## NEW ZEALAND

### 1.       REGULATIONS

### 1.1      General

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 https://www.standards.org.au/access-standards/buy-standards.

All beacons sold in New Zealand must be registered and comply with Cospas-Sarsat certification registration.

Reference documents:

The International Maritime Organisation (IMO) has published guidelines on the annual testing and shore based maintenance Position-Indicating Radio Beacons (EPIRBs). These guidelines and other international beacon regulations for EPIRBs and Emergency Locator Transmitters (ELTs) are available in the Cospas-Sarsat C/S S.007, "Handbook of Beacon Regulations" which is available at:
(https://www.cospas-sarsat.int/en/beacons-pro/experts-beacon-information/beacon-regulations-handbook).

### 1.2      EPIRBs

For all New Zealand vessels Maritime Rules Part 40 and Part 43 as amended by MARITIME (EPIRBS) Amendment Rules 2006 apply. Beacons must comply with the AS/NZS 4280/1, as amended for EPIRBs.

Type approval and registration of maritime and land 406 MHz beacons is ensured by Maritime New Zealand.

Maritime Rule Part 40, as amended by Maritime (EPIRBS) Amendment Rules 2006, details the requirements for the carriage of vessels in New Zealand waters.  Maritime Rule Part 43 details the EPIRB requirement to comply with the AS/NZS 4280/1, as amended for EPIRBs, Civil Aviation Rule 91.529 defines which aircraft are required to carry ELTs and came into effect from 30 June 2008.

### 1.3      ELTs

For all New Zealand registered aircraft Emergency Locator Transmitters (ELTs) must comply with the United States Federal Aviation Administration Technical Standard Order C126 Minimum Operational Performance Standards for 406 MHz Emergency Locator Transmitters (FAA TSO-C126).

406 MHz ELTs must also comply with the requirements of Civil Aviation Rule Part 91.

Civil Aviation Rule 91, Appendix A15 specifies that the approved standard for ELT systems is the FAA TSO-C126 and further specifies installation criteria. European Aviation Safety Agency ETSO-2C126 is an acceptable alternative to the FAA TSO approval.

## 1.4      PLBs

| Country / Territory | For Terrestrial Applications | In Maritime Environment | On Aircraft | Comments |
|---|---|---|---|---|
| | Country Recognises PLB Activations | Country Recognises PLB Activations | Country Recognises PLB Activations | |
| New Zealand | Y | Y | Y | PLBs are only to be coded with serial number and not MMSI nor registration mark. |

Similar information is available in the new table on the Cospas-Sarsat website (www.cospas-sarsat.int) with the status indication in colours (**Y** = green, allows / **N** = red, not allowed / **R**estrictions = 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

Coding methods are specified by the equipment manufacturer but must be coded with the ITU country code in which they will be predominately in use. For New Zealand the country code is (512), Cook Islands (682), Niue (683), Samoa (685), Tokelau (609) and Tonga (676). Coding is to include the beacon serial number or manufacturer's unique identification number. New Zealand does not issue unique identification numbers.

In accordance with CAR 91.529(f)(2), any EPIRB carried on a New Zealand registered aircraft must be coded with the ITU country code for New Zealand (512) and a unique code to identify the EPIRB.

Legend of the tables below:

- ELT: Emergency Locator Transmitter
- EPIRB: Emergency Position Indicating Radio-Beacon,
- MMSI: Maritime Mobile Service Identity,
- PLB: Personal Locator Beacon,
- RLS: Return Link Service,
- S/N: Serial Number of the device,
- TAC: Cospas-Sarsat Type-Approval Certificate number,
- Y: Administration allows beacons to be coded with this protocol for this(these) country code(s),
- N: Administration does not allow beacons to be coded with this protocol for this(these) country code(s),

- [Y/N]: Administration has not made available information to whether or not it allows beacons to be coded with this protocol for this(these) country code(s). See sections 1.1 and 1.2 of the main part of document C/S S.007 for further guidance.

