

CHAPTER 15

A15.0 - STABILITY AND BUOYANCY TESTS
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15.1. TEST SPECIFICATIONS AND SEQUENCE

Following Section A15.0 of RTCM Recommended Standards for 406 MHz Satellite EPIRBs (Version 2.0 Feb 5,1997) :

- **Stability Test :**

The EUT should, when rotated to a horizontal position about any axis, submerged just below the surface, and released, pass through an upright position within 2 seconds .

The satellite EPIRB should float upright in calm fresh water with the base of the antenna a minimum of 40 mm above the waterline

- **Buoyancy Test :**

The reserve buoyancy of the satellite EPIRB should be at least 5% when determined by one of the following procedures :

- 1 . Submerge the complete unit and measure the buoyant force with a scale .
Divide the measured buoyant force by the weight of the unit . The result should be at least 1.05 .
- 2 . Determine the location of the waterline on the floating satellite EPIRB . Calculate the volume of the unit above the waterline and the volume below the water . Divide the volume above the water by the volume below the water . The result should be at least 1.05 .

15.2. EQUIPMENT UNDER TEST

Beacon Unit : 1/2
Name : JOTRON
Type : TRON 40GPS
Number : 7000

15.3 TEST SITE

Toulouse Space Center (CST) - INTESPACE Metrology.Laboratory

15.4. TEST EQUIPMENT

- Fresh water container
- Balance : Sartorius type 3626 001
- Argos - Cospas/Sarsat Test Bench.

15.5 TEST IMPLEMENTATION AND RESULTS

Date : 24 July 2000

- **Stability test** :

In conformance with RTCM A15.0 on four perpendicular axis.

Mean time to return to the upright position : ~1 second.

- Buoyancy test :

* Old method of control (Following Section A12.0 of RTCM Paper 166-90/SC 110-X -January 1991) :

- Nominal EPIRB weight : 2110 gr
- 5 % reserve buoyancy : 106 gr
- With this supplementary weight, 106 gr, the waterline of the EPIRB go up about 4 or 5 mm (see photos next page) .

Height of the base antenna above the water : ≥ 40 mm Just conform

* Method recommended by RTCM Standards -Version 2.0 Feb 5,1997 :

1 Buoyant Force method :

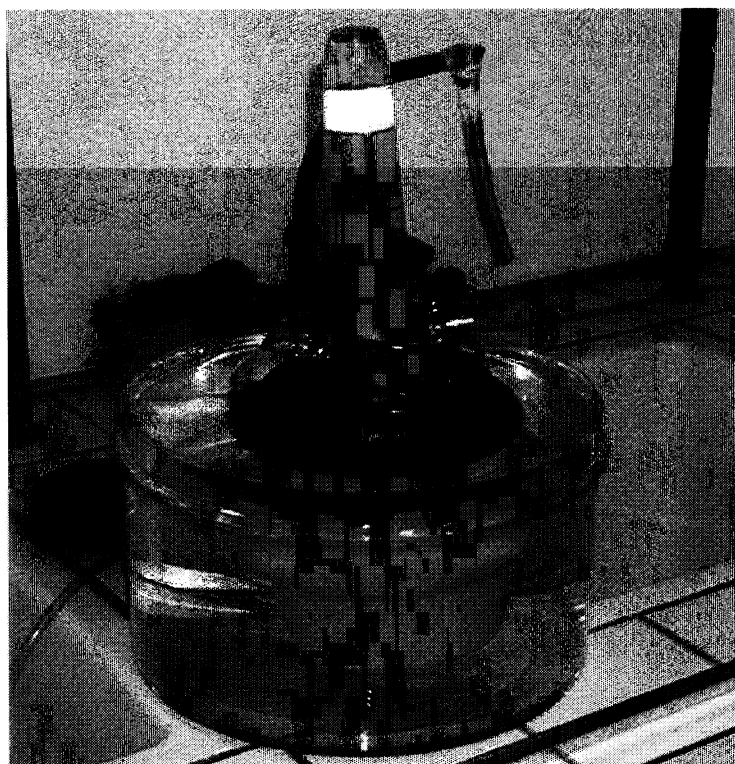
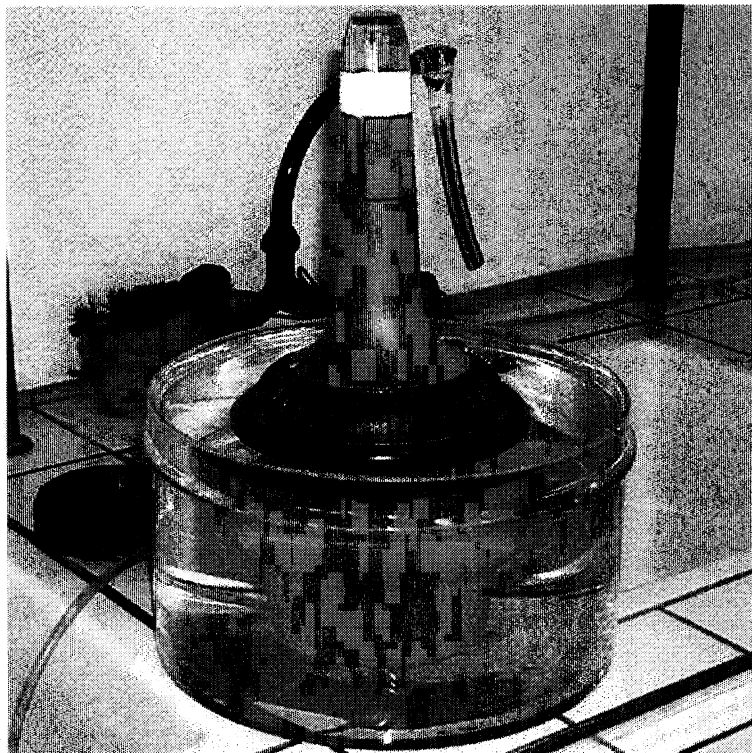
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|------------------------------|----------------|
| - Buoyant Force (Fb) | = 890 gr ± 10 |
| - Beacon Weight (W) | = 2110 gr ± 10 |
| - Reserve of buoyancy (Fb/W) | = 0.42 |

2 Volumetric method :

- Volume of EUT above waterline (V_a) = 768 cm³ ± 10
- Volume of EUT below waterline (V_b) = 2039 cm³ ± 10
- Reserve of buoyancy (V_a/V_b) = 0.38

STABILITY AND BUOYANCY

(Old method, Rtcn 1991)



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(Rtcm V. 2.0 Feb 5,1997)

