

**RESOLUTION A.810(19)**  
adopted on 23 November 1995

Amended by MSC.56(66),  
120(74)

**PERFORMANCE STANDARDS FOR FLOAT-FREE SATELLITE EMERGENCY  
POSITION-INDICATING RADIO BEACONS (EPIRBs)  
OPERATING ON 406 MHz**

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety,

RECALLING ALSO regulations IV/7.1.6 and 14.1 of the 1988 amendments to the International Convention for the Safety of Life at Sea (SOLAS), 1974, concerning radiocommunications for the Global Maritime Distress and Safety System (GMDSS), which require, respectively, that ships be provided with a satellite emergency position-indicating radio beacon (EPIRB) and that such EPIRBs shall conform to appropriate performance standards not inferior to those adopted by the Organization,

RECOGNIZING the need to prepare performance standards for float-free satellite EPIRBs operating through a polar-orbiting satellite system on 406 MHz to be used in the GMDSS in order to ensure the operational reliability of such equipment and to avoid, as far as practicable, adverse interaction between such equipment and other communication and navigation equipment on board ship,

HAVING CONSIDERED the recommendation made by the Maritime Safety Committee at its sixty-fifth session,

1. ADOPTS the Recommendation on Performance Standards for Float-Free Satellite Emergency Position-Indicating Radio Beacons (EPIRBs) Operating on 406 MHz set out in the Annex to the present resolution;
2. RECOMMENDS Governments to ensure that float-free satellite EPIRBs operating on the frequency 406 MHz, which form part of the GMDSS:
  - (a) if installed on or after 23 November 1996, conform to performance standards not inferior to those specified in the Annex to the present resolution;
  - (b) if installed before 23 November 1996, conform to performance standards not inferior to those specified in the Annex to resolution A.763(18);
  - (c) if installed before 4 November 1994, conform to performance standards not inferior to those specified in the Annex to resolution A.763(18), except that they need not be provided with the 121.5 MHz homing beacon required by 2.3.14 of part A thereof;
3. INVITES the COSPAS-SARSAT partners to ensure that any amendments to the specification for COSPAS-SARSAT 406 MHz distress beacons are agreed with the Organization prior to their adoption;
4. REQUESTS the Maritime Safety Committee to ensure that any proposed amendments to this resolution are agreed with the COSPAS-SARSAT partners prior to their adoption;
5. REQUESTS ALSO the Maritime Safety Committee to review the code assignment method recommended in 4 of part B of the Annex to this resolution prior to 1 February 1997;

6. REQUESTS FURTHER the Maritime Safety Committee to keep these Performance Standards under review and to adopt amendments thereto, as necessary.

## ANNEX

### RECOMMENDATION ON PERFORMANCE STANDARDS FOR FLOAT-FREE SATELLITE EMERGENCY POSITION-INDICATING RADIO BEACONS (EPIRBs) OPERATING ON 406 MHz

#### Part A - GENERAL

#### 1 INTRODUCTION

The satellite emergency position-indicating radio beacon (EPIRB) should, in addition to meeting the requirements of the Radio Regulations, the relevant ITU-R Recommendations and the general requirements set out in resolution A.694(17), comply with the following performance standards.

#### 2 GENERAL

2.1 The satellite EPIRB should be capable of transmitting a distress alert to a polar orbiting satellite.

2.2 The EPIRB should be of an automatic float-free type. The equipment, mounting and releasing arrangements should be reliable, and should operate satisfactorily under the most extreme conditions likely to be met with at sea.

2.3 The satellite EPIRB should:

- .1 be fitted with adequate means to prevent inadvertent activation;
- .2 be so designed that the electrical portions are watertight at a depth of 10 m for at least 5 min. Consideration should be given to a temperature variation of 45°C during transitions from the mounted position to immersion. The harmful effects of a marine environment, condensation and water leakage should not affect the performance of the beacon;
- .3 be automatically activated after floating free;
- .4 be capable of manual activation and manual deactivation;
- .5 be provided with means to indicate that signals are being emitted;
- .6 be capable of floating upright in calm water and have positive stability and sufficient buoyancy in all sea conditions;
- .7 be capable of being dropped into the water without damage from a height of 20 m;
- .8 be capable of being tested, without using the satellite system, to determine that the EPIRB is capable of operating properly;
- .9 be of highly visible yellow/orange colour and be fitted with retroreflecting material;

- .10 be equipped with a buoyant lanyard suitable for use as a tether, which should be so arranged as to prevent its being trapped in the ship's structure when floating free;
  - .11 be provided with a low duty cycle light (0.75 cd), active during darkness, to indicate its position to nearby survivors and to rescue units;
  - .12 not be unduly affected by seawater or oil or both;
  - .13 be resistant to deterioration in prolonged exposure to sunlight; and
  - .14 be provided with a 121.5 MHz beacon primarily for homing by aircraft.
- 2.4 The battery should have sufficient capacity to operate the satellite EPIRB for a period of at least 48 h.
- 2.5 The satellite EPIRB should be so designed as to operate under any of the following environmental conditions:
- .1 ambient temperatures of -20°C to +55°C;
  - .2 icing;
  - .3 relative wind speeds up to 100 knots; and
  - .4 after stowage, at temperatures between -30°C and +70°C.
- 2.6 The installed satellite EPIRB should:
- .1 have local manual activation; remote activation may also be provided from the navigating bridge, while the device is installed in the float-free mounting;
  - .2 be capable, while mounted on board, of operating properly over the ranges of shock and vibration and other environmental conditions normally encountered above deck on seagoing ships; and
  - .3 be designed to release itself and float free before reaching a depth of 4 m at a list or trim of any angle.

### **3 DISTRESS FUNCTION**

- 3.1 When the satellite EPIRB is manually operated a distress alert should be initiated only by means of a dedicated distress alert activator.
- 3.2 The dedicated activator should:
- .1 be clearly identified; and
  - .2 be protected against inadvertent operation.
- 3.3. Manual distress alert initiation should require at least two independent actions.
- 3.4 The satellite EPIRB should not be automatically activated after being manually removed from the release mechanism.

### **4 LABELLING**

In addition to the items specified in resolution A.694(17) on general requirements, the following should be clearly indicated on the exterior of the equipment:

- .1 brief operating instructions;
- .2 expiry date for the primary battery used; and
- .3 the identity code programmed into the transmitter.

#### **Part B - SATELLITE SIGNALS**

1 The satellite EPIRB distress alerting signal should be transmitted on the frequency of 406.025 MHz using G1B class of emission.

2 The technical characteristics of the transmitted signal and the message format should be in accordance with Recommendation ITU-R M.633.

3 Provisions should be included for storing the fixed portion of the distress message in the satellite EPIRB using non-volatile memory.

4 A unique beacon identification code should be made part of all messages.

Until 1 February 1999, this identification code should include a 3-digit code for the country in which the beacon is registered, followed by either:

- .1 the trailing 6 digits of the ship station identity in accordance with Appendix 43 of ITU Radio Regulations; or
- .2 a unique serial number; or
- .3 a radio call sign.

Preference is given to method .1.

After 1 February 1999, all new beacon installations should be in accordance with method .1<sup>1</sup>.

5 The 121.5 MHz homing signal should:

- .1 have a continuous duty cycle, except that it may be interrupted for up to a maximum of 2 s during the transmission of the 406 MHz signal; and
- .2 with the exception of the sweep direction, meet the technical characteristics of Appendix 37A of the Radio Regulations. The sweep may be either upward or downward.

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<sup>1</sup>The code assignment method is to be reviewed prior to 1 February 1997.

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