1. REGULATIONS

1.1 General

Specifications

See Australian / New Zealand Standards on "406 MHz satellite distress beacons", Ref. AS/NZS 4280.1, as amended for EPIRBs and AS/NZS 4280.2, as amended for PLBs.

These Standards are available at http://infostore.saiglobal.com/store/

Vessels operating under the Navigation Act of Australia are required to carry 406 MHz EPIRBs that meet the requirements of Marine Orders, Part 25 - Equipment - Lifesaving and 406 MHz EPIRBs that meet the requirements of Marine Orders, Part 27 - GMDSS Radio Equipment.

In July 2010, the Australian Maritime Safety Authority delegated the approval of material and equipment, including EPIRBs, to nine approved Classification Societies (ABS, CCS, KR, CCS, DNV, GL, LR and NKK). Approval was undertaken as per SOLAS requirements and/or Australian Marine Orders.

Amendment 4 of AS/NZS 4280.1 (EPIRBs) was released on 12 September 2013. The amendment describes the use of checksums to assist in the registration process.

Amendment 4 of AS/NZS 4280.2 (PLBs) was released on 12 September 2013. The amendment describes the use of checksums to assist in the registration process and specifies that PLB casing shall provide buoyancy in fresh water.

1.2 EPIRBs

Status Report on the Australian States' Legislation for the Carriage of EPIRBs

All Australian States and Territories have legislated for the mandatory registration of EPIRBs with AMSA. All vessels operating more than 2 nm offshore will be required to carry a 406 MHz beacon, except for the State of South Australia, where the requirement is 3 nm.

1.3 ELTs

Civil Aviation Regulation 252A

252A Emergency locator transmitters

(1) The pilot in command of an Australian aircraft that is not an exempted aircraft may begin a flight only if the aircraft:

(a) is fitted with an approved ELT:

(i) that is in working order; and
(ii) whose switch is set to the position marked ‘armed’, if that switch has a position so marked; or
(b) carries, in a place readily accessible to the operating crew, an approved portable ELT that is in working order.

Penalty: 25 penalty units.

Note: For the maintenance requirements for emergency locator transmitters, see Part 4A. See also subsection 20AA (4) of the Act.

(1A) An offence against sub-regulation (1) is an offence of strict liability.

Note: For strict liability, see section 6.1 of the Criminal Code.

(2) Sub-regulation (1) does not apply in relation to a flight by an Australian aircraft if:
(a) the flight is to take place wholly within a radius of 50 miles from the aerodrome reference point of the aerodrome from which the flight is to begin; or
(b) the flight is, or is incidental to, an agricultural operation; or
(c) CASA has given permission for the flight under regulation 21.197 of CASR; or
(d) the aircraft is new and the flight is for a purpose associated with its manufacture, preparation or delivery; or
(e) the flight is for the purpose of moving the aircraft to a place to have an approved ELT fitted to the aircraft, or to have an approved ELT that is fitted to it repaired, removed or overhauled.

(3) Sub-regulation (1) does not apply in relation to a flight by an Australian aircraft if, when the flight takes place:
(a) an approved ELT fitted to the aircraft, or an approved portable ELT usually carried in the aircraft, has been temporarily removed for inspection, repair, modification or replacement; and
(b) an entry has been made in the aircraft’s log book, or approved alternative maintenance record, stating:
   (i) the ELT’s make, model and serial number; and
   (ii) the date on which it was removed; and
   (iii) the reason for removing it; and
(c) a placard stating: ‘ELT not installed or carried’ has been placed in the aircraft in a position where it can be seen by the aircraft’s pilot; and
(d) not more than 90 days have passed since the ELT was removed.

(4) For an emergency locator transmitter, emergency position indicating radio beacon or personal locator beacon to be an eligible ELT, it must meet the following requirements:
(a) it must, if activated, operate simultaneously:
   (i) in the frequency band 406 MHz–406.1 MHz; and
   (ii) on 121.5 MHz;
(b) it must be registered with the Australian Maritime Safety Authority;
(c) if it is fitted with a lithium-sulphur dioxide battery — the battery must be of a type authorised by the FAA in accordance with TSO-C142 or TSO-C142a.