## 2.1 EPIRB Coding Methods

| Country Code(s) | USER PROTOCOLS | | | | LOCATION PROTOCOLS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Maritime User | | Serial User | Radio Call Sign | User Location | | | Standard Location | | National Location | RLS (Return Link Service) | | |
| | MMSI | Radio Call Sign | TAC & S/N | Radio Call Sign | MMSI | TAC & S/N | Radio Call Sign | MMSI | TAC & S/N | Serial Number Assigned by Competent Administration | National RLS Number | TAC & S/N | RLS MMSI |
| 512 | Y | Y | Y | Y | Y | Y | Y | Y | Y | N | N | Y | N |

Notes: (1) 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

Actual coding methods are specified by the equipment manufacture but the applicable coding requirements are specified as follows:

| Country Code(s) | USER PROTOCOLS | | | | LOCATION PROTOCOLS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Serial User | | | Aviation User | User Location | | | | Standard Location | | | National Location | RLS (Return Link Service) | |
| | TAC & S/N | Aircraft Operator Designator and S/Nr | Aircraft 24-bit Address | Aircraft Nationality and Registration Marking | TAC & S/N | Aircraft Operator Designator and S/N | Aircraft 24-bit Address | Aircraft Nationality and Registration Marking | TAC & S/N | Aircraft Operator Designator and S/N | Aircraft 24-bit Address | S/N Assigned by Competent Administration | National RLS Number | TAC & S/N |
| 512 | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | N | N | Y |

Notes:(1) 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) If programming the ELT with the aircraft Registration marking do not insert extraneous characters such as '/1' or '/2' after the aircraft registration marking to indicate multiple ELTs on board the same aircraft.
(3) Do not program an ELT as another beacon type of EPIRB or PLB.
(4) An ELT installed in an aircraft connected to a dongle must ensure the Hex ID programmed into the dongle matches the ID coded in the ELT and visa versa.

Any ELT, ELT(S), in accordance with CAR 91.529 (f)(1), must be coded with the ITU country code for New Zealand (512) and any of the following:

    (a)     the ELT serial number;

    (b)     the unique 24-bit aircraft Mode S transponder address;

    (c)     the ICAO aircraft operating agency designator; or

    (d)     the aircraft nationality and registration marks.

In accordance with CAR 91.529(g) foreign aircraft are not permitted to operate in New Zealand unless the ELT is coded with the ITU country code for the State of Registry and any of the following:

(a)     the ELT serial number;

(b)     the unique 24-bit aircraft Mode S transponder address;

(c)     the ICAO aircraft operating agency designator; or

(d)     the aircraft nationality and registration marks.

## 2.3     PLB Coding Methods

| Country Code(s) | USER PROTOCOLS | LOCATION PROTOCOLS | | | | | |
|---|---|---|---|---|---|---|---|
| | Serial User | User Location | Standard Location | National Location | RLS (Return Link Service) | | |
| | TAC & S/N | TAC & S/N | | S/N Assigned by Competent Administration | National RLS Number | TAC & S/N | RLS MMSI |
| 512 | Y | Y | Y | N | N | Y | N |

Notes:(1)  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 New Zealand country code shall not transmit the letter "P" in Morse code over the homing frequency of 121.5 MHz. This is not permitted under the AS/NZ Standards

In accordance with CAR 91.529(f)(2), any PLB carried on a New Zealand registered aircraft must be coded with the ITU country code for New Zealand (512) and the PLB serial number.

## 2.4     Return Link Service (RLS) Protocols

Return-Link-Service-capable beacons are allowed to be coded with the New Zealand country code (512).

Per document C/S T.001 section A.3.3.7 "RLS Location Protocol", "The RLS-MMSI protocol option is not approved for use in beacons prior to future approval by the [Cospas-Sarsat] Council".

## 3.     LIST OF BEACON MODELS TYPE APPROVED BY ADMINISTRATION

Beacons approved for use in New Zealand can be viewed at www.beacons.org.nz.

## 4.     BEACON TESTING REGULATION

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 manufacturer's recommended maintenance and battery replacement cycles, the

beacon can be tested by the owner using the <u>self-test</u> 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 Rescue Coordination Centre of New Zealand does not grant approval for beacon operational tests unless the procedures outlined below have been adhered to:

(a)    all beacons can be tested at any time using the <u>self-test</u> functions without any notification to RCCNZ; and

(b)    any test of a 406 MHz distress beacon in the operational mode requires prior approval of the RCCNZ (phone +644 577 8030) and the requirements set out in the "BEACON TEST COORDINATION MESSAGE" below must be satisfied.

## 4.1    Beacon Self-Testing

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 (UIN), 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 the RF power is being emitted at 406 MHz and on 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 manufactures' instructions on the frequency of performing a self-test 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 (1) 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.

