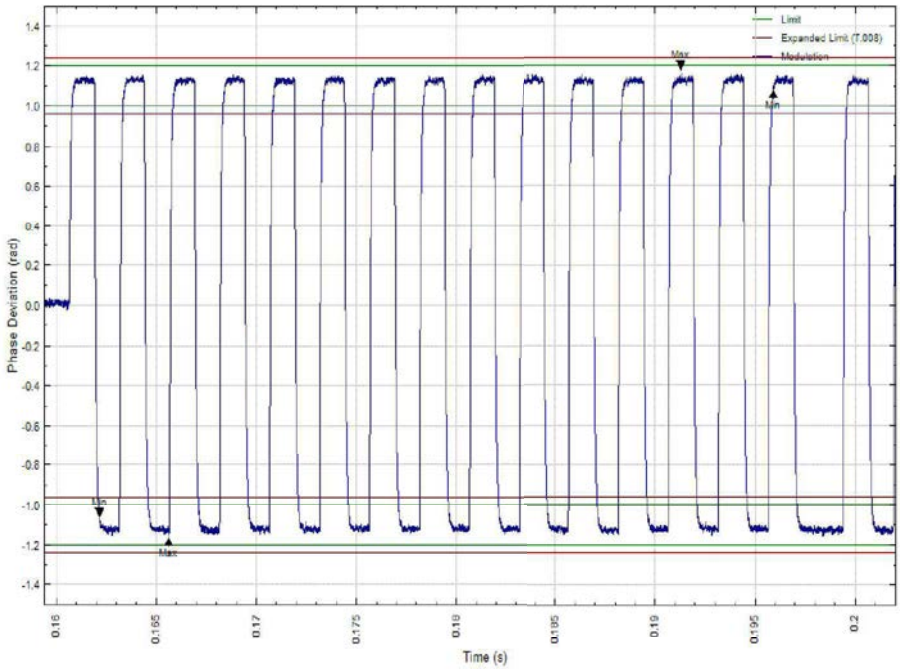
Ambient Temperature



Low Temperature



High Temperature (+55°C)



Summary

The EUT fails to comply with clause A.3.2.3 of Cospas-Sarsat T.007. Phase modulation measurements outside the limits stated in C/S T.007. However, the result is within the Test Facility Accuracy stated in C/S T.008.

2.5 406 MHZ TRANSMITTED FREQUENCY (ELECTRICAL AND FUNCTIONAL TESTS AT CONSTANT TEMPERATURE)

2.5.1 Specification

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

2.5.2 Equipment Under Test and Modification State

PLB3, S/N: TA000005 - Modification State 3 (Ambient Only)
PLB3, S/N: TA000005 - Modification State 0 (Low and High)

2.5.3 Date of Test

07 July 2021, 14 September 2021 & 19 April 2022

2.5.4 Test Equipment Used

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

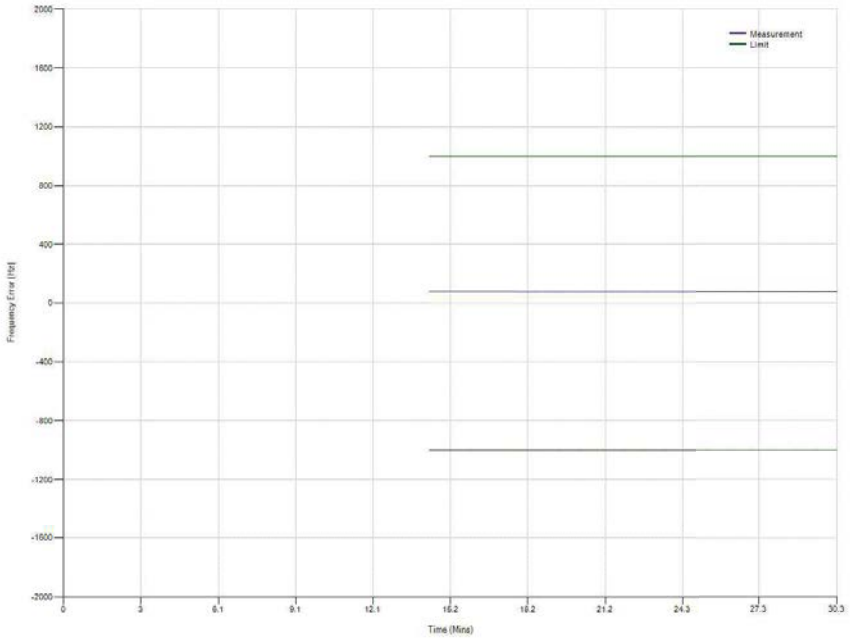
2.5.5 Laboratory Environmental Conditions