(5) To be an approved ELT, an eligible ELT must meet the following requirements:
(a) it must be automatically activated on impact;
(b) it must be of one of the following types:
   (i) a type authorised by the FAA in accordance with:
       (A) TSO-C91a for operation on 121.5 MHz; and
       (B) TSO-C126 for operation in the frequency band 406 MHz–406.1 MHz;
   (ii) a type that CASA is satisfied:
       (A) is operationally equivalent to a type mentioned in subparagraph (i); and
       (B) performs at a level that is at least equivalent to the level of performance of a type mentioned in subparagraph (i).

(6) To be an approved portable ELT, an eligible ELT must meet the following requirements:
(a) it must be portable;
(b) it must be of one of the following types:
   (i) an emergency position indicating radio beacon of a type that meets the requirements of AS/NZS 4280.1:2003;
   (ii) a personal locator beacon of a type that meets the requirements of AS/NZS 4280.2:2003;
   (iii) a type authorised by the FAA in accordance with:
       (A) TSO-C91a for operation on 121.5 MHz; and
       (B) TSO-C126 for operation in the frequency band 406 MHz–406.1 MHz;
   (iv) a type that CASA is satisfied:
       (A) is operationally equivalent to a type mentioned in subparagraph (i), (ii) or (iii); and
       (B) performs at a level that is at least equivalent to the level of performance of a type mentioned in subparagraph (i), (ii) or (iii).

(7) In this regulation:

approved ELT means an eligible ELT that meets the requirements mentioned in sub-regulation (5).
approved portable ELT means an eligible ELT that meets the requirements mentioned in sub-regulation (6).

AS/NZS 4280.1:2003 means:
(a) the standard AS/NZS 4280.1:2003, 406 MHz satellite distress beacons, Part 1: Marine emergency position-indicating radio beacons (EPIRB) (IEC 61097-2:2002, MOD), as in force from time to time; or
(b) a later edition of the standard mentioned in paragraph (a), as in force from time to time.

AS/NZS 4280.2:2003 means:
(a) the standard AS/NZS 4280.2:2003, 406 MHz satellite distress beacons, Part 2: Personal locator beacons (PLBs), as in force from time to time; or
(b) a later edition of the standard mentioned in paragraph (a), as in force from time to time.
eligible ELT means an emergency locator transmitter, emergency position indicating radio beacon or personal locator beacon that meets the requirements mentioned in sub-regulation (4).

exempted aircraft means:
(a) a high-capacity regular public transport aircraft; or
(b) a high-capacity charter aircraft; or
(c) a single seat aircraft; or
(d) a turbojet-powered aircraft; or
(e) a balloon; or
(f) an airship; or
(g) a glider.

high-capacity, in relation to an aircraft, means permitted, by the aircraft’s certificate of type approval:
(a) to have a maximum seating capacity of more than 38 seats; or
(b) to carry a maximum payload of more than 4,200 kilograms.

single seat aircraft means an aircraft that is equipped to carry only one person.

(8) In this regulation, a reference to a particular TSO is a reference to:
(a) the particular TSO, as in force from time to time; or
(b) a later version of the particular TSO, as in force from time to time.

1.4 PLBs

Yachting Australia - YA Special Regulations Part 1 for Racing Boats and Recommended for Cruising Boats including Monohulls, Multihulls and Trailables.

A 406 MHz Personal Locator Beacon registered with a National Registration Authority and for Australian registered PLBs shall have a current registration label attached, shall be carried by or attached to each member of the crew when on deck for all Category 1 and 2 races.

PLBs shall be:
a) within battery life;
b) regularly tested to ensure they are in working condition; and
c) registered in the users’ name.

Category 1: Offshore races of long distance and well offshore, where boats must be self-sufficient for extended periods of time, capable of withstanding heavy storms and prepared to meet serious emergencies without the expectation of outside assistance.

Category 2: Offshore races of extended duration along or not far removed from shorelines or in large unprotected bays or lakes, where a high degree of self-sufficiency is required of the boats.
1.4.1 National Beacon Regulations for Serial-Coded PLBs

<table>
<thead>
<tr>
<th>Administration</th>
<th>For Terrestrial Applications</th>
<th>In Maritime Environment</th>
<th>On Aircraft</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Country Recognises PLB Activations</td>
<td>Country Recognises PLB Activations</td>
<td>Country Recognises PLB Activations</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>Y</td>
<td>R</td>
<td>R</td>
<td>In maritime environment, a PLB cannot be used as a substitute for an EPIRB required by regulation. On aircraft, see Civil Aviation Regulation 252A for rules concerning PLBs in aircraft.</td>
</tr>
</tbody>
</table>

Similar information is available in the new table on the Cospas-Sarsat website ([www.cospas-sarsat.int](http://www.cospas-sarsat.int)) with the status indication in colors (Y = green, allows / N = red, not allowed / Restrictions = amber (see comments) and with the note that the national beacon regulations can be found on the Cospas-Sarsat website in document C/S S.007).

