UTC Test – Configuration 8

SECTION 6

ACCREDITATION, DISCLAIMERS AND COPYRIGHT

6.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

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

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

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

ANNEX A

EPIRB3 PRO BATTERY CURRENT COMPARISON MEASUREMENTS

Test measurements for the EPIRB3 Pro within this report have been carried out in Modification State 1 with limited repeat measurements made in Modification State 2. The table below displays the difference in current drawn between the two Modification States:

Operating Mode	Modification State 1	Modification State 2	% Difference
	Average Current (mA)	Average Current (mA)	Mod State 2 to 1
C2, On at Main, GNSS Average	39.7	39.5	-0.50
B3, On at Main, GNSS Search	43.67	43.56	-0.25
D4, On at Main, GNSS Sleep	33.84	33.61	-0.68
B8, Self-test	71.1	69.3	-2.53
A9, GNSS Self-Test (Timeout)	26.74	24.98	-6.58
A10, GNSS Self-Test (Burst)	32.13	31.72	-1.28

Comments:

The operating modes chosen were the worst case current draw and more information about the configurations can be found in the battery current results section.

EPIRB3 Pro measurements conclude that the current drawn in Modification State 2 is comparable or lower than what was measured for Modification State 1.

ANNEX B

EPIRB3 PRO MODIFICATION STATE COMPARISON MEASUREMENTS

Parameters to be Measured		Range of Specification	Units	Test Results		Comments
				Tamb (MS1)	Tamb (MS2)	
				(+21°C)	(+21°C)	
1. Power Output						**Result: Pass**
Model: EPIRB3 Pro, S/N: TA000004, TUV Ref: TSR1 and Modification State 1 (Ambient Only) **Model: EPIRB3 Pro, S/N: TA000021, TUV Ref: TSR17 and Modification State 2 (Ambient Only)**						
Transmitter power output	(maximum)	35 - 39	dBm	36.06	35.82	
	(minimum)			35.98	35.76	
Power output rise time	(maximum)	< 5	ms	0.53	0.42	
	(minimum)			0.50	0.41	
Power output 1ms before burst	(maximum)	< -10	dBm	-31.71	-21.88	
	(minimum)			-31.37	-35.28	
2. Digital Message Coding						**Result: Pass**
Model: EPIRB3 Pro, S/N: TA000004, TUV Ref: TSR1 and Modification State 1 (Ambient Only) **Model: EPIRB3 Pro, S/N: TA000021, TUV Ref: TSR17 and Modification State 2 (Ambient Only)**						
Bit Sync	1 - 15	15 bits “1”	P / F	P	P	
Frame sync	16 - 24	“000101111”	P / F	P	P	
Format flag	25	1 bit	bit value	1	1	
Protocol flag	26	1 bit	bit value	0	0	
Identification / position data	27 - 85	59 bits	P / F	P	P	
BCH code	86 -106	21 bits	P / F	P	P	
Emerg. Code/nat. use/supplem. Data	107 - 112	6 bits	bit value	111000	111000	
Additional data / BCH (if applicable)	112 - 144	32 bits	P / F	P	P	
Position Error (if applicable)		< 5	km	N/A	N/A	

Parameters to be Measured		Range of Specification	Units	Test Results		Comments
				Tamb (MS1)	Tamb (MS2)	
				(+21°C)	(+21°C)	
3. Digital Message Generator						**Result: Pass**
Model: EPIRB3 Pro, S/N: TA000004, TUV Ref: TSR1 and Modification State 1 (Ambient Only) **Model: EPIRB3 Pro, S/N: TA000021, TUV Ref: TSR17 and Modification State 2 (Ambient Only)**						
Repetition rate, T_R:						
Average T_R		48.5 ≤ T_{Ravg} ≤ 51.5	seconds	50.054	50.088	
Minimum T_R		47.5 ≤ T_{Rmin} ≤ 48.0	seconds	47.890	47.893	
Maximum T_R		52.0 ≤ T_{Rmax} ≤ 52.5	seconds	52.204	52.202	
Standard deviation		0.5 - 2.0	seconds	1.64	1.65	
Bit rate						
Minimum fb		≥ 399.6	bits/sec	399.95	399.91	
Maximum fb		≤ 400.4	bits/sec	399.97	400.00	
Total transmission time						
Short message	(maximum)	435.6 - 444.4	ms	N/A	N/A	
	(minimum)			N/A	N/A	
Long message	(maximum)	514.8 - 525.2	ms	520.15	519.53	
	(minimum)			520.08	519.50	
Unmodulated carrier						
Minimum T1		≥ 158.4	ms	160.63	160.32	
Maximum T1		≤ 161.6	ms	160.71	160.33	
First burst delay		≥ 47.5	seconds	54	53	

