



Note 11: Cospas-Sarsat testing of 406MHZ beacons

TÜV SÜD is a long established Cospas-Sarsat listed test laboratory. Details of our listing can be found here: [Cospas-Sarsat approved labs](#)

We are able to test various beacons to the latest Cospas-Sarsat specification "T.007", including:

EPIRBs – Emergency Position Indicating Radio Beacons
PLBs - Personal Locator Beacons
ELTs – Emergency Locator Transmitters

With 3 full time test engineers, we are able to test 3 beacons simultaneously or devote additional time to one beacon using 2 engineers, therefore speeding up your compliance process.

The deliverable is a UKAS accredited test report for inclusion in the Cospas-Sarsat submission package.

To enable us to test a beacon and produce a test report (which is included in the manufacturer's application package to Cospas-Sarsat) we require the following:

- A fully completed Test Application Form (ask TUV to supply the latest version of this form as it is regularly updated).
- Technical Data as detailed in Section 5 of T.007.

Beacon Configuration

The following notes describe how the beacon must be configured for Cospas-Sarsat Type Approval testing:

Test Samples, Support Equipment & Operating Instructions:

For EPIRBs & ELTs we require the following test samples:

- a) One RF sample with SMA or BNC connector for connection to 50 ohm instrumentation. Please supply any RF adapters and matching networks as necessary.
- b) One sample with antenna.

If the ELT is intended to be hand carried, we may need an additional sample with antenna (as Cospas-Sarsat may require the "Interim PLB Type Approval" for PLBs to be performed).

For PLBs

- a) One RF sample with SMA connector for connection to 50 ohm instrumentation. Please supply any RF adapters or matching networks as necessary.
- b) One sample with antenna

Beacon programming:

We will require operating instructions for the beacons and any support equipment (including a PC if required) for programming / configuration, providing external data (e.g. navigation), automatically operating ancillary devices. Beacons should be supplied for test with suitable test software.

Beacon Message Coding:

Beacons MUST be coded with a Test User or Test Location Protocol (message bits 37, 38, 39 = 1 1 1) for testing, including RF, antenna and satellite tests. We will also need the means to code all 'live' messages supported by the beacon for the Digital Message tests stated in section A.2.8 of CS T.007.

121.5 MHz & 243 MHz Distress Frequencies:

121.5 / 243 MHz distress frequencies MUST be de-tuned in accordance with C/S T.007 Section 4.3 or terminated into a screened dummy load. Ideally we should be able to disable the distress frequencies but they MUST be operational (AND offset or terminated) for the Operating Lifetime test and other long tests.

Batteries

As a minimum, we will require batteries as follows:

24 hour EPIRB/ELT:	6
48 hour EPIRB/ELT:	5
24 hour PLB:	7
48 hour PLB:	6

We may need additional batteries to cover any additional testing at short notice, it would be prudent to supply a suitable number of spare batteries if possible.

If MED (Marine Equipment Directive) testing is required (for EPIRBs), we will need further batteries as many of the environmental tests are conducted in operational mode.

External Navigation Data

We will need instructions and any associated support equipment to supply external navigation data. Note – Cospas Sarsat requires that the external position is applied during all tests, and that the position is updated periodically in accordance with the beacon's update interval. The data should be applied at the highest supported data / baud rate.

Ancillary Devices (e.g. Strobe Lamp, Voice Transceiver)

Ancillary devices have to be operated continuously throughout testing. The operation of these devices during testing should be agreed with Cospas-Sarsat in advance of the test programme.

Where there are operator initiated auxiliary devices (e.g. PTT switch for a voice transceiver), we will need the means to automatically operate (without personnel in attendance) these functions as agreed by Cospas-Sarsat.

TCXO Data

If the beacon is fitted with a Temperature Controlled Crystal Oscillator (TCXO) we will need point by point frequency stability data (against temperature gradient) in order to carry out the Interim TCXO procedure described on the Cospas-Sarsat website. This is available from the Oscillator manufacturer on request.

Dimensions & Flotation Point

Please supply dimensions for the beacon and identify the floatation point.

Assumptions and test sample / documentation information:

1. Test report will contain appropriate photographs of the test sample(s).
2. Test dates can be arranged direct with our nominated project manager subject to receipt of your purchase order.
3. The test application form (Annex G of C/S T.007) should be supplied prior to test start date. This form is reproduced and included in the completed test report.
4. The technical data supplied to the Cospas-Sarsat Secretariat should include "at least", the requirements listed in Section 5 of C/S T.007.



5. Please supply test units in accordance with Section 4 of C/S T.007 (supply at least 2 beacons for test purposes and sufficient (fully charged) replacement batteries for the duration of the test programme (for example, approximately 15 days for a full test programme)).

Notes:

- Where “Operator Controlled Ancillary Devices” (e.g. a Voice Transceiver) are fitted, an additional charge will be made, owing to the additional test time required (see T.007 Annex G). It will be necessary for the manufacturer to modify the test sample in order to exercise these functions automatically. TÜV can advise further if required. Please discuss with our Sales representative
- For PLBs (or beacons which are deployed without an efficient ground plane), an additional fee will be made to cover the “*Interim Type Approval Requirements*” in accordance with the latest Cospas-Sarsat guidelines, if this test is required. Please discuss with our Sales representative.
- If the “*Alternative Interim Type Approval Requirements*” test is required, an additional charge will be made. Please discuss with our Sales representative.
- Where Cospas-Sarsat Secretariat request additional tests other than those detailed in T.007, additional fees will be agreed with the client prior to proceeding with test.
- Failures during test: Please note that in the event that a beacon fails during testing and undergoes modification (with the exception of battery replacement), the procedure to follow is detailed in T.007 Section 4.8. This may involve a full re-test, depending on the outcome of discussions with the C/S Secretariat.