2. BEACONS CODING METHODS

2.1 EPIRB Coding Methods

<table>
<thead>
<tr>
<th>Country Code</th>
<th>USER PROTOCOLS</th>
<th>LOCATION PROTOCOLS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maritime User</td>
<td>Radio Call Sign</td>
</tr>
<tr>
<td></td>
<td>Serial User</td>
<td>EPIRB with Serial Number</td>
</tr>
<tr>
<td></td>
<td>Radio Call Sign</td>
<td>EPIRB with Serial Number</td>
</tr>
<tr>
<td>503</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>

Notes: (1) If national serial numbers, as provided by Australia's national authority, AMSA (e-mail: ausbeacon@amsa.gov.au), are to be used, the Cospas-Sarsat type approval number (TAC) should NOT be inserted and bit 43 should be set to "0". If the TAC No is to be inserted, bit 43 should be set to "1" and the manufacturer's serial number of the beacon used.

(2) Do not program an EPIRB as another beacon type of ELT or PLB.

2.2 ELT Coding Methods

<table>
<thead>
<tr>
<th>Country Code</th>
<th>USER PROTOCOLS</th>
<th>LOCATION PROTOCOLS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Serial User</td>
<td>Aviation User</td>
</tr>
<tr>
<td></td>
<td>Aircraft Operator Designator and Serial Number</td>
<td>Aircraft 24-bit Address</td>
</tr>
<tr>
<td>503</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>

Notes: (1) If national serial numbers, as provided by Australia's national authority, AMSA (e-mail: ausbeacon@amsa.gov.au), are to be used, the Cospas-Sarsat Type Approval Number (TAC) should NOT be inserted and bit 43 should be set to "0". If the TAC No is to be inserted, bit 43 should be set to "1" and the manufacturer's serial number of the beacon used.
2.3 PLB Coding Methods

<table>
<thead>
<tr>
<th>Country Code</th>
<th>USER PROTOCOLS</th>
<th>LOCATION PROTOCOLS</th>
<th>RLS (Return Link Service)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Serial User</td>
<td>User Location</td>
<td>National Location</td>
</tr>
<tr>
<td>503</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>

Notes:
1. If national serial numbers, as provided by Australia's national authority, AMSA (e-mail: ausbeacon@amsa.gov.au), are to be used, the Cospas-Sarsat Type Approval Number (TAC) should NOT be inserted and bit 43 should be set to "0". If the TAC No is to be inserted, bit 43 should be set to "1" and the manufacturer's serial number of the beacon used.
2. Do not program a PLB as another beacon type of ELT or EPIRB.
3. PLBs programmed with the Australian country code shall not transmit the letter 'P' in Morse code over the homing frequency of 121.5 MHz. This is not permitted under Australian Standards.

3. LIST OF BEACON MODELS TYPE APPROVED BY ADMINISTRATION

Australia has a policy of self-regulation with regard to meeting the requirements of the Australian Standard 4280.1 for 406 MHz EPIRBs and 4280.2 for 406 MHz PLBs. The 121.5 MHz homing transmitter referred to in Standard 4280 must be approved by the Australian Communications and Media Authority (ACMA) or by another certified laboratory providing an equivalent service. Manufacturers or distributors selling 406 MHz EPIRBs or PLBs to the general public in Australia shall hold compliance folders that demonstrate the beacon meets the operational and environmental requirements of the Australian Standard and have the C-Tick mark and suppliers number displayed clearly on the beacon's label. The Standard, AS/NZS 4280.1 and 4280.2 is available from Standards Australia (http://infostore.saiglobal.com/store/) and requirements for applying for C-Tick mark are available from ACMA (www.acma.gov.au).

EPIRBs carried by vessels under the Australian Navigation Act must comply with the relevant parts of Marine Orders.

ELTs for sale in Australia are required to comply with Aviation Regulation 252A as provided in section AUS.1.4.