Ambient Temperature 22.8 - 24.3°C
Relative Humidity 32.4 - 62.4%

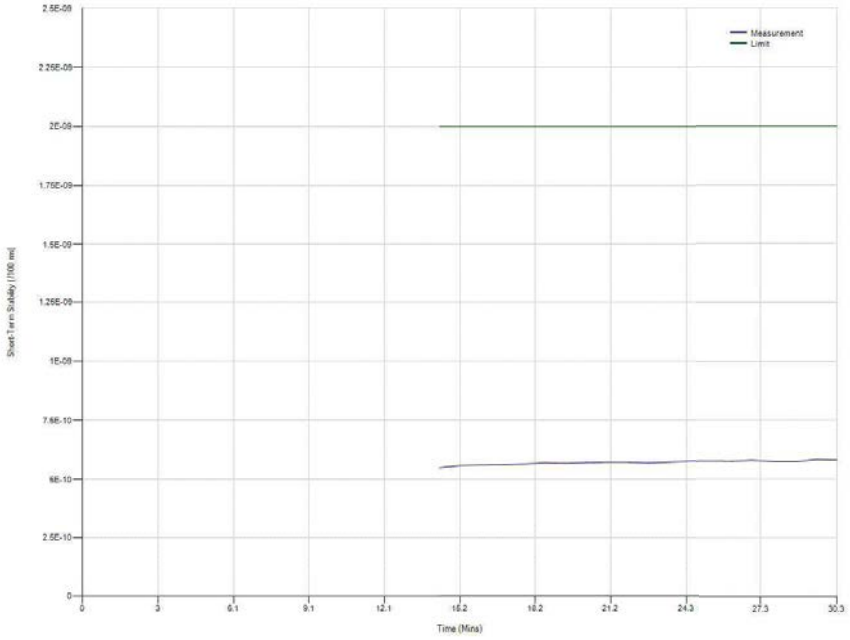
2.5.6 Test Results

Ambient Temperature

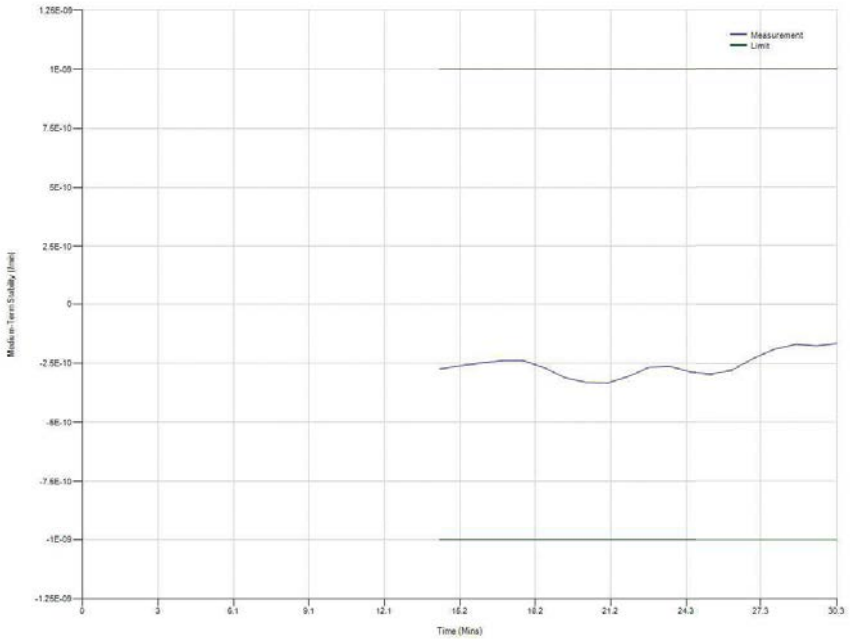
Nominal Frequency



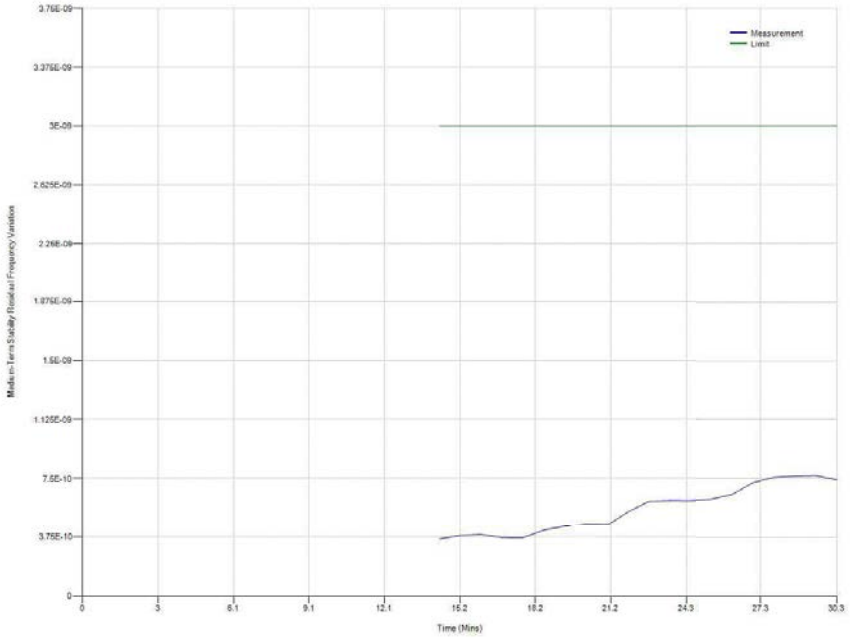
Short Term Stability



Medium Term Stability – Slope

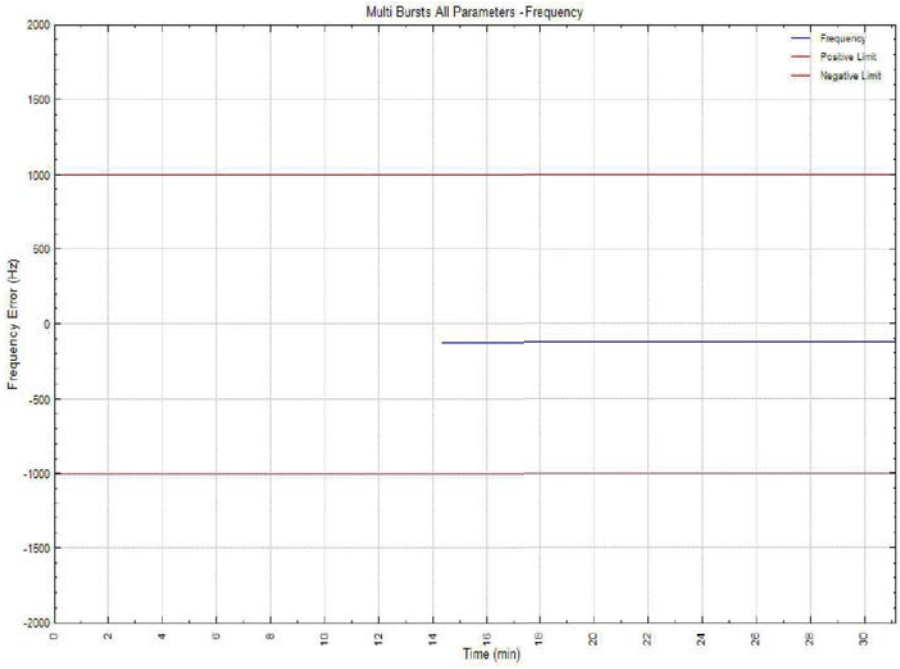


Medium Term Stability – Residual

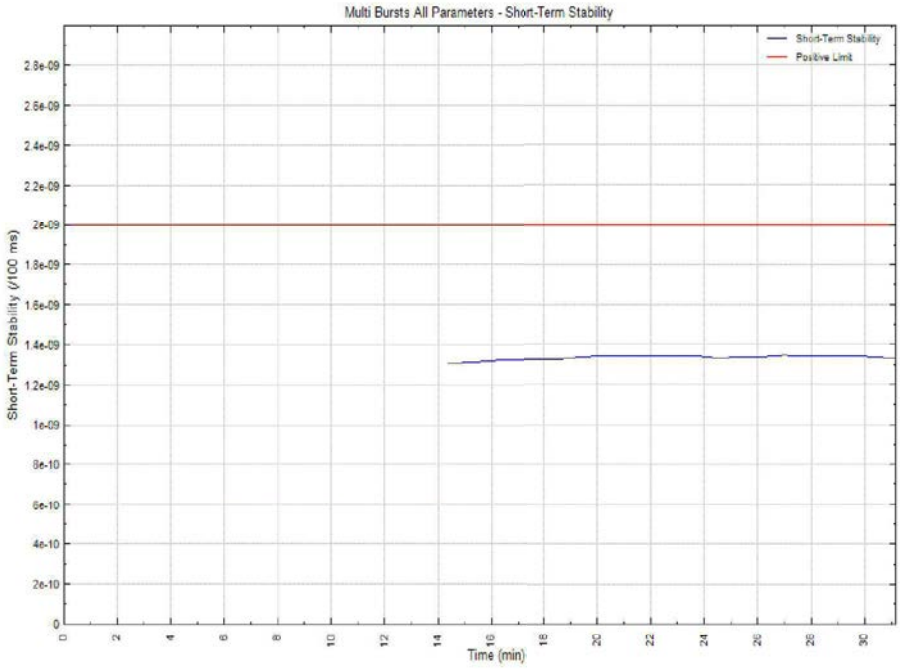


Low Temperature (-20°C)

