

CHAPTER 18

A18.0 - HUMIDITY TEST

18.1. TEST SPECIFICATIONS AND PROGRAMME

Following Section A18.0 of RTCM Recommended Standards for 406 MHz Satellite EPIRBs (Version 2.0 Feb 5,1997) :

Eject beacon, open the housing and leave inside temperature-controlled RH chamber for 8 hours minimum.

Settings :

- Dry temperature : 40° C
- Damp temperature : 39° C
- Relative humidity (RH) : 95 %

(See photo next page)

At the end of test :

- Within five minutes after opening chamber, at the ambient room conditions, turn on and connect the beacon to the test bench.
- Fifteen minutes after application power, conduct an aliveness test at the ambient temperature

18.2. EQUIPMENT UNDER TEST

Beacon Unit : 2/2
Name : JOTRON
Type : TRON 40GPS
Number : 7001

18.3. TEST SITE

Toulouse Space Center (C.S.T./ ITS) - Beacon certification laboratory .

18.4. TEST EQUIPMENT

- Climatic chamber : CLIMATS F.C.H. – Type: Austral 137H60/1,5E - S/N: S4880,
- KEITHLEY thermometer/multimeter ,Type : 2000, S/N 0678112 with CU-CT thermocoupler,
- COLE PARMER thermo-hygrometer, Type : TriSense S/N : 37000-00,
- Argos - Cospas/Sarsat Test Bench .

18.5. TEST RESULTS

18.5.1 Test implementation

Date	Hour	Operations	Results
19 July 2000	8:15	The beacon, housing opened and in the ready condition, is thermally soaked at + 40° C / 95% RH in the temperature-controlled oven .	
	17:55	End of Humidity Test . The EUT is removed from the oven .	
	18:00	The EUT, connected to Argos –C/S Test Bench, is turned on.	
	18:15	An aliveness test is conducted	OK

18.5.2 Aliveness test result after Humidity Test

Date : 19 July 2000 18:15

406 MHZ MEASUREMENTS

1 – Environmental Temperature (° C)			22 ° C
2 – POWER OUTPUT			
- Transmission power	dBm	37 ± 2	37.9
- Power risetime	ms	< 5	0.54 ms
- Power falltime	ms	< 5	0.56 ms
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	520.70
- CW preamble	ms	160 ± 1.6	160.30
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	± 0.08026
- Short term stability		< 2x10 ⁻⁹ /100 ms	2.63 x 10 ⁻¹⁰

* See data next pages

Laboratoire de certification

Contrôle balise ARGOS/SARSAT

Constructeur JOTRON
 Modele TRON 40GPS
 Numero de serie OCA07001
 Reference M2393
 Type SARSAT

Date de l'essai 19 Jul 2000 18:15:52

Message balise

Message reçu (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/calculé (86-106/25-85): 105685/105685
 BCH 2 lu/calculé (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 défaut : Yes