Parameters to be Measured		Range of Specification	Units	Test Results		Comments
				Tamb (MS1)	Tamb (MS2)	
				(+21°C)	(+21°C)	
4. Modulation						**Result: Pass**
Model: EPIRB3 Pro, S/N: TA000004, TUV Ref: TSR1 and Modification State 1 (Ambient Only) **Model: EPIRB3 Pro, S/N: TA000021, TUV Ref: TSR17 and Modification State 2 (Ambient Only)**						
Biphase-L		P / F	P / F	P	P	
Rise time	(maximum)	50 - 250	µs	118.3	109.0	
	(minimum)	50 - 250	µs	105.3	91.1	
Fall time	(maximum)	50 - 250	µs	155.7	146.3	
	(minimum)	50 - 250	µs	142.6	128.6	
Phase deviation: positive	(maximum)	+(1.0 to 1.2)	radians	1.1836	1.139	
	(minimum)	+(1.0 to 1.2)	radians	1.0540	1.039	
Phase deviation: negative	(maximum)	-(1.0 to 1.2)	radians	-1.1764	-1.197	
	(minimum)	-(1.0 to 1.2)	radians	-1.0502	-1.092	
Symmetry measurement		≤ 0.05		0.0278	0.0228	
5. 406 MHz Transmitted Frequency						**Result: Pass**
Model: EPIRB3 Pro, S/N: TA000004, TUV Ref: TSR1 and Modification State 1 (Ambient Only) **Model: EPIRB3 Pro, S/N: TA000021, TUV Ref: TSR17 and Modification State 2 (Ambient Only)**						
Nominal Value	(maximum)	C/S T.001	MHz	406.031059	406.0309992	
	(minimum)			406.0310453	406.0309988	
Short-term stability	(maximum)	≤ $2x10^{-9}$	/100ms	24.921E-11	3.27E-10	
	(minimum)			20.969E-11	2.91E-10	
Medium-term stability – Slope	(maximum)	(-1 to +1)$x10^{-9}$	/minutes	15.660E-11	1.27E-10	
	(minimum)			10.964E-12	-3.07E-11	
Medium-term stability – Residual frequency variation	(maximum)	≤ $3x10^{-9}$		41.222E-11	6.12E-10	
	(minimum)			30.641E-11	2.58E-10	
6. Spurious Emissions into 50ohms						**Result: Pass**
Model: EPIRB3 Pro, S/N: TA000004, TUV Ref: TSR1 and Modification State 1 (Ambient Only) **Model: EPIRB3 Pro, S/N: TA000021, TUV Ref: TSR17 and Modification State 2 (Ambient Only)**						
In band (406.0 – 406.1 MHz)		C/S T.001 mask	P / F	P	P	