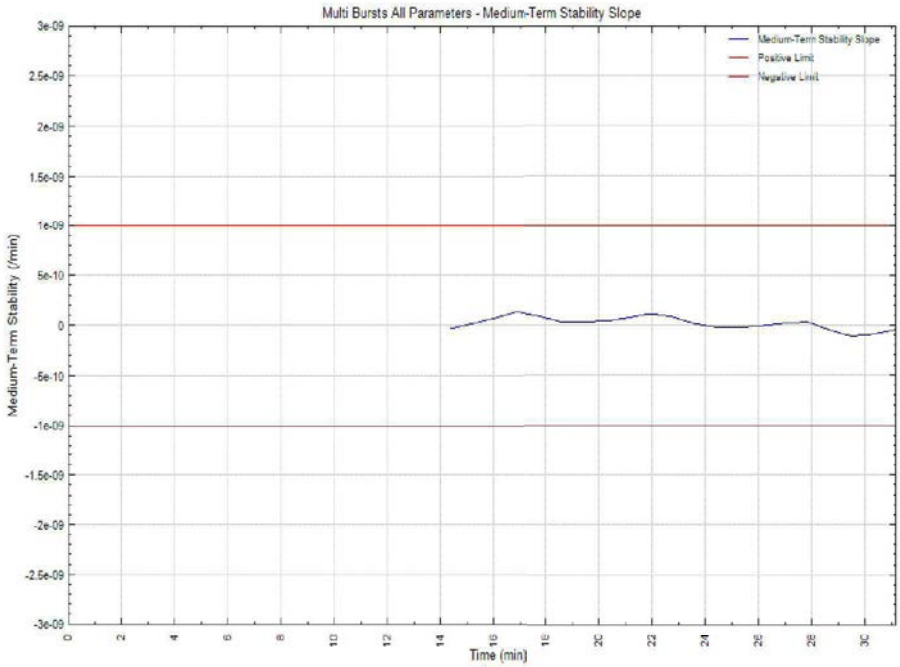
Nominal Frequency



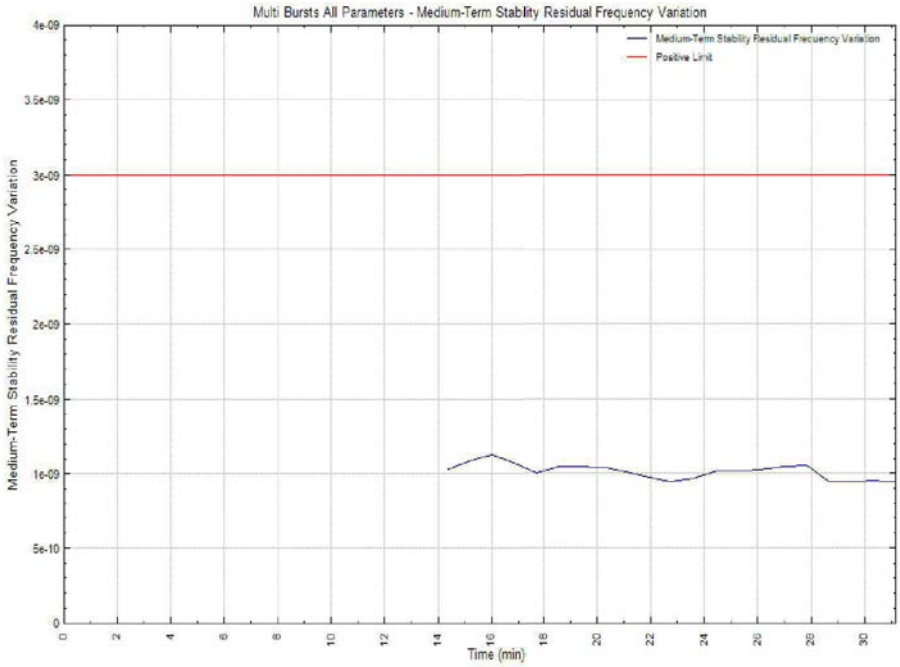
Short Term Stability



Medium Term Stability – Slope

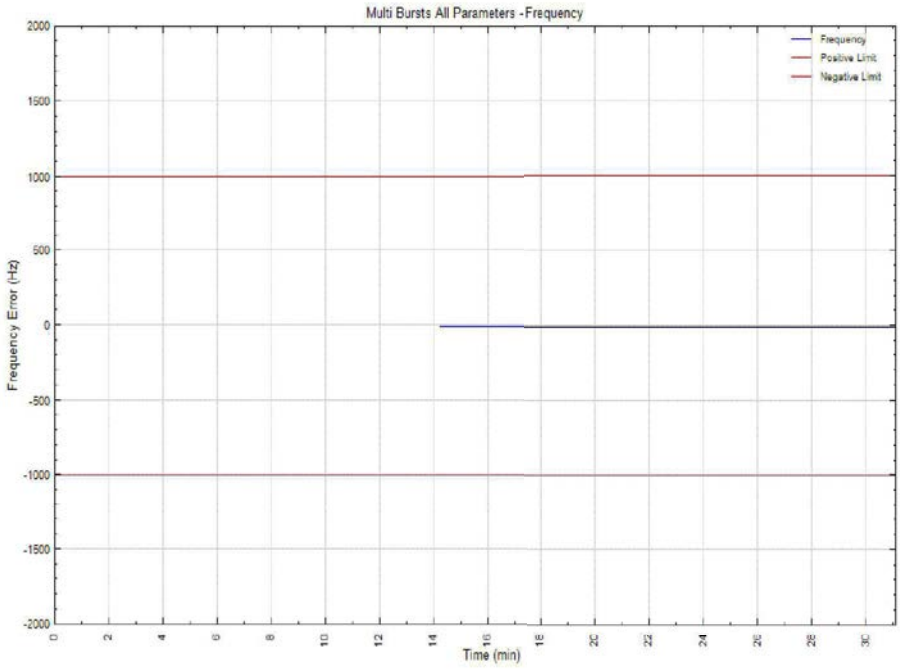


Medium Term Stability – Residual

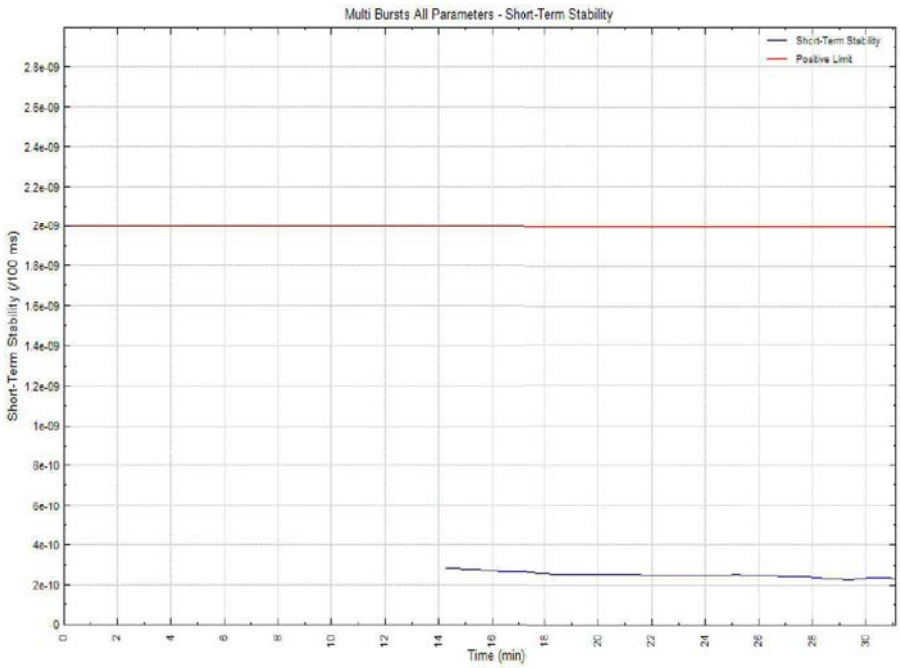


High Temperature (+55°C)

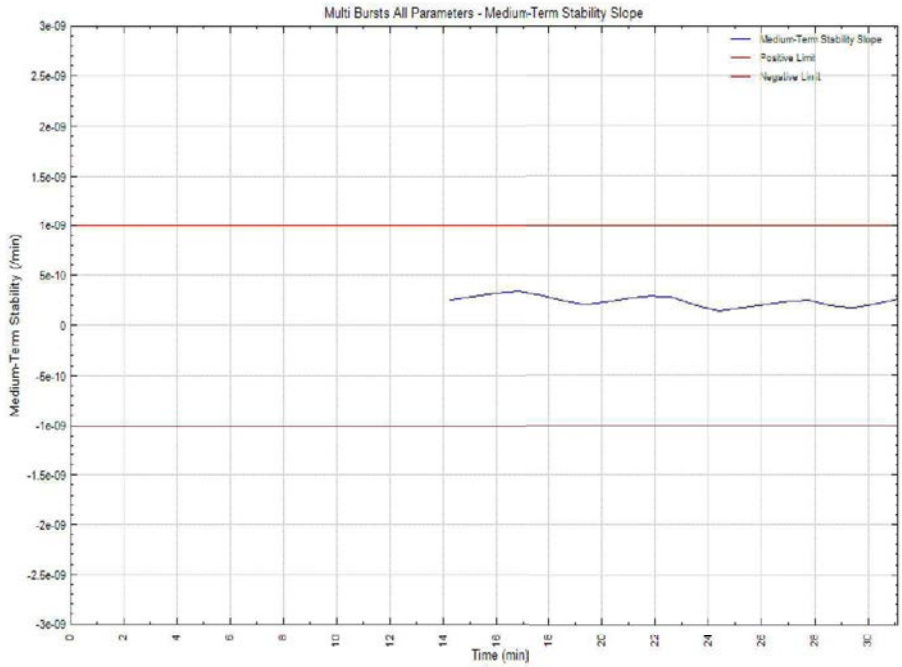
Nominal Frequency



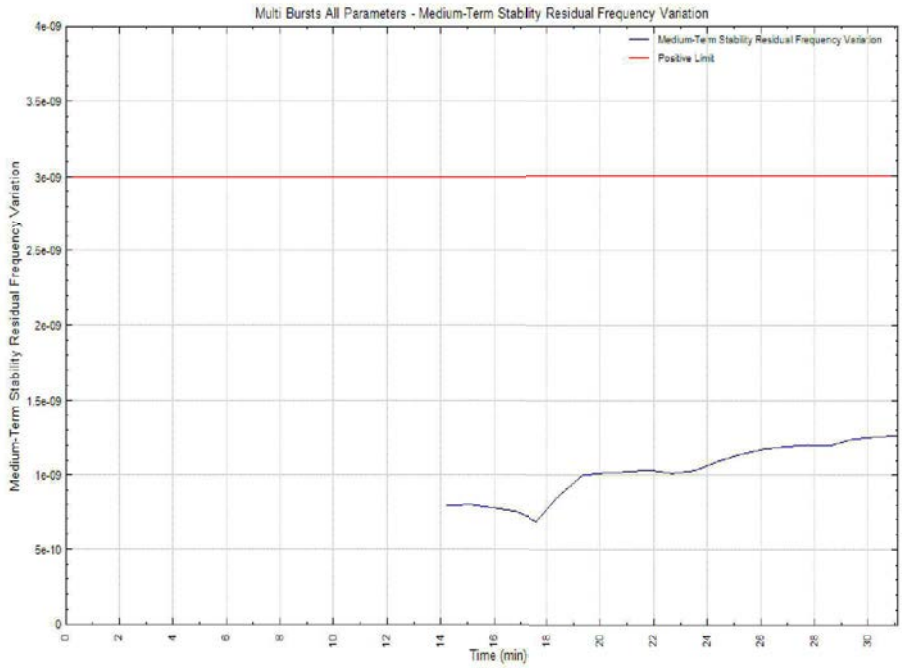
Short Term Stability



Medium Term Stability – Slope



Medium Term Stability – Residual



Summary

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

2.6 SPURIOUS EMISSIONS INTO 50 OHMS (ELECTRICAL & FUNCTIONAL TESTS AT CONSTANT TEMPERATURE)

2.6.1 Specification

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

2.6.2 Equipment Under Test and Modification State

PLB3, S/N: TA000005 - Modification State 0 (-20°C and +55°C)
PLB3, S/N: TA000005 - Modification State 3 (Ambient Only)

