CHAPTER 7

A7.0 – SALT FOG TEST

7.1. TEST SPECIFICATIONS AND SEQUENCE

Following Section A7.0 of RTCM Recommended Standards for 406 MHz Satellite EPIRBs (Version 2.0 Feb 5,1997) :

- With beacon off, place it in a salt fog chamber in its release mechanism (according to class of beacon).
- Leave beacon for two hours at 35° ± 2° C.
- Start salt fog at same temperature and leave at saturation point for 48 hours.
- Leave beacon to dry for 24 hours at 20° ± 5° C.
- Re-apply salt for gor 12 hours at 35°C.
- Leave beacon to dry for 12 hours.
- Do a visual inspection and check that there is no sign of corrosion.
- Perform electrical checks.
- Clean beacon with warm water (max 38° C).

7.2. EQUIPMENT UNDER TEST

Beacon Unit : 2/2
Name : JOTRON
Type : TRON 40GPS
Number : 7001
Bracket : JOTRON Model : FB4 AA - S/N : 2811

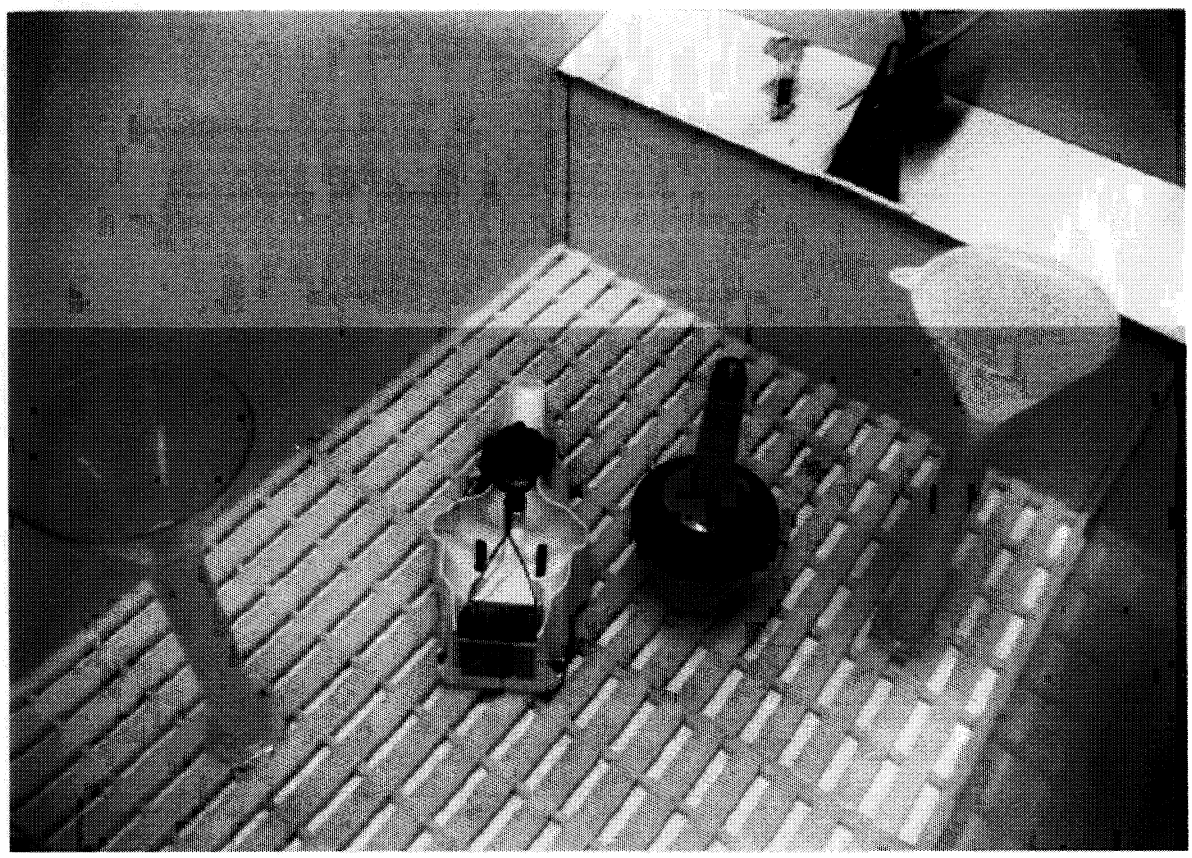
7.3. TEST SITE

Toulouse Space Center (C.S.T.) - INTESPACE Laboratory.

7.4. TEST EQUIPMENT

- Salt fog chamber (see photo page 7.3),
- Salt solution : Mil-Std-810 D (July 19th, 1983), method 509.2.