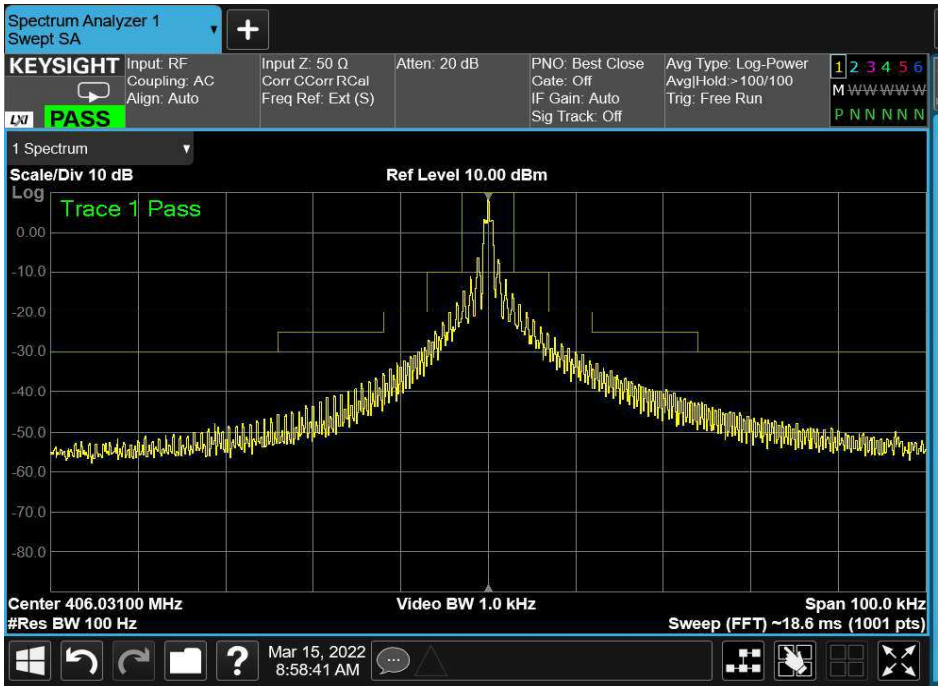
Parameters to be Measured	Range of Specification	Units	Test Results		Comments
			Tamb (MS1) (+21°C)	Tamb (MS2) (+21°C)	
8(a). Self-test Mode					**Result: Pass**
Model: EPIRB3 Pro, S/N: TA000004, TUV Ref: TSR1 and Modification State 1 (Ambient Only) **Model: EPIRB3 Pro, S/N: TA000021, TUV Ref: TSR17 and Modification State 2 (Ambient Only)**					
Frame sync	011010000	P / F	P	P	
Format flag	1 / 0	bit value	1	1	
Single radiated burst	≤440 / 520 (±1%)	ms	520.059	519.500	
Default position data (if applicable)	correct	P / F	P	P	
Description	provided	Y / N	Y		
Design data on protection against repetitive self-test mode transmissions	provided	Y / N	Y		
Single burst verification	one burst	P / F	P	P	
Provides for 15 Hex ID	correct	P / F	P	P	
121.5 MHz RF power (if applicable)	verify that RF power emitted	P / F	P	P	
406 MHz power	verify that RF power emitted	P / F	P	P	
Distinct indication of Self-Test	provided	Y / N	Y	Y	
Distinct indication of RF power being emitted	provided	Y / N	Y	Y	
Indication of Self-Test result	provided	Y / N	Y	Y	
Distinct indication of insufficient battery capacity	provided	Y / N	Y		
Maximum duration of Self-Test mode	≤ maximum duration of Self-Test	sec	14	16	
Automatic termination of Self-Test mode upon completion of Self-Test and indication of Self-Test results	verify automatic termination, irrespective of the switch position	Y / N	Y	Y	

Parameters to be Measured	Range of Specification	Units	Test Results		Comments
			Tamb (MS1) (+21°C)	Tamb (MS2) (+21°C)	
8 (b). GNSS Self-Test Mode (if applicable)					**Result: Pass**
Model: EPIRB3 Pro, S/N: TA000004, TUV Ref: TSR1 and Modification State 1 (Ambient Only) **Model: EPIRB3 Pro, S/N: TA000021, TUV Ref: TSR17 and Modification State 2 (Ambient Only)**					
Frame sync	011010000	P / F	P	P	
Format flag	1 / 0	bit value	1	1	
Radiated burst duration	≤ 520 (+1%)	ms	520.169	520.124	
Position data except for ELT (DT) (if applicable)	must be within 500 m (or 5.25 km for User Location Protocol) of the actual position	P / F	P	P	
Position data for ELT(DT)	must be within 200 m of the actual horizontal position and 700 m of the altitude	P / F	N/A	N/A	
Design data showing how GNSS Self-test is limited in number of transmissions and duration	provided	Y / N	Y		
Single burst verification (if applicable)	one burst	P / F	P	P	
121.5 MHz RF power (if applicable)	verify that RF power is emitted	Y / N	Y	Y	
406 MHz power (if applicable)	verify that RF power is emitted	Y / N	Y	Y	
Maximum duration of GNSS Self-tests	Manufacturer to specify value	s	113	113	Manufacturer specified value: 140
Actual duration of Self-test with encoded location	Less than maximum duration	s	72	73	
Maximum number of GNSS Self-tests (only beacons with internal navigation devices)	Manufacturer to specify number	Number	60	N/T	Manufacturer specified number: 60
Distinct indication to register successful completion or failure of the GNSS self-test	must be provided	Y/N	Y	Y	
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	N/T	