2.6.3 Date of Test

16 July 2021 and 19 April 2022

2.6.4 Test Equipment Used

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

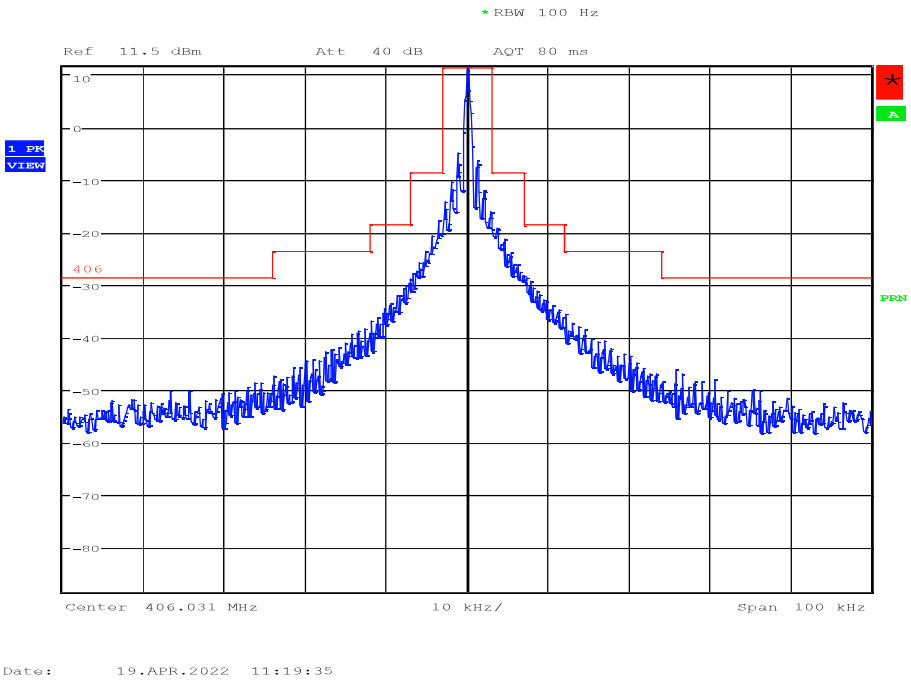
2.6.5 Laboratory Environmental Conditions

Ambient Temperature 21.4 – 23.4°C
Relative Humidity 32.4 - 36.9%

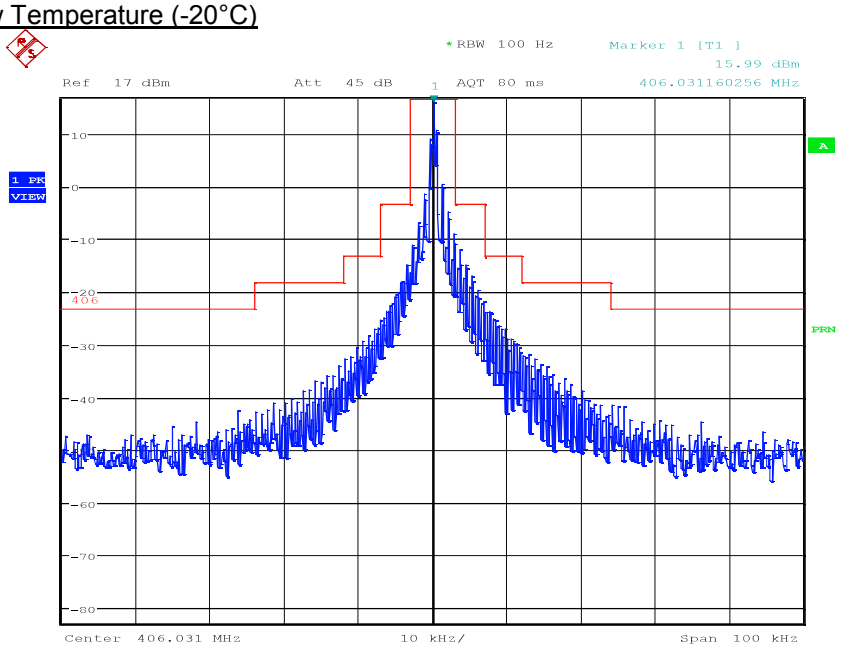
2.6.6 Test Results

Test Duration: 30 minutes
No. of bursts: 38

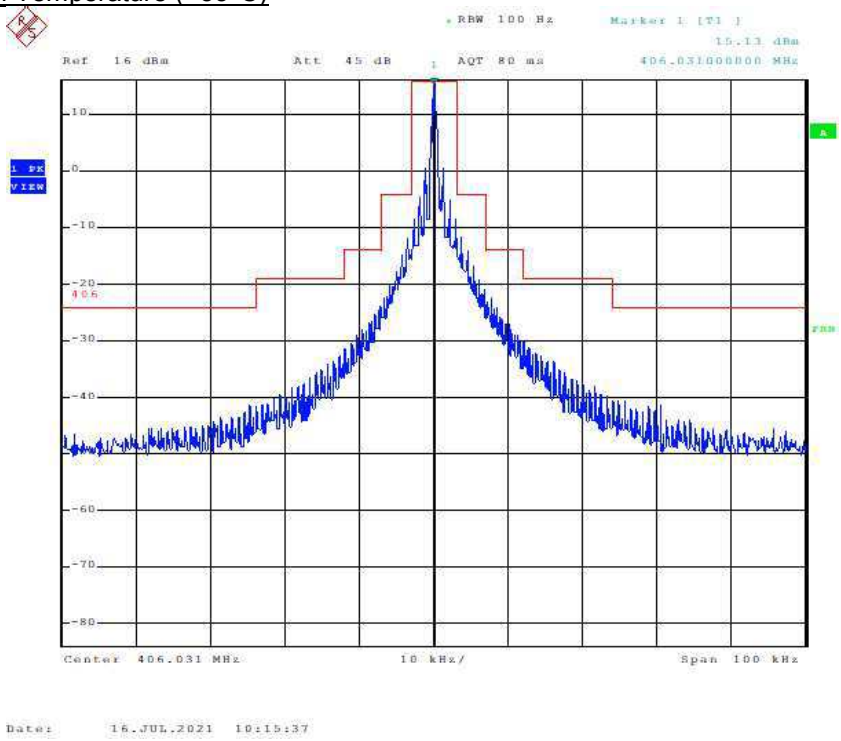
Ambient Temperature



Low Temperature (-20°C)



High Temperature (+55°C)



Summary

The EUT complies with clause A.3.2.2.4 of Cospas-Sarsat T.007.

2.7 406 MHZ VSWR CHECK (ELECTRICAL AND FUNCTIONAL TESTS AT CONSTANT TEMPERATURE)

2.7.1 Specification

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

2.7.2 Equipment Under Test and Modification State

PLB3, S/N: TA000005 - Modification State 0

2.7.3 Date of Test

01 July 2021, 06 July 2021, 15 July 2021 & 16 July 2021

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 22.8 - 24.1°C
Relative Humidity 49.2 - 53.9%