A7.0 - SALT FOG TEST



7.5. TEST RESULTS

7.5.1 Test implementation

Place : INTESPACE Laboratory

Date	Hour	Events - Observations
8 June 2000	18h	Salt bath preparation ; warning up of the chamber
	20h	Salt fog injection (5% of NaCl) at 37 °C ± 2 °C
10 June 2000	20h	Salt fog injection stopped. Beacon dryed during 24 h at 37 °C ± 2 °C
11 June 2000	20h	Salt fog injection at 37 °C ± 2 °C
12 June 2000	8h	Salt fog injection stopped.
	10h	Visual inspection at ≈ 22 °C: **OK**. Nothing abnormal to note .
	11h	Electrical checks : See results of aliveness test next page

7.5.2 ALIVENESS TEST RESULTS AFTER SALT FOG TEST

EUT : 2/2
Name : JOTRON
Type : TRON 40GPS
Number : 7001
Date : 12 June 2000

406 MHZ MEASUREMENTS

1 - Environmental Temperature (° C)			+ 22° C
2 – POWER OUTPUT			
- Transmission power	dBm	37 ± 2	37.1
- Power risetime	ms	< 5	0.55 ms
- Power falltime	ms	< 5	-
3 – SPURIOUS OUTPUT			
- In band	*		OK
- Carrier harmonics			
4 –DIGITAL MESSAGE GENERATOR			
- Repetition rate			OK
- Bit rate	bits/S	400 ± 4	398.87
- Transmission time	ms	440 ± 4.4 / 520 ± 5.2	521.14
- CW preamble	ms	160 ± 1.6	160.26
5 – DIGITAL MESSAGE			
- Bit and frame sync	bits	1-24	FFFE2F
- Format flag	bit	25	1
- Protocol flag	bit	26	0
- Country code	bits	27-36	0257
- Protocol	bits	37-40	1110
- Encoded Position Data Source	bits	111	1
- Homing	bits	112	1
- BCH 1 code read / calculated	bits	86-106 / 25-85	105685 / 105685
- BCH 2 code read / calculated	bits	133-144 / 107-132	66C / 66C
6 – FREQUENCY			
- Nominal value	KHz	406 025 ± 2	+ 0.09395
- Short term stability		< $2x10^{-9}$/100 ms	1.2 x 10^{-10}

* See data and graphs next pages

Constructeur	JOTRON
Modele	TRON 40GPS
Numero de serie	0CA07001
Reference	M2393
Type	SARSAT
Date de l'essai	12 Jun 2000 10:50:04

Message balise

Message recu	(1-144)	FFFE2F901E1E24007FDFFC15A17783E0F66C
Format flag	(25)	1
Protocole flag	(26)	0
Code pays	(27-36)	0257
Pays		NORWAY
Code protocole	(37-40)	1110
Protocole utilise		Standard - Test
Identification		
Numero		
BCH 1 lu/calcule	(86-106/25-85)	105685/105685
BCH 2 lu/calcule	(133-144/107-132)	66C/66C
Pos. Data Source	(111)	Internal
121.5 MHz Homing	(112)	Yes
Position GPS de reference		N 43°33'34'' E 1°28'48
Position GPS		Yes
Position GPS par defaut		Yes

Controle message

Duree de la porteuse pure	160.26ms +- 0.
Duree de l'emission	521.14 ms
Frequence de modulation	398.87Hz +- 0.

Stabilite de frequence

Frequence moyenne	F2	406025093.95 Hz
SIGMA2	F2-F1	7.158E-10
SIGMA3	F3-F2	1.219E-10

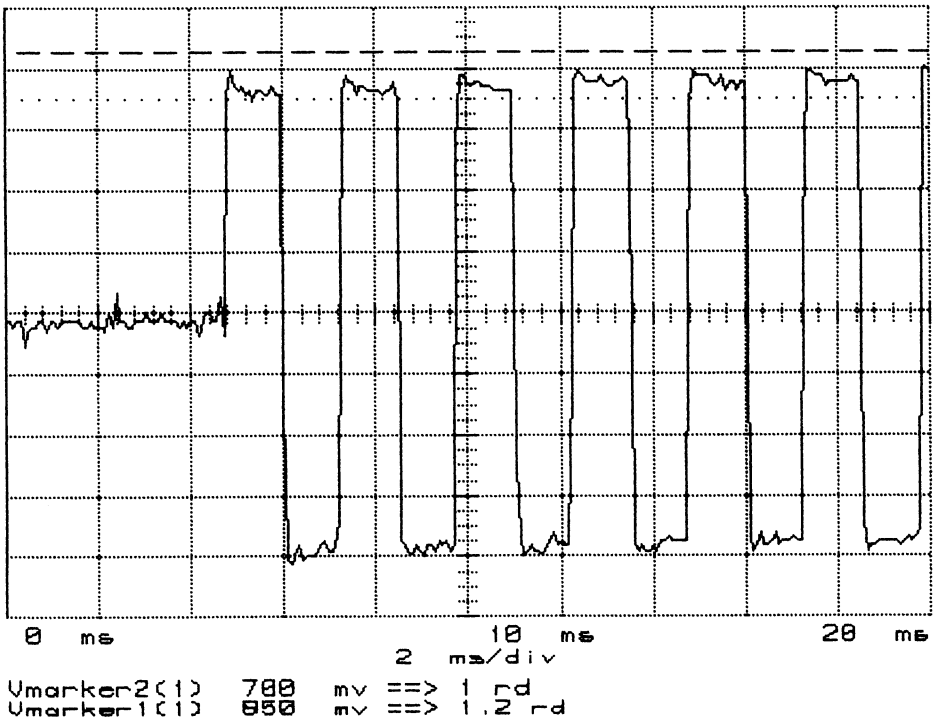
Mesures d'indice

F	F1	G1
50093.97	231	63
50093.58	212	63

Excursion de phase totale	rd	<= 2.48	2.26
Excursion de phase positive	rd	0.96< <1.24	1.11
Excursion de phase negative	rd	-1.24< <-0.96	-1.16
Symetrie de l'excursion	%	<= 5	2.20

Mesures de puissance

Puissance	dBm	37.11



Spectre de frequence