4. BEACON TESTING REGULATION

4.1 Introduction

Cospas-Sarsat 406 MHz distress beacons should only be activated when a ship, aircraft or person is in distress that is in grave and imminent danger and requiring immediate assistance. In between the manufacturers’ recommended maintenance and battery replacement cycles, the beacon can be tested by the owner using the self-test capability to ensure the continued functionality of the beacon.
There is normally no need for the beacon to be tested in an operational mode by a beacon owner.

The information provided in the following sections provides guidance on beacon testing and the procedures required in the unlikely and unusual event that an operational test of a beacon is required. The Australian Maritime Safety Authority (AMSA) does not grant approval for beacon operational tests unless the procedures outlined below have been adhered to.

### 4.2 Summary

- All 406 MHz distress beacons can be tested at any time using the self-test functions without any notification to RCC Australia; and

- Any test of a 406 MHz distress beacon in the operational mode requires prior approval from RCC Australia (Telephone 1800 641 792) and the requirements set out in Sections 5 and 6 below must be satisfied.

### 4.3 Beacon Self-test

All Cospas-Sarsat type approved 406 MHz beacons include a self-test mode of operation. The content of the self-test message always provides the beacon 15 Hex ID, except for location protocol beacons when they are transmitting a self-test message encoded with a GNSS position. The transmission of a self-test GNSS position is optional.

The complete self-test transmission is limited to one burst and is activated by a separate switch position.

The self-test function performs an internal check and indicates that RF power is being emitted at 406 MHz and at 121.5 MHz, if applicable. The beacon will provide an indication of the success or failure of a GNSS self-test. The self-test mode signal is not processed by the satellite equipment.

The manufacturers’ instructions on the frequency of performing a self-test and transmission of a self-test GNSS position should be adhered to. This will limit the likelihood of inadvertent activation and battery depletion.

The Australian-New Zealand 406 MHz EPIRB and PLB beacon standard requires that the 121.5/243 MHz transmission during the self-test is restricted to just one second.

There is test equipment available that can facilitate the testing of 406 MHz beacons in the self-test mode and provide technical information on the beacon transmission. An example of such equipment can be obtained from:

www.sartech.co.uk/products/406testequipmentreceivers/406mhzbeacontesters.

This equipment is intended to be used by ship and aircraft inspectors and beacon maintenance personnel.
4.4 The Reasons Why Operational Testing Should be Avoided

The self-test function should accommodate most beacon testing. However, there are some occasions when operational testing may be required. These occasions should be limited to the absolute minimum as they impact the Cospas-Sarsat System. Other than performing a 406 MHz beacon self-test for evaluating key beacon performance characteristics to ensure operational functionality, other reasons for activating a beacon include:

- Prototype beacon testing;
- New beacon models testing;
- Search and rescue training exercises; and
- Cospas-Sarsat Ground Segment equipment performance.

Beacons activated in the operational or live mode (not using the self-test function) impacts the Cospas-Sarsat Space and Ground Segments and Rescue Coordination Centres (RCCs) worldwide and may inhibit the processing of genuine distress beacon alerts, therefore delaying a response to a distress situation.

Regardless of the beacon’s location or the duration of the activation, a 406 MHz beacon will be detected by at least one Geostationary Local User Terminal (GEOLUT) and it might also be detected by every Low Earth Orbit Local User Terminal (LEOLUT) in the Cospas-Sarsat System.

Furthermore, the 121.5 MHz homing signal transmitted during the 406 MHz beacon activation will be heard by overflying aircraft which may impact genuine distress alerts, RCCs and may impact air traffic services at airports.

Given the reasons above there is a need to ensure that beacon testing is undertaken responsibly. Comprehensive coordination will need to be undertaken to ensure that all Cospas-Sarsat Mission Control Centres (MCCs) around the world are informed of any operational beacon testing as well as the local RCC.

4.5 Operational Testing Requirements

All beacon types (ELTs, EPIRBs and PLBs) can be tested at any time using the self-test function without the need to notify RCC Australia.

Operational testing of any beacon type, including ELTs and irrespective of the duration and location is only permitted with prior approval of RCC Australia (Telephone 1800 641 792). Operational testing can only be permitted under the following circumstances:

- beacon to be coded with the TEST protocol;
- 121.5/243 MHz homing signal is disabled;
- two-day notice shall be provided to RCC Australia; and
- responses are provided to the questions listed in section 7, A to E, including the Cospas-Sarsat type approval certificate number.
A beacon owner wishing to undertake an operational test of his/her 406 MHz beacon, without the modifications stated above, is normally prohibited as the tests are then dependent upon the Cospas-Sarsat Space and Ground Segments to provide the results of the detection.

