



**UK Radio Interface Requirement 2042  
for Maritime Personal Locator Beacons (PLBs) intended for  
use with the COSPAS-SARSAT Distress Alert System on  
the frequencies 406.025MHz or 406.028MHz, with an  
auxiliary 121.5MHz transmitter for homing purposes only,  
and optional Navigational Interface (either Internal or  
External)  
(Version 2.0)**

98/34/EC Notification Number: 2001/326/UK

**Published 1<sup>st</sup> April 2003**

## **References**

**COSPAS-SARSAT Documents C/S T.001, C/S T.007, C/S G.005  
ITU-R M.690-1**

Note: These references are included for information purposes only. Unless detailed in sections 2 or 3, compliance with the referenced standards is not mandatory.

## **1. Foreword**

- 1.1 The Radio Equipment and Telecommunications Terminal Equipment Directive 99/5/EC (R&TTE Directive) was implemented in the United Kingdom (UK) on the 8 April 2000 by The Radio Equipment and Telecommunications Terminal Equipment Regulations 2000, Statutory Instrument 2000 No. 730. In accordance with Articles 4.1 and 7.2 of Directive 1999/5/EC, this UK Radio Interface Requirement contains the requirements for the licensing and use of maritime Personal Locator Beacons (PLBs) intended for use on the frequencies 406.025MHz or 406.028MHz with the COSPAS-SARSAT distress alert system and the frequency 121.5 MHz for homing purposes only. In addition the PLBs may optionally include either an Internal or External Navigation Interface to provide encoded position data for transmission in the COSPAS-SARSAT message.
- 1.2 Nothing in this UK Radio Interface Requirement shall preclude the need for equipment to comply with Directive 1999/5/EC.
- 1.3 It is required by the Wireless Telegraphy Act 1949 that no radio equipment is installed or used in the UK except under the authority of a licence granted by or otherwise exempted by regulations made by the Secretary of State. It is a condition of such a licence or exemption regulations as appropriate that the equipment must meet the minimum requirements specified in this UK Radio Interface Requirement for the stated equipment types and for the stated frequency bands.
- 1.4 The requirements given in the main body of this UK Radio Interface Requirement will apply to the licensing of maritime PLBs intended for use on the frequencies 406.025MHz or 406.028MHz with the COSPAS-SARSAT distress alert system and the frequency 121.5 MHz for homing purposes only, for distress use on non-SOLAS vessels voluntarily participating in the Global Maritime Distress and Safety System (GMDSS).
- 1.5 This UK Radio Interface Requirement will be revised as necessary, for example to follow:
  - i) current technology developments for reasons related to the effective and appropriate use of the spectrum in particular maximising spectrum utilisation; and
  - ii) changes to the available spectrum allocated for PLBs intended for use with the COSPAS-SARSAT system on the frequencies 406.025 MHz or 406.028 MHz, and the frequency 121.5 MHz for homing purposes only.
- 1.6 All UK Radio Interface Requirements notified under Directive 98/34/EC will be published and will be made available free of charge from the RA Information and Library Service and/or the RA web-site. The addresses for both the Library and the web-site are given on the back cover of this document.
- 1.7 Further information on this UK Radio Interface Requirement can be obtained from the technical enquiry contact given on the back of this document

## **2. Minimum Equipment Requirements for Operation within the UK**

- 2.1 The minimum radio requirements in this document are made for reasons related to the effective and appropriate use of the radio spectrum, in particular maximising spectrum utilisation.
- 2.2 This UK Radio Interface Requirement gives a high level description of how the spectrum in the UK is used for maritime PLBs intended for use on the frequencies 406.025MHz or 406.028MHz with the COSPAS-SARSAT distress alert system, and the frequency 121.5 MHz for homing purposes only. It does not prescribe a technical interpretation of the 'essential requirements' of Directive 1999/5/EC.
- 2.3 This UK Radio Interface Requirement therefore stipulates the necessary equipment parameters for the licensing of maritime PLBs intended for use on the frequencies 406.025MHz or 406.028MHz with the COSPAS-SARSAT distress alert system and the frequency 121.5 MHz for homing purposes only. Table 2.1 contains the relevant equipment parameters. These together with the 'essential requirements' detailed in Article 3.2 of the Directive 1999/5/EC constitute the minimum equipment requirements for maritime PLBs intended for use on the frequencies 406.025MHz or 406.028MHz with the COSPAS-SARSAT distress alert system, and the frequency 121.5 MHz for homing purposes only.
- 2.4 The technical parameters specified in the UK Radio Interface Requirement are applied to achieve the desired level of compatibility within the PLBs and associated equipment for use with the COSPAS-SARSAT Distress alert System together with homing and with other radiocommunications services whilst promoting enterprise, innovation and competition.
- 2.5 This UK Radio Interface Requirement provides the necessary technical information which facilitates access to the maritime PLB equipment and associated equipment for Distress Alerting by making clear the assumptions that are made in planning the use of the PLB equipment DSC Distress Alerting and homing spectrum in the UK. It is not the intention of this UK Radio Interface Requirement to duplicate or impose any additional 'essential requirements' of the Directive 1999/5/EC on products. Any specified parameters within this document are for the purpose of identifying product options and not as a de-facto national product requirement.