Contrôle message

Duree de la porteuse pure 160.30ms +- 0.00
 Duree de l'emission 520.70 ms

Frequence de modulation 398.87Hz +- 0.00

Stabilité de fréquence

Frequence moyenne F2 406025080.26 Hz

SIGMA2 F2-F1 1.008E-09
 SIGMA3 F3-F2 2.630E-10

Mesures d'indice

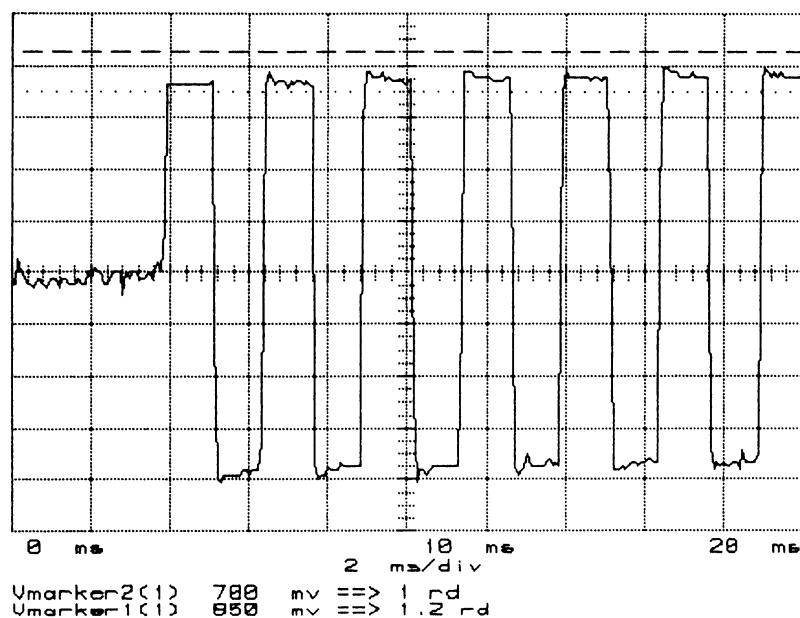
F	F1	G1
50081.19	221	63
50081.5	222	63

Excursion de phase totale	rd	<= 2.48	2.26
Excursion de phase positive	rd	0.96< <1.24	1.10
Excursion de phase negative	rd	-1.24< <-0.96	-1.16
Symetrie de l'excursion	%	<= 5	2.42

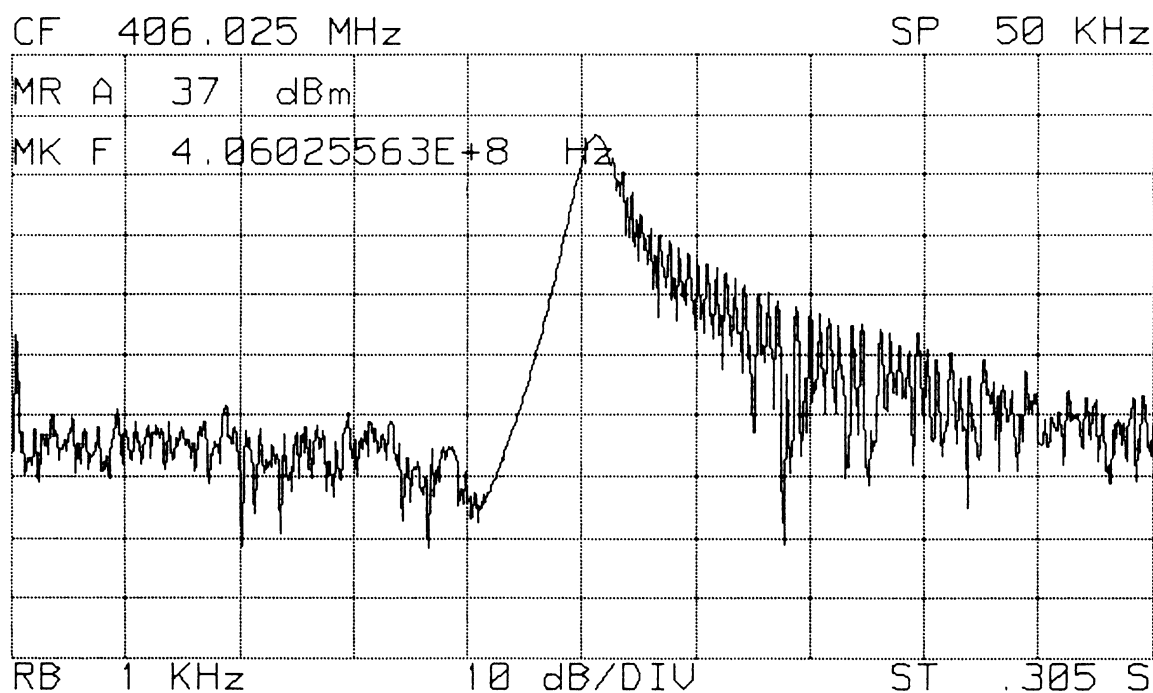
Mesures de puissance

Puissance dBm 37.94

Oscillo_____



Spectre de frequence_____



HUMIDITY TEST