4.6 Operational Testing by Manufacturers and Others

Operational testing of 406 MHz beacons can be performed in screened enclosures to eliminate the risk of false alerts and with the use of test equipment the beacons’ performance can be assessed. This type of testing would normally be undertaken by manufacturers, suppliers and other beacon maintenance staff.

There may be occasions when a compelling argument may be put forward by beacon manufacturers, suppliers and the like to allow operational testing of a 406 MHz beacon without a change to the beacon protocol or the disabling of the 121.5/243 MHz homing transmitter. Such exceptional requests will be considered on their merits and the following points should be noted:

- the test will be limited in duration (not more than 15 minutes);
- the objective of the test can be met with very limited beacon bursts being detected by the GEO system;
- RCC Australia has given clearance for the 121.5/243 MHz transmission;
- the location of the test in latitude and longitude must be provided;
- the timing will be dependent upon mutual visibility between the beacon, the LEO satellite and LEOLUT;
- provision of the information in section 7, including the Cospas-Sarsat type approval certificate number;
- two days notice to be provided and;
- the test strategy and the feedback (reports, distress alert, raw LUT data, etc.) required has been discussed with AMSA’s Cospas-Sarsat Adviser.

Aircraft Cockpit Remote Activation Switches and Operational Testing by Aircraft Maintenance Facilities

Whilst a functional test of a beacon can be performed via the beacon’s self-test capability the use of the remote aircraft cockpit activation switches results in an operational activation of the ELT. Remote cockpit activations are performed on initial installation and during ongoing maintenance of the ELT.

In order to comply with these ELT maintenance requirements, operational testing of a 406 MHz ELT from the cockpit of an aircraft may be undertaken by maintenance facilities, provided the test duration is no longer than 5 seconds and is undertaken within the first 5 minutes of the hour. RCC Australia (Telephone 1800 641 792) and the Air Traffic Services (ATS) Centre for the location of the test must be advised of this operational test.

The test duration must be restricted to 5 seconds so that there is no potential for an operationally coded 406 MHz digital burst transmitting and thus generating a false alert. The duration of the
121.5/243 MHz homing transmission, which will also be activated as part of this test, must also be restricted so as not to generate false alerts via ATS.

4.7 Beacon Test Coordination Message

A message notifying of the test is required to be distributed to all MCCs worldwide. The information listed below, A to E, shall be provided by the person requesting an operational test.

A. TEST OBJECTIVE:
B. TEST DESCRIPTION:
C. LOCATION OF TEST:
D. DATE, TIME AND DURATION OF TEST:
E. BEACON ID:

4.8 Reference Documents

The International Maritime Organization (IMO) has published guidelines on the annual testing and shore-based maintenance for Emergency Position-Indicating Radio Beacons (EPIRBs). These guidelines and other international beacon regulations for EPIRBs and Emergency Locator Transmitters (ELTs) are available in document C/S S.007 “Handbook of Beacon Regulations” which is available at www.cospas-sarsat.int.

5. POINT OF CONTACT FOR BEACON MATTERS (CODING, REGISTRATION AND TYPE APPROVAL)

The point of contact for beacon matters is the Australian Maritime Safety Authority.

Further information about distress beacons, the Australian Online 406 Beacon Register and conditions of carriage can be found at: www.amsa.gov.au/beacons.

All enquiries about distress beacons in the Australian region can be directed to: ausbeacon@amsa.gov.au.

Updated point of contact details for administrations are available at: https://www.cospas-sarsat.int/en/contacts-pro/contacts-details-all.

6. BEACON REGISTRATION

6.1 Beacon Database

The Australian beacon database supports EPIRBs, ELTs and PLBs. All Cospas-Sarsat beacon protocols are allowed.

Registration is mandatory for Recreational vessels, SOLAS and ICAO Convention vessels and aircraft respectively.
Registration can be completed via the Online Beacon Register [www.amsa.gov.au/beacons](http://www.amsa.gov.au/beacons) or by completing and returning the Distress Beacon Registration form via Mail, Fax or Email.

Once an EPIRB or PLB is registered with AMSA the beacon owner will be issued with a proof of registration sticker to be affixed to the beacon. The registration sticker is valid for 2 years.

### 6.2 Registration Forms


- END OF SECTION -