**Table 2.1: Minimum Equipment Requirements**

<b>Frequencies</b>	<b>Licence Class &amp; Radio Service</b>	<b>Additional Requirements</b>
406.025 MHz or 406.028 MHz and 121.5 MHz	Ship Radio Licence. Maritime Mobile / Maritime Mobile Satellite Service.	The equipment and operation shall be in accordance with the relevant sections of the ITU Radio Regulations Articles 5, 30, 32, and Appendix 13 and 15

**406 MHz Transmitter**

<b>Class of emission</b>	<b>Transmitter Power Output</b>	<b>Additional Requirements</b>
Requirements as given in C/S T.001	The transmitter power output shall be within the limits of $5W \pm 2dB$ (35 - 39 dBm) measured into a 50-Ohm load, with a standing-wave ratio (VSWR) not greater than 1.25:1.	The PLB shall be legibly and indelibly labelled with the 15 digit hexadecimal identity code programmed into the unit, and in addition with adequate information to enable manual activation, deactivation and self test. The PLB shall be capable of being manually activated only and shall require two simple but independent mechanical actions to initiate transmission. Equipment with an integral or external navigation receiver for determining geographical position shall use the National Location Protocol format in the transmitted message. Equipment without an integral or external navigation receiver for determining geographical position shall use the Serial User Protocol format in the transmitted message.

<b>Data Encoding &amp; Modulation</b>	<b>Digital Message</b>	<b>Message formats</b>
Requirements as given in C/S T.001	Requirements as given in C/S T.001	Serial User Protocol or National Location Protocol as defined for PLBs in COSPAS-SARSAT C/S G.005 and COSPAS-SARSAT C/S T.001

**121.5 MHz Transmitter for homing only**

<b>Transmitted Frequency</b>	<b>Class of emission</b>	<b>Transmitted Power</b>	<b>Modulation Characteristics</b>
121.5 MHz	Requirements as given in ITU-R M.690-1	Between 25 and 100 mW ERPEP * *Effective Radiated Peak Envelope power	Requirements as given in ITU-R M.690

### 3. Additional Performance Parameters

- 3.1 The COSPAS-SARSAT reference standards contain additional performance parameters and limits that the Radiocommunications Agency assumes are fulfilled for Maritime PLBs intended for use with the COSPAS-SARSAT Distress Alert System on the frequencies 406.025MHz or 406.028MHz, with auxiliary 121.5MHz radio-location transmitter for homing purposes only.
- 3.2 Manufacturers are required to submit equipment reports to Cospas-Sarsat for assessment as defined in the Cospas-Sarsat reference standards.
- 3.3 Emergency Position Indicating Radio Devices coded as PLBs, may be buoyant or non-buoyant and shall meet the following requirements:
- a) General construction and method of operation shall provide a high degree of proof against inadvertent operation.
  - b) Shall have a means of carriage or attachment to a lifejacket or clothing.
  - c) Shall be constructed in such a manner that there is visual evidence that the equipment has been activated.

The equipment shall be provided with visual or audible indications that signals are being emitted.

The equipment shall be labelled with the following information:

- Type designation, serial number, battery expiry date
- A warning that the equipment shall not be operated except in an emergency
- The compass safe distance

The equipment shall be capable of a self test to determine correct operation without causing an alert on the satellite system.

If the PLB has provision for an integral Navigation Receiver, then the receiver shall conform to the requirements of the relevant clauses of IEC 61108-1 for:

GPS Receiver Equipment and Outputs, GPS Static and Dynamic Accuracy, Angular Movement of the Antenna, Dynamic GPS Accuracy, Initialization, Power Outage, Interruption of GPS Signals, Acquisition Sensitivity, Tracking Dynamic Range, L-Band and S-Band Interference, Position Resolution and Update Rate.

## Document history

Version	Date	Changes
Draft1.0	13 July 01	Not published
Draft 2.0	01 Dec 02	

### Radiocommunications Agency

General Enquiries to the  
Information and Library Service:  
Tel.: +44 (0) 20-7211-0502 or 0505  
Fax: +44 (0) 20 7211- 0507  
Email: [library@ra.gsi.gov.uk](mailto:library@ra.gsi.gov.uk)

Technical Enquiries to the  
Specialist Sectors Unit  
Tel.: +44 (0) 20-7211-0225  
Fax: +44 (0) 20-7211-0228  
Email: [ams@ra.gsi.gov.uk](mailto:ams@ra.gsi.gov.uk)

Web site: [www.radio.gov.uk](http://www.radio.gov.uk)

---

This is a UK Radio Interface Requirement

**Postal address:**

Specialist Sectors Unit, Wyndham House, 189 Marsh Wall, LONDON, E14 9SX