2.7.6 Test Results

Test Duration: 30 minutes
No. of bursts: 38

Ambient Temperature

Decoded Beacon Message

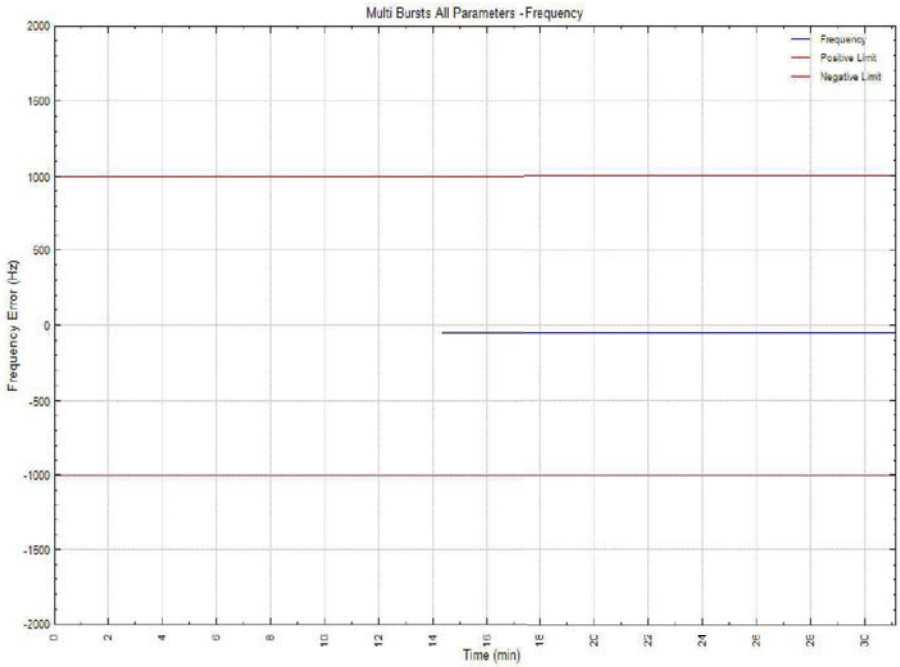
Hexadecimal code: **FFFE2F8C9DFFD08FDFEFFF28917861F0FABE**

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

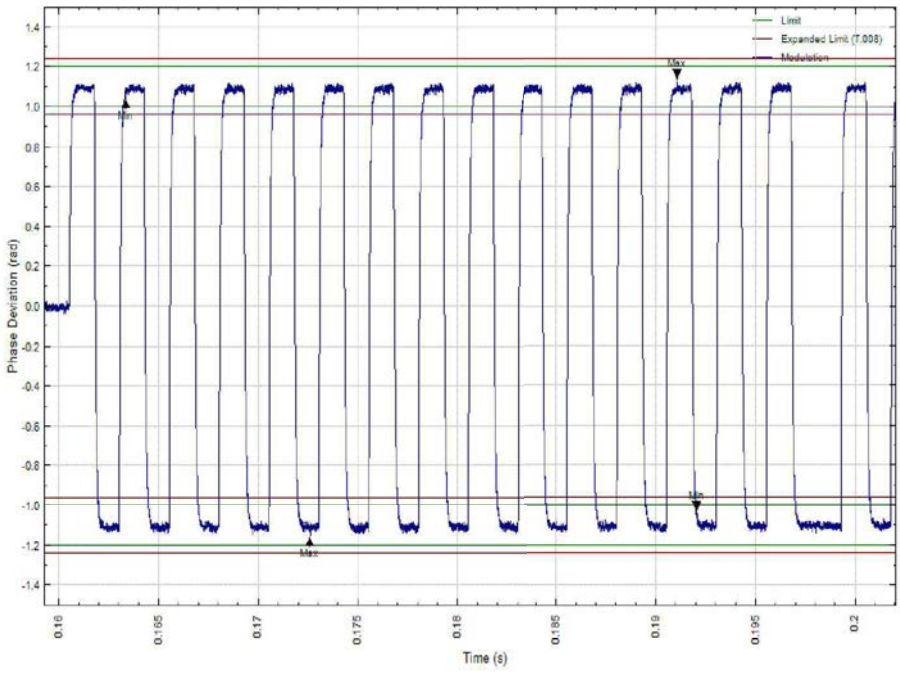
Unique identifier:
193BFFA11FBFDFF

Bit numbers in message	Binary content	Field Name	Description
1-15	111111111 111111	Bit-synchronization pattern consisting of "1"s shall occupy the first 15-bit positions	True
16-24	000101111	Frame Synchronization Pattern	Correct. Operational Message
25	1	Format Flag	Long Message
26	0	Protocol Flag	Location, further information provided in "Protocol Code"
27-36	001100100 1	Country code:	Albania - 201
37-40	1101	Protocol Code	RLS Location Protocol
41-42	11	Beacon type	RLS Test Location
43-46	1111	Identification type	RLS protocol coded with MMSI last 6 digits
47-66	111101000 010001111 11	Last 6 digits MMSI	999999
67-75	011111111	Latitude	Default - no location (Default - no location)
76-85	011111111 1	Longitude	Default - no location (Default - no location)
86-106	111001010 001001000 101	BCH-1 error correcting code	BCH-1 code in message matches the recalculated BCH-1 from the PDF-1 field
107	1	Encoded position source	Encoded position data is provided by an internal navigation device
108	1	121.5 Mhz Homing Device	Included in beacon
109	1	Beacon capability to process and automatically generated RLM Type-1	Capable to process an automatically generated RLM Type-1
110	0	Beacon capability to process a manually generated RLM Type-1 RLM Type-2	Not capable to process a manually generated RLM Type-2
111	0	Beacon Feedback on receipt of RLM Type-1	RLM Type-1 (automatic) not received by this beacon
112	0	Beacon Feedback on receipt of RLM Type-2	RLM Type-2 (manual) not received by this beacon
113-114	01	RLS Provider Identification	GALILEO Return Link Service Provider
115-123	100001111	Latitude offset	Default value
124-132	100001111	Longitude offset	Default value
133-144	101010111 110	BCH-2 error correcting code	BCH-2 code in message matches the recalculated BCH-2 from the PDF-2 field

Frequency Plot



Modulation Plot



Low Temperature (-20°C)

Decoded Beacon Message

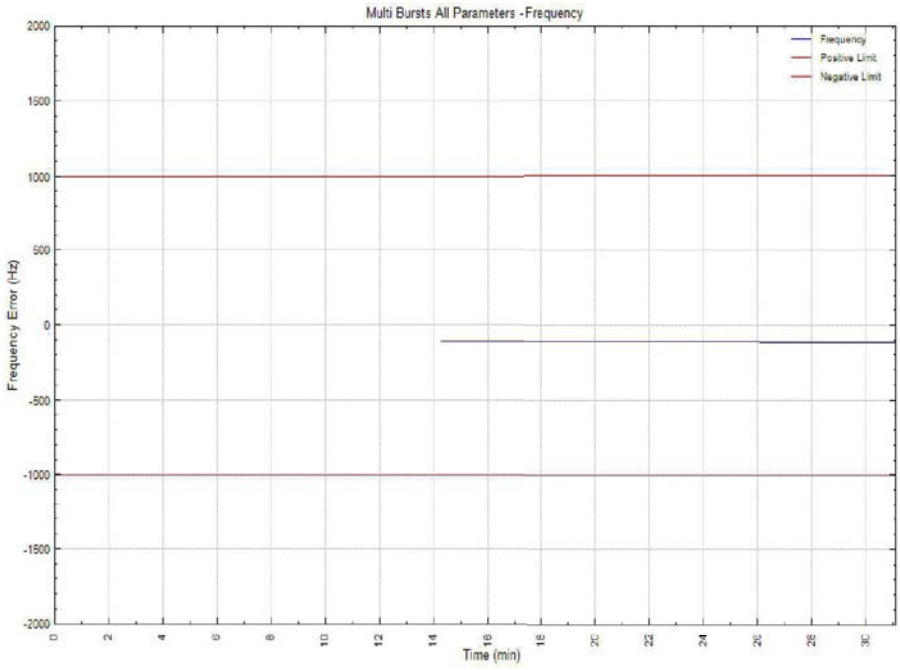
Hexadecimal code: **FFFE2F8C9DFFD08FDFEFFF28917861F0FABE**