**4.2     Operational Testing Should be Avoided**

Self-testing should accommodate most beacon testing. There are, however, some occasions when operational testing may be required. These occasions should be limited to the absolute minimum as they impact on 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:

(a)     prototype beacon testing;

(b)     new beacon model testing;

(c)     search and rescue training exercises; and

(d)     Cospas-Sarsat Ground Segment equipment performance.

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

a)      Regardless of the beacon's location or the duration of the activation, a 406 MHz beacon will be detected by the MEOSAR system and 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.

b)      Furthermore the 121.5 MHz homing transmitted during the 406 MHz beacon activation will be heard by overflying aircraft which may impact genuine distress alerts, RCCs and may impact on Air Traffic Services.

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 JRCC New Zealand.

**4.3     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 JRCC New Zealand.

Operational testing of any beacon type, including ELTs and irrespective of the duration and location is only permitted with prior approval of JRCC New Zealand (Telephone +644 577 8030).

Operational testing can only be permitted under the following circumstances:

(a)     beacon to be coded with the TEST protocol;

(b)     121.5/243 MHz homing signal is disabled;

(c)     72 hours' notice shall be provided to JRCCNZ; and

(d)     responses are provided to the questions as listed in the "BEACON TEST COORDINATION MESSAGE" below including the Cospas-Sarsat type approval certificate number.

A beacon owner wishing to undertake an operational test of a 406 MHz beacon, without the notifications above, is normally prohibited as the tests are then dependent upon the Cospas-Sarsat Space and Ground Segments to provide the results of the detections.

## 4.4     Operational Testing by Manufacturers and Others

Operational testing of 406 MHz beacons can be performed in a screened enclosure 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 beacon maintenance staff.

There may be occasions when a compelling argument may be put forward by beacon manufactures, 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 MHz homing transmitter. Such exceptional requests will be considered on their merits and the following points should be observed:

(a)     the test shall be limited in duration (not more than 15 minutes);

(b)     the objective of the test can be met with very limited beacon bursts being detected by the LEO/GEO/MEO system;

(c)     JRCC New Zealand has approved clearance for the 121.5 MHz transmission;

(d)     the location of the test in latitude and longitude must be provided;

(e)     the intended date, time and duration of the beacon activation;

(f)     the beacon Hex-ID;

(g)     the name and contact details of the person conducting the test;

(h)     provision of the information in "BEACON TEST COORDINATION MESSAGE" below and type certificate number;

(i)     a minimum of 72 hours' notice of the test is to be provided; and

(j)     the test strategy and the feedback (reports, distress alert, raw LUT data, etc.) required has been discussed with JRCC New Zealand.

## 4.5     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 one (1) second. JRCC New Zealand (Telephone 644 577 8030) and the

Air Traffic Services (ATS) Centre for the location of the test <u>must</u> be advised of this operational test.

The test duration must be restricted to one (1) second 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.

## 4.6     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 F, 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:
>
> F.    CONTACT PERSON CONDUCTING THE TEST AND CONTACT/PHONE DETAILS:

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

> 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     Regulation

In accordance with the Radiocommunications Regulations (General User Radio License for Emergency Transmitters) Notice 2005 <u>all 406 MHz Satellite Distress Beacon's ("SDB's") must be registered</u> with the Rescue Coordination Centre New Zealand (RCCNZ).

The New Zealand beacon database, maintained by the Joint Rescue Coordination Centre New Zealand, supports the registration of the Cook Islands Niue, Samoa, Tokelau, and Tonga. Registration is <u>mandatory</u> for all EPIRBs, ELTs and PLBs.

Information about distress beacons, registration, disposal and use can be found at www.beacons.org.nz.

All enquires about distress beacons in the New Zealand Search and Rescue Region can be directed to contact.beacons@maritimenz.govt.nz.

## 6.2    Forms

Online beacon registration can be completed via the Online Beacon Register at http://www.beacons.org.nz, "Free Registration", or by completing and returning the Distress Beacon Registration form via Mail, Fax (+64 4577 8041) or email to contact.beacons@maritimenz.govt.nz.

Registration can be completed via the online Beacon Register at: http://www.beacons.org.nz.

To deregister a lost, sold or destroyed beacon the appropriate form is online at: http://www.beacons.org.nz.

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