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20 December 2005

To: 406 MHz Beacon Manufacturers, Agents & Developers,
C-S Beacon Type Approval Test Facilities,
Beacon Component Manufacturers,

Cc: International Civil Aviation Organization (ICAO),
International Maritime Organization (IMO),
International Radio Maritime Committee (CIRM),
Radio Technical Commission For Maritime Services (RTCM),
Radio Technical Commission For Aeronautics (RTCA),
European Telecommunications Standard Institute (ETSI),
European Organization for Civil Aviation Equipment (EUROCAE),
Cospas-Sarsat Parties

Dear Sir / Madam,

**Subject: Matters of Interest to 406 MHz Beacon Manufacturers and Type Approval
Test Facilities Arising from the 35th Session of the Cospas-Sarsat Council**

Further to my letter dated 29 June 2005, I am writing to inform you of the significant developments affecting 406 MHz beacon matters from the 35th Session of the Cospas-Sarsat Council. In particular the Council decided to:

- activate the International 406 MHz Beacon Registration Database on 16 January 2006; and
- approve the changes recommended by JC-19 to the System documents dealing with 406 MHz beacon matters.

1. International 406 MHz Beacon Registration Database

As beacon manufacturers, you are well aware of the importance of registering Cospas-Sarsat distress beacons. In your attempts to help customers register beacons, you have probably discovered that despite international regulations that require Administrations to provide beacon registries, a number of countries have not done so. In view of the above, Cospas-Sarsat decided to provide an international registration database (IBRD) that will allow beacon owners who don't have access to national registration facilities to register their beacons free of charge via the Internet (www.406registration.com). Once registered, the beacon registration details will be available to SAR services throughout the world on a 24 hour basis. The database is currently undergoing live testing; therefore, beacons should not be registered before **16 January 2006** even if the database appears to be active.

A complete description of the IBRD and its operation are provided in the "D" series of documents, available on the Cospas-Sarsat website (www.cospas-sarsat.org). To ensure the success of this effort, your support is requested to:

- a. Promulgate the availability of the IBRD to beacon purchasers and your distributors / agents. To help with this effort please find enclosed, a fact sheet that identifies the web address of the IBRD and the minimum key information details required to register the beacon online.
- b. Assist beacon owners to register their beacons on the IBRD. If the buyer does not have access to Internet facilities you might want to consider registering the beacon on his/her behalf.

You will not be able to register beacons with country codes of Administrations that have informed the Cospas-Sarsat Secretariat that they operate national registries. The information on existing national registries will be provided to you via the IBRD interface if you try to register such a beacon.

You should also be aware that the decision regarding the acceptability of specific Cospas-Sarsat coding options is a national responsibility. Consequently, the Secretariat cannot and will not provide guidance on the specific coding options that are accepted by individual Administrations.

If you have any questions concerning the IBRD please feel free to contact the Secretariat's Principal Operations Officer, Ms. Cheryl Bertoia at +1 514 954 6658 or Cheryl.Bertoia@cospas-sarsat.int.

2. Amendments to Documents Pertaining to 406 MHz Beacons

The updated versions of documents C/S T.001, C/S T.007, C/S T.008 and the interim guidelines for SSAS beacons are currently available free of charge from the Cospas-Sarsat website. Although an overview of the most significant changes is provided herein, it is strongly recommended that these documents be read in their entirety if your organisation is in the process of producing new beacon models or making changes to beacons that have already been type approved.

The revised documents take effect immediately. However, to accommodate beacon models that are currently under development and to allow test facilities the time required to configure their facilities to meet the new requirements, Cospas-Sarsat will allow the previous versions of documents C/S T.001 and C/S T.007 to be used for beacon models submitted for type approval testing prior to 1 March 2006.

Please note that the new version of the 406 MHz beacon type approval standard (C/S T.007) includes streamlined procedures for evaluating PLB antenna and encoded location navigation performance. Beacon manufacturers wishing to avail themselves of the new procedures prior to 1 March 2006 should first check with test laboratories to confirm their readiness to conduct testing under the new requirements.

2.1 Amendments to the 406 MHz Beacon Specification (C/S T.001)

The beacon specification amendments include:

- changing the encoded location accuracy to 500 metres for Standard and National location protocols and 5.25 km for User-location protocols; and
- changing the encoded location acquisition time for beacons with internal navigation devices from 30 minutes to 10 minutes.

2.2 Amendments to the 406 MHz Beacon Type Approval Standard (C/S T.007)

2.2.1 Antenna Test Configuration

In the past, the scope of beacon antenna testing was agreed by manufacturers and the Secretariat based on the beacon operating instructions issued by the manufacturer. However, experiences reported by SAR services during actual distress incidents have confirmed that beacons were often used in configurations not endorsed by the manufacturer. For example it was not unusual for an EPIRB designed for operation while floating in the water to be operated from the deck of a vessel or while still in its mounting bracket.

In view of the above, the new version of C/S T.007 requires that beacon antenna testing be conducted in all the configurations in which the beacon might be expected to operate, even if such configurations are not identified in the manufacturer's operating instructions (see section 4.5 of document C/S T.007).

2.2.2 Configuration for Testing Antennas without a Ground Plane

For a number of years Cospas-Sarsat had been developing a laboratory test procedure to evaluate antenna performance of beacons that might be expected to operate without a ground plane. The "Interim Type Approval Guidelines for PLB Antenna Testing" was used as a stopgap measure to address this matter pending the development of a suitable laboratory test.

The new version of document C/S T.007 includes a laboratory test procedure that replaces the interim requirements.