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

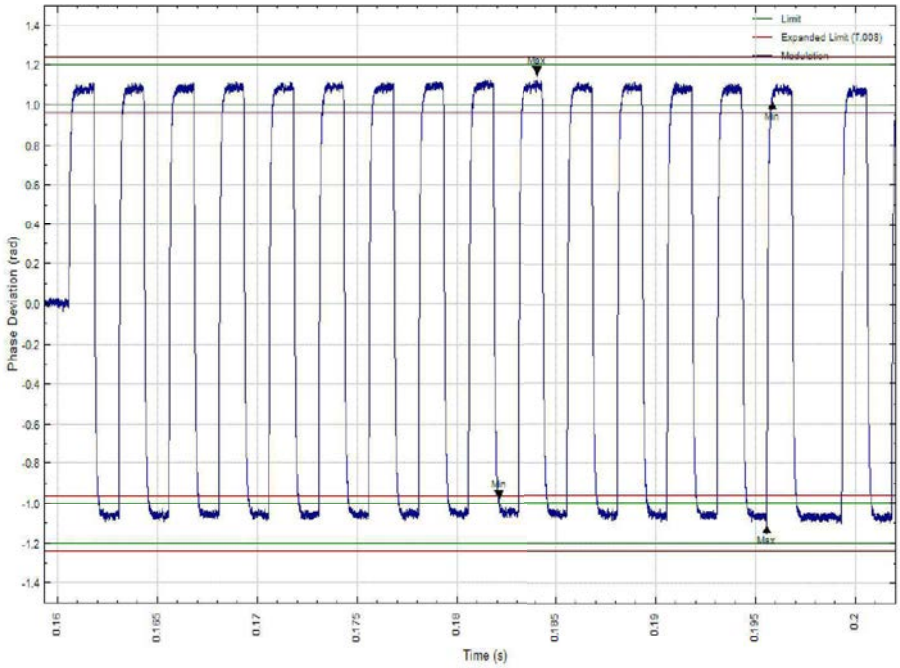
Unique identifier:
193BFFA11FBFDFF

Bit numbers in message	Binary content	Field Name	Description
1-15	111111111 111111	Bit-synchronization pattern consisting of "1"s shall occupy the first 15-bit positions	True
16-24	000101111	Frame Synchronization Pattern	Correct. Operational Message
25	1	Format Flag	Long Message
26	0	Protocol Flag	Location, further information provided in "Protocol Code"
27-36	0011001001	Country code:	Albania - 201
37-40	1101	Protocol Code	RLS Location Protocol
41-42	11	Beacon type	RLS Test Location
43-46	1111	Identification type	RLS protocol coded with MMSI last 6 digits
47-66	11110100001000111111	Last 6 digits MMSI	999999
67-75	011111111	Latitude	Default - no location (Default - no location)
76-85	0111111111	Longitude	Default - no location (Default - no location)
86-106	11100101000100100101	BCH-1 error correcting code	BCH-1 code in message matches the recalculated BCH-1 from the PDF-1 field
107	1	Encoded position source	Encoded position data is provided by an internal navigation device
108	1	121.5 Mhz Homing Device	Included in beacon
109	1	Beacon capability to process and automatically generated RLM Type-1	Capable to process an automatically generated RLM Type-1
110	0	Beacon capability to process a manually generated RLM Type-1 RLM Type-2	Not capable to process a manually generated RLM Type-2
111	0	Beacon Feedback on receipt of RLM Type-1	RLM Type-1 (automatic) not received by this beacon
112	0	Beacon Feedback on receipt of RLM Type-2	RLM Type-2 (manual) not received by this beacon
113-114	01	RLS Provider Identification	GALILEO Return Link Service Provider
115-123	100001111	Latitude offset	Default value
124-132	100001111	Longitude offset	Default value
133-144	101010111110	BCH-2 error correcting code	BCH-2 code in message matches the recalculated BCH-2 from the PDF-2 field

Frequency Plot



Modulation Plot



High Temperature (+55°C)

Decoded Beacon Message

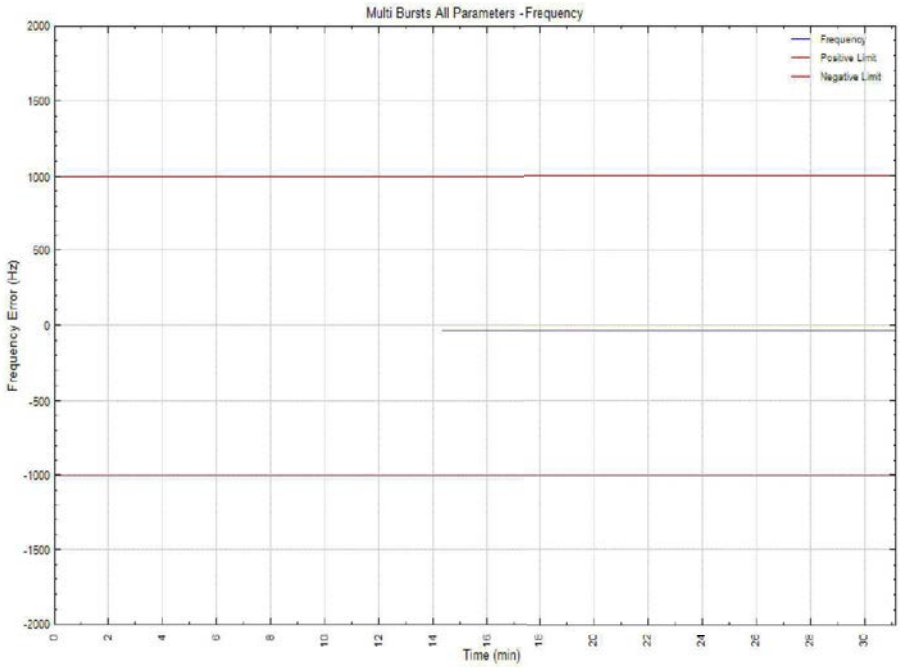
Hexadecimal code: **FFFE2F8C9DFFD08FDFEFFF28917861F0FABE**

