



*International Civil Aviation Organization*

**First Meeting of the Asia/Pacific Regional Search and Rescue Working Group  
(APSAR/WG/1)**

Bangkok, Thailand, 15 – 19 August 2016

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**Agenda Item 3: Global update**

**STATUS AND DEVELOPMENTS IN COSPAS-SARSAT**

(Presented by International Cospas-Sarsat Programme)

**SUMMARY**

This document provides a status report on the Cospas-Sarsat System, including System operations, System status (space and ground segments), and significant developments related to next-generation beacons and MEOSAR.

**1. INTRODUCTION**

1.1 This document provides a status report on the Cospas-Sarsat System, including System operations, System status (space and ground segments), and significant developments related to next-generation beacons and MEOSAR.

**2. DISCUSSION**

Key Developments from the 55th Session of the Cospas-Sarsat Council (December 2015)

2.1 The 55th Session of the Cospas-Sarsat Council concluded on 10 December 2015. Among key decisions made by the Council was one to formally begin the transition to MEOSAR<sup>1</sup> Early Operational Capability (EOC) in alignment with the flow chart at Attachment 1 to this document.

2.2 In preparation for Initial Operational Capability (IOC) and in order to ease the transition into regular MEOSAR Operations, IOC will be preceded by the period of EOC. The EOC period will allow the early use of operational MEOSAR alert data. The EOC period will also allow the initial MEOSAR system to augment the performance of the LEOSAR and GEOSAR systems and allow SAR services to familiarise themselves with the MEOSAR system before the end of the MEOSAR Demonstration and Evaluation (D&E) phase.

2.3 At the EOC stage, the MEOSAR system need not necessarily provide global coverage and may not fully meet the expected performance requirements. However, operational MEOSAR alert data will not be distributed to search and rescue (SAR) services unless it has demonstrated a quantifiable benefit and would not cause harm to the existing Cospas-Sarsat System.

2.4 Entry into the MEOSAR EOC phase is anticipated for later this year. Details of the MEOSAR program and anticipated timelines can be found in document C/S R.012, “Cospas-Sarsat 406 MHz MEOSAR Implementation Plan”, which can be accessed on the Cospas-Sarsat website.

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<sup>1</sup> Medium-altitude Earth Orbit Search and Rescue system. The MEOSAR system will provide an enhanced distress alerting capability and become the dominant component of the Cospas-Sarsat System in the years to come.

2.5 Following consideration of a report on the 22nd Session of the ICAO/IMO Joint Working Group on the Harmonization of Aeronautical and Maritime Search and Rescue (JWG 22), the Council decided to recommend that the Cospas-Sarsat Joint Committee consider the recommendation of JWG 22 to IMO that Cospas-Sarsat raw signal data be stored for a period of 30 days for accident investigation purposes, when considering the design of the MEOSAR system.

2.6 Related to next-generation beacon development, the Council decided to approve Preliminary Issue B of document C/S T.018, “Specifications for Second-Generation Cospas-Sarsat 406-MHz Distress Beacons”, to progress the technical definition of this new technology. Details and the timeline for next-generation beacon development can be found in document C/S R.017, “Second Generation 406 MHz Beacon Implementation Plan”, which can be accessed on the Cospas-Sarsat website.

