

## **CHAPTER 19**

|                                 |
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| <b>A19.0 - ORIENTATION TEST</b> |
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### **19.1. TEST SPECIFICATIONS AND SEQUENCE**

Following Section A19.0 of RTCM Recommended Standards for 406 MHz Satellite EPIRBs (Version 2.0 Feb 5,1997) :

- At the ambient temperature :

- In vertically position active the EUT and after 15 minutes perform an alivness test .
- Subsequently place the eut in horizontal position, upside down, and return upright position and perform the alivness test 2 minutes after each position .

### **19.2. EQUIPMENT UNDER TEST**

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

### **19.3 TEST SITE**

Toulouse Space Center (CST) - INTESPACE Metrology.

### **19.4. TEST EQUIPMENT**

- Climatic chamber : CLIMATS F.C.H. – Type: Austral 137H60/1,5E - S/N: S4880.
- Argos - Cospas/Sarsat Test Bench

### **19.5. RESULTS**

The orientation test is performed during the COSPAS-SARSAT certification test at ambient temperature .

See next page the results .

### 9.5.1 ALIVENESS TEST RESULTS BEACON IN VERTICAL POSITION

EUT : 2/2  
 Name : JOTRON  
 Type : TRON 40GPS  
 Number : 7001  
 Date : 18 may 2000 17:30

#### 406 MHZ MEASUREMENTS

|                                              |        |                              |                         |
|----------------------------------------------|--------|------------------------------|-------------------------|
| <b>1 - Environmental Temperature ( ° C )</b> |        |                              | + 20.8 ° C              |
| <b>2 - POWER OUTPUT</b>                      |        |                              |                         |
| - Transmission power                         | dBm    | 37 ± 2                       | 37.7                    |
| - Power risetime                             | ms     | < 5                          | 0.50 ms                 |
| - Power falltime                             | ms     | < 5                          | 0.39 ms                 |
| <b>3 - SPURIOUS OUTPUT</b>                   |        |                              |                         |
| - In band                                    | *      |                              | OK                      |
| - Carrier harmonics                          |        |                              |                         |
| <b>4 - DIGITAL MESSAGE GENERATOR</b>         |        |                              |                         |
| - Repetition rate                            |        |                              | OK                      |
| - Bit rate                                   | bits/S | 400 ± 4                      | 398.86                  |
| - Transmission time                          | ms     | 440 ± 4.4 / 520 ± 5.2        | 521.99                  |
| - CW preamble                                | ms     | 160 ± 1.6                    | 160.39                  |
| <b>5 - DIGITAL MESSAGE</b>                   |        |                              |                         |
| - 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               | 1D3226 / 1D3226         |
| - BCH 2 code read / calculated               | bits   | 133-144 / 107-132            | 9E3 / 9E3               |
| <b>6 - FREQUENCY</b>                         |        |                              |                         |
| - Nominal value                              | KHz    | 406025 ± 2                   | ± 0.10545               |
| - Short term stability                       |        | < 2x10 <sup>-9</sup> /100 ms | 1.4 x 10 <sup>-10</sup> |

\* See Chapter 12 : C/S T.A. Test Report (page 17 to 30)

### 9.5.2 ALIVENESS TEST RESULTS BEACON AFTER HORIZONTAL POSITION

EUT : 2/2  
 Name : JOTRON  
 Type : TRON 40GPS  
 Number : 7001  
 Date : 24 may 2000 9:30

#### 406 MHZ MEASUREMENTS

|                                              |        |                              |                         |
|----------------------------------------------|--------|------------------------------|-------------------------|
| <b>1 - Environmental Temperature ( ° C )</b> |        |                              | - 19.5 ° C              |
| <b>2 - POWER OUTPUT</b>                      |        |                              |                         |
| - Transmission power                         | dBm    | 37 ± 2                       | 35.6                    |
| - Power risetime                             | ms     | < 5                          | 0.44 ms                 |
| - Power falltime                             | ms     | < 5                          | 0.33 ms                 |
| <b>3 - SPURIOUS OUTPUT</b>                   |        |                              |                         |
| - In band                                    | *      |                              | OK                      |
| - Carrier harmonics                          |        |                              |                         |
| <b>4 - DIGITAL MESSAGE GENERATOR</b>         |        |                              |                         |
| - Repetition rate                            |        |                              | OK                      |
| - Bit rate                                   | bits/S | 400 ± 4                      | 398.86                  |
| - Transmission time                          | ms     | 440 ± 4.4 / 520 ± 5.2        | 521.87                  |
| - CW preamble                                | ms     | 160 ± 1.6                    | 160.20                  |
| <b>5 - DIGITAL MESSAGE</b>                   |        |                              |                         |
| - 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               |
| <b>6 - FREQUENCY</b>                         |        |                              |                         |
| - Nominal value                              | KHz    | 406025 ± 2                   | ↕ 0.13396               |
| - Short term stability                       |        | < 2x10 <sup>-9</sup> /100 ms | 2.0 x 10 <sup>-10</sup> |

\* See Chapter 12 : C/S T.A. Test Report (page 17 to 30)

### 9.5.3 ALIVENESS TEST RESULTS BEACON AFTER UPSIDE DOWN POSITION

EUT : 2/2  
 Name : JOTRON  
 Type : TRON 40GPS  
 Number : 7001  
 Date : 12 may 2000 13:00

#### 406 MHZ MEASUREMENTS

|                                              |        |                              |                         |
|----------------------------------------------|--------|------------------------------|-------------------------|
| <b>1 - Environmental Temperature ( ° C )</b> |        |                              | + 56.2 ° C              |
| <b>2 - POWER OUTPUT</b>                      |        |                              |                         |
| - Transmission power                         | dBm    | 37 ± 2                       | 37.4                    |
| - Power risetime                             | ms     | < 5                          | 0.50 ms                 |
| - Power falltime                             | ms     | < 5                          | 0.46 ms                 |
| <b>3 - SPURIOUS OUTPUT</b>                   |        |                              |                         |
| - In band                                    | *      |                              | OK                      |
| - Carrier harmonics                          |        |                              |                         |
| <b>4 - DIGITAL MESSAGE GENERATOR</b>         |        |                              |                         |
| - Repetition rate                            |        |                              | OK                      |
| - Bit rate                                   | bits/S | 400 ± 4                      | 398.64                  |
| - Transmission time                          | ms     | 440 ± 4.4 / 520 ± 5.2        | 521.94                  |
| - CW preamble                                | ms     | 160 ± 1.6                    | 160.27                  |
| <b>5 - DIGITAL MESSAGE</b>                   |        |                              |                         |
| - 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               |
| <b>6 - FREQUENCY</b>                         |        |                              |                         |
| - Nominal value                              | KHz    | 406025 ± 2                   | + 0.06107               |
| - Short term stability                       |        | < 2x10 <sup>-9</sup> /100 ms | 1.7 x 10 <sup>-10</sup> |

\* See Chapter 12 : C/S T.A. Test Report (page 17 to 30)