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

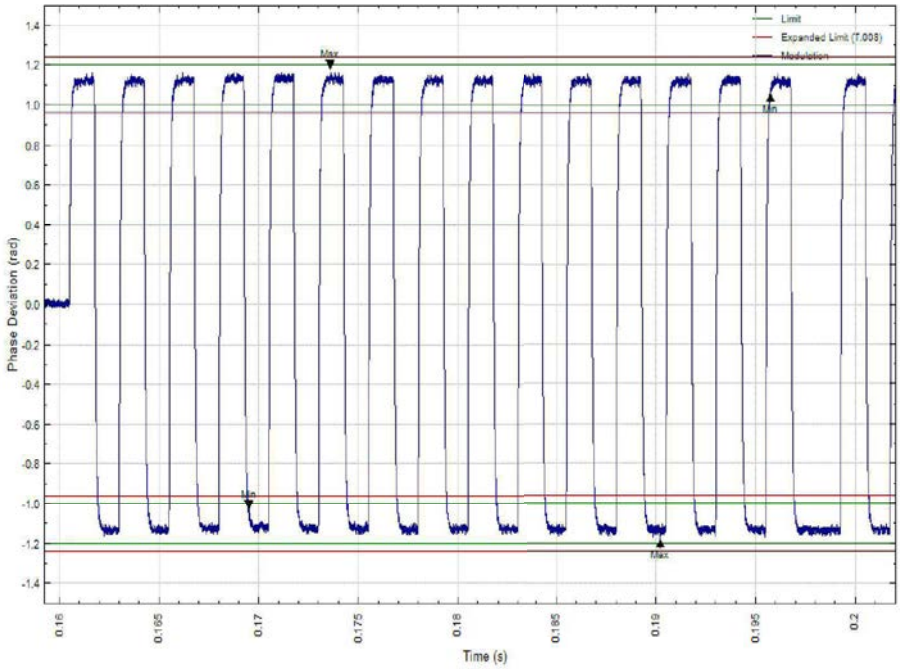
Unique identifier:
193BFFA11FBFDFF

Bit numbers in message	Binary content	Field Name	Description
1-15	111111111 111111	Bit-synchronization pattern consisting of "1"s shall occupy the first 15-bit positions	True
16-24	000101111	Frame Synchronization Pattern	Correct. Operational Message
25	1	Format Flag	Long Message
26	0	Protocol Flag	Location, further information provided in "Protocol Code"
27-36	0011001001	Country code:	Albania - 201
37-40	1101	Protocol Code	RLS Location Protocol
41-42	11	Beacon type	RLS Test Location
43-46	1111	Identification type	RLS protocol coded with MMSI last 6 digits
47-66	11110100001000111111	Last 6 digits MMSI	999999
67-75	011111111	Latitude	Default - no location (Default - no location)
76-85	0111111111	Longitude	Default - no location (Default - no location)
86-106	11100101000100100101	BCH-1 error correcting code	BCH-1 code in message matches the recalculated BCH-1 from the PDF-1 field
107	1	Encoded position source	Encoded position data is provided by an internal navigation device
108	1	121.5 Mhz Homing Device	Included in beacon
109	1	Beacon capability to process and automatically generated RLM Type-1	Capable to process an automatically generated RLM Type-1
110	0	Beacon capability to process a manually generated RLM Type-1 RLM Type-2	Not capable to process a manually generated RLM Type-2
111	0	Beacon Feedback on receipt of RLM Type-1	RLM Type-1 (automatic) not received by this beacon
112	0	Beacon Feedback on receipt of RLM Type-2	RLM Type-2 (manual) not received by this beacon
113-114	01	RLS Provider Identification	GALILEO Return Link Service Provider
115-123	100001111	Latitude offset	Default value
124-132	100001111	Longitude offset	Default value
133-144	101010111110	BCH-2 error correcting code	BCH-2 code in message matches the recalculated BCH-2 from the PDF-2 field

Frequency Plot



Modulation Plot



Summary

The EUT fails to comply with clause A.3.3 of Cospas-Sarsat T.007. Phase Modulation measurement outside the limits stated in C/S T.007. However, the result is within the Test Facility Accuracy stated in C/S T.008.

2.8 SELF-TEST MODES (ELECTRICAL AND FUNCTIONAL TESTS AT CONSTANT TEMPERATURE)

2.8.1 Specification

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

2.8.2 Equipment Under Test and Modification State

PLB3, S/N: TA000005 - Modification State 0 (RLS at +55°C)
PLB3, S/N: TA000005 - Modification State 1 (SLP at -20°C and +55°C, RLS at -20°C)
PLB3, S/N: TA000005 - Modification State 2 (NLP at -20°C and +55°C)
PLB3, S/N: TA000005 - Modification State 3 (RLS, SLP and NLP at Ambient)

2.8.3 Date of Test

02 July 2021, 06 July 2021, 21 September 2021, 04 October 2021, 05 October 2021, 01 November 2021, 02 November 2021, and 19 April 2022

2.8.4 Test Equipment Used

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

2.8.5 Laboratory Environmental Conditions

Ambient Temperature 22.4 – 24.5°C
Relative Humidity 32.4 - 52.7%

2.8.6 Test Results

Self-test Mode

Ambient Temperature – RLS – Mod State 3

Note: The EUT was activated in distress mode. Once navigation data was encoded into the digital message (Burst 1), the EUT was deactivated, and a Self-Test was initiated. The digital message was encoded with default navigation data (Burst 2).

Burst 1

Decoded Beacon Message

Hexadecimal code: **FFFE2F8C9DFFD08FC910577CC838601008A3**

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

Unique identifier:
193BFFA11FBFDFF

Bit numbers in message	Binary content	Field Name	Description
1-15	111111111 111111	Bit-synchronization pattern consisting of "1"s shall occupy the first 15-bit positions	True
16-24	000101111	Frame Synchronization Pattern	Correct. Operational Message
25	1	Format Flag	Long Message
26	0	Protocol Flag	Location, further information provided in "Protocol Code"
27-36	001100100 1	Country code:	Albania - 201
37-40	1101	Protocol Code	RLS Location Protocol
41-42	11	Beacon type	RLS Test Location
43-46	1111	Identification type	RLS protocol coded with MMSI last 6 digits
47-66	111101000 010001111 11	Last 6 digits MMSI	999999
67-75	001001000	Latitude	36.0 Degrees North (36.0)
76-85	100000101 0	Longitude	5.0 Degrees West (-5.0)
86-106	111011111 001100100 000	BCH-1 error correcting code	BCH-1 code in message matches the recalculated BCH-1 from the PDF-1 field

107	1	Encoded position source	Encoded position data is provided by an internal navigation device
108	1	121.5 Mhz Homing Device	Included in beacon
109	1	Beacon capability to process and automatically generated RLM Type-1	Capable to process an automatically generated RLM Type-1
110	0	Beacon capability to process a manually generated RLM Type-1 RLM Type-2	Not capable to process a manually generated RLM Type-2
111	0	Beacon Feedback on receipt of RLM Type-1	RLM Type-1 (automatic) not received by this beacon
112	0	Beacon Feedback on receipt of RLM Type-2	RLM Type-2 (manual) not received by this beacon
113-114	01	RLS Provider Identification	GALILEO Return Link Service Provider
115-123	100000000	Latitude offset	0.0 minutes 0.0 seconds (positive)
124-132	100000000	Longitude offset	0.0 minutes 0.0 seconds (positive)
133-144	100010100 011	BCH-2 error correcting code	BCH-2 code in message matches the recalculated BCH-2 from the PDF-2 field
		Composite location	36.000 -5.000