



Satellite Qualitative Test – Configuration 5



Satellite Qualitative Test – Configuration 7



Satellite Qualitative Test – Configuration 8



Position Acquisition Time and Position Accuracy Test – Configuration 5 – A.3.8.2.2



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



Position Acquisition Time and Position Accuracy Test – Configuration 8 – A.3.8.2.2



Moffset Test – Configuration 8



UTC Test – Configuration 8



SECTION 5

ACCREDITATION, DISCLAIMERS AND COPYRIGHT



5.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT



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ANNEX A

ADDITIONAL TEST OF THE GNSS RECEIVER UPDATE INTERVAL

Additional Test of the GNSS Receiver Update Interval

Specification

Cospas-Sarsat T.007, Clause A.2.7
IEC 61097-2:2021, Clause 5.7 (a)
MSC.471(101), Clause A.4.1

Equipment Under Test and Modification State

RLB-44 S/N: TA000006 - Modification State 2 (RLS Protocol)

Date of Test

17 May 2022 – 19 May 2022

Test Equipment Used

The major items of test equipment used for the above tests are identified in the Test Equipment section below.

Laboratory Environmental Conditions

Ambient Temperature 22.4 – 22.7°C
Relative Humidity 46.8 – 53.9%

Test Results

Encoded Position Data Update Interval – Verification:

Locations: Continues movement at 60 Mph around the M25 ①		
Parameter	Update interval	Limit
0 h to 2 h – Minimum	04:07	≤ 05:00
0 h to 2 h – Maximum	05:04*	≤ 05:00
2 h to 6 h – Minimum	04:07	≤ 05:00
2 h to 6 h – Maximum	05:04*	≤ 05:00
6 h to 9 h – Minimum	04:08	≤ 05:00
6 h to 9 h – Maximum	05:04*	≤ 05:00
Assessment	Result	Limit
Results indicate that data changes as per C/S T.001 4.5.5.4 (Y/N)	Y	-
Results indicate that data changes as per manufacturer's update scheme (Y/N)	Y	-

① Input from GPS simulator

The EUT was provided a simulated scenario which represented a continuously moving vehicle travelling at a constant speed of 60 mph around the M25 motorway in the UK.

*NOTE: Clause 5.7 (a) of IEC 61097-2:2021 says "(MSC.471(101)/A.4.1) the GNSS position fix shall be updated at intervals of no more than 5 min and shall then be encoded into the next 406 MHz and AIS transmissions;

NOTE If the GNSS position fix is obtained within 2 s of the next 406 MHz or AIS transmission, it is acceptable to delay updating the position until the next transmission."

*NOTE: Refer to manufacturer document 921S-04094 Cospas-Sarsat Beacon Update rate.

Deviation: This test differs from the A.3.8.3 Long Test in Section 2.12 above as the EUT was provided a simulated scenario which involved a continuously moving GNSS location travelling at a constant 60 mph, whereas the test in Section 2.12 changes locations every 2 minutes and the location steps are either 2.225 km or 3.105 km.

Summary

The reason for the additional test is that although the Beacon passes the requirements in C/S T.001 the test in T.007 A.3.8.3 does not demonstrate a GNSS position update rate of no more than 5 minutes as required by IEC61097-2 Ed 4. The IEC specification requires the requirement to be demonstrated by the results within the Cospas-Sarsat T.007 test report.

Cospas-Sarsat T.007 clause A.3.8.3 does not allow for the EUT to demonstrate the GNSS update rate required by IEC61097-2 Ed 4 because the T.007 test is related to the encoded position rather than the GNSS receiver update interval.

Refer also to the Ocean Signal Limited paper reference 921S-04094 Issue 1.4 Cospas-Sarsat Beacon Encoded Update Rate.

The results presented above demonstrate that the Manufacturer's declared operating GNSS update rate of 4 minutes 30 seconds is consistent with the results of the test: furthermore the results conform to the requirement of no more than the 5 minute period stated in IEC 61097-2 ed 4, clause 5.7.

Test Equipment

Additional Test of the GNSS Receiver Update Interval					
Beacon Tester	WS Technologies	BT 100S	87	-	TU
Directional Coupler	Narda	3022	503	-	O/P Mon
Spectrum Analyser	Agilent Technologies	E4407B	1154	12	20-Dec-2022
Hygrometer	Rotronic	I-1000	1897	12	26-Nov-2022
Signal Generator	Marconi	2031	2015	12	31-Mar-2023
Termination (50ohm, 1W)	Suhner	50ohm 1W	3080	12	04-May-2023
Antenna (DRG Horn)	ETS-Lindgren	3115	3125	12	15-Oct-2022
Charge Amplifier	Endevco	133	3480	12	25-Nov-2022
Power Meter	Rohde & Schwarz	NRP	3491	12	29-Nov-2022
Wideband Power Sensor, 50MHz - 18GHz	Rohde & Schwarz	NRP-Z81	3492	12	29-Nov-2022
Termination (50ohm)	Meca	405-1	3518	-	TU
GPS Simulator	Spirent	GSS7000	4978	12	21-Jul-2022
Cable (18 GHz)	Rosenberger	LU7-036-1000	5025	-	O/P Mon
Cable (18 GHz)	Rosenberger	LU7-036-1000	5026	-	O/P Mon
Cable (18 GHz)	Rosenberger	LU7-036-2000	5039	12	20-Oct-2022
Attenuator 30dB 10w	Pasternack	NPE7010-30	5929	12	21-Apr-2023