2.2.3 Satellite Qualitative Test

The satellite qualitative test has been modified to:

- require the test to be repeated for all the configurations supported by the beacon,
- clarify the pass / fail criteria and test reporting requirements.

2.2.4 Encoded Location Performance Testing

- a) If the beacon includes a homer, the homer must be active for all navigation tests (section A.2.7) to ensure that it does not hinder the

beacon's acquisition of encoded location. To reduce the likelihood of false alerts during type approval testing, 121.5 MHz homers must be tuned to a frequency allowed by the administration that has jurisdiction over the test location. To ensure the adequacy of the test, the frequency of 121.5 MHz homers must be no greater than 121.65 MHz during testing (section 4.3).

- b) The test for evaluating the beacon's handling of encoded position data (section A.3.8.7) has been modified to replace navigation data from the navigation receiver with predefined test scripts. Furthermore, the proposed changes allow the new test to be performed by the manufacturer and the results provided to the test laboratory for inclusion in the formal test report. The previous method for assessing this requirement involved moving the beacon and monitoring the transmitted beacon messages to determine whether the location data from the navigation receiver was processed correctly. Since the information from the navigation receiver was not known precisely, the previous procedure could not conclusively demonstrate beacon conformance to requirements.

2.2.5 Operating Lifetime at Minimum Temperature

The operating lifetime test is intended to establish that the beacon can function at its minimum operating temperature for its rated life, with a battery that had reached its expiration date. Additional guidance is now provided to clarify that prior to starting this test, the beacon battery depletion requirements must also account for the expected battery loss due to battery aging and shelf-life storage.

2.2.6 Test Result Reporting

Section 5 of document C/S T.007 has been amended to clarify the information that must be provided when requesting beacon type approval. To avoid possible omissions, where practical, detailed test result reporting requirements have been explicitly defined at Annex F to C/S T.007.

2.2.7 Beacon Message Coding Software

The beacon coding software test (A.2.8) requires examples of all the beacon message protocols supported by the beacon to be provided. To eliminate possible confusion and delays to processing requests for type approval certificates, the new version of document C/S T.007 defines the exact message data that must be programmed into the beacon for this test (Annex C).

2.2.8 Evaluation of Beacon Pulse Repetition Interval (Tr sequence)

The type approval test for evaluating the Tr sequence (section A.3.1.1) was modified to demonstrate that the beacon pulse repetition interval was spread over the 5-second range required by the beacon specification.

2.2.9 Production Testing

The beacon quality assurance plan (Annex L) has been modified to include text that provides the manufacturer's assurance that production beacons will meet specification and technical requirements in a manner similar to the units that were submitted for type approval testing.

Guidance is provided at Section 2.2 concerning the maximum 406 MHz emission levels at manufacturer facilities conducting beacon development or production testing.

2.2.10 Application for Cospas-Sarsat Type Approval Certificate

To eliminate possible delays to beacon type approval review and to ensure that test laboratories have all the information required for planning the beacon test programme, the application form for requesting a beacon type approval certificate (Annex G) has been amended to require that:

- the beacon manufacturer confirm that the information provided about the beacon is correct; and
- the test laboratory confirm details regarding the testing and test results.

2.3 Specification and Type Approval Requirements For Ship Security Alert System (SSAS) Beacons

The "Interim Cospas-Sarsat Type Approval Guidelines for 406 MHz SSAS Beacons" have been amended as follows:

- the satellite qualitative test requires that the beacon be detected by the GEOSAR system within 10 minutes of beacon activation; and
- the average received SARP power level requirement has been tightened from -123 dBm to -120 dBm.

2.4 List of Accepted 406 MHz ELT Antennas

Document C/S T.007 defines reduced antenna test requirements for ELTs that use external antennas that had already been accepted by Cospas-Sarsat (section 5). The list of accepted antennas was published to the Cospas-Sarsat website. Subsequent to the implementation of this policy, procedures for demonstrating antenna compliance have changed, and none of the antennas that were on the list had yet been tested to demonstrate conformance to the new requirements. Consequently, the Council endorsed the Joint Committee decision that removed all antennas from the list. The list will be repopulated in the future, with antennas that demonstrate compliance to current requirements.

2.5 Delay to Closure Date of the 406.028 MHz Channel

Based upon the current and projected growth of the number of beacons in the 406.028 MHz channel, the Council decided to keep the 406.028 MHz channel open for the type approval of new beacon models until 1 January 2007.

2.6 Acceptance of 406 MHz Beacon Type Approval Test Facilities (C/S T.008)

The modifications to Cospas-Sarsat document C/S T.008 updated laboratory certification requirements to reflect current ISO requirements for test facilities. Also, with a view to attracting additional type approval facilities, the Joint Committee proposed streamlined procedures for obtaining facility acceptance by Cospas-Sarsat.

If you have questions regarding any of the matters addressed above, please feel free to contact me at your convenience. .

Yours faithfully,

Original Signed

Wayne Carney
Cospas-Sarsat Secretariat

Enclosure: Aide Memoir for Registering 406 MHz Beacons on IBRD

TO REGISTER YOUR BEACON WITH COSPAS-SARSAT

You may be able to register your beacon in the International 406 MHz Beacon Registration Database, available free of charge at www.406registration.com.

The minimum information required to register a beacon is:

- Beacon Hexadecimal ID
- Owner name and phone number
- Emergency contact name and phone number
- Vehicle Type (selectable from a menu)
- Vehicle Name, MMSI, Call sign, or identification number (except for PLBs)