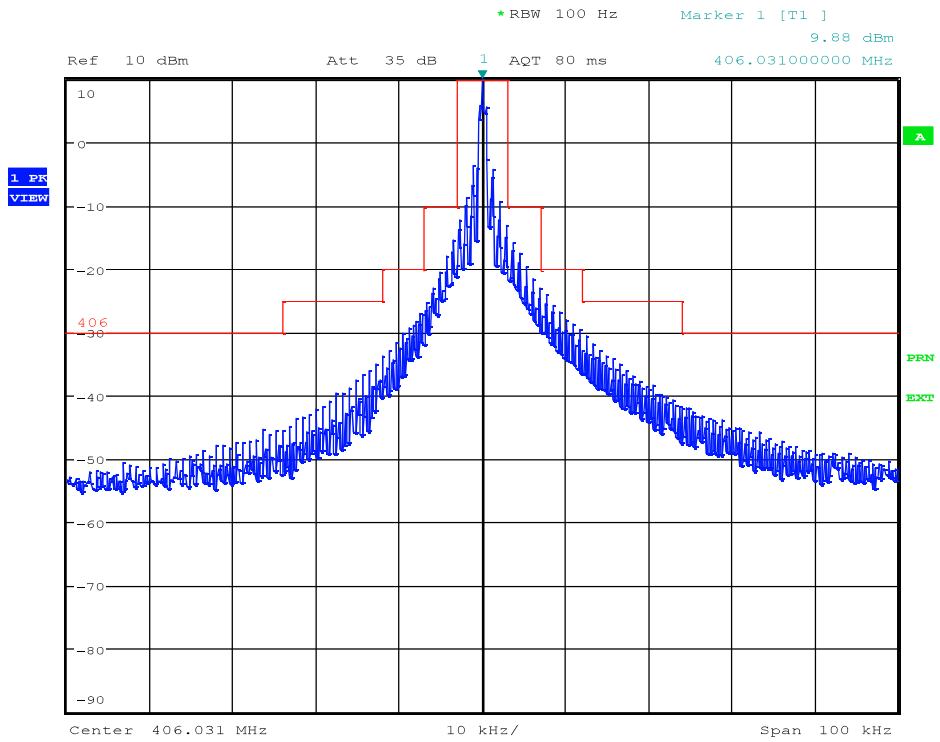
Parameters to be Measured	Range of Specification	Units	Test Results		Comments
			Tamb (MS1)	Tamb (MS2)	
			(+21°C)	(+21°C)	
Automatic termination of the GNSS self-test mode upon completion of the GNSS self-test cycle and indication of the results	verify automatic termination of GNSS self-test mode, irrespective of the switch position	Y/N	Y		

14. Satellite Qualitative Tests					Result: Pass
Model: EPIRB3 Pro, S/N: TA000013, TUV Ref: TSR3 and Modification State 1 (RLS) **Model: EPIRB3 Pro, S/N: TA000013, TUV Ref: TSR3 and Modification State 2 (SLP)**					
Test Configuration	As per C/S T.007		Configuration		
			7	7	
15 Hex ID Decoded by LUT	correct	P / F	P	P	
Doppler Location results with error ≤ 5km	≥ 80	%	100	91.67	

Spurious Emissions (Ambient Temperature measurements carried out in MS1)



Spurious Emissions (Ambient Temperature measurements carried out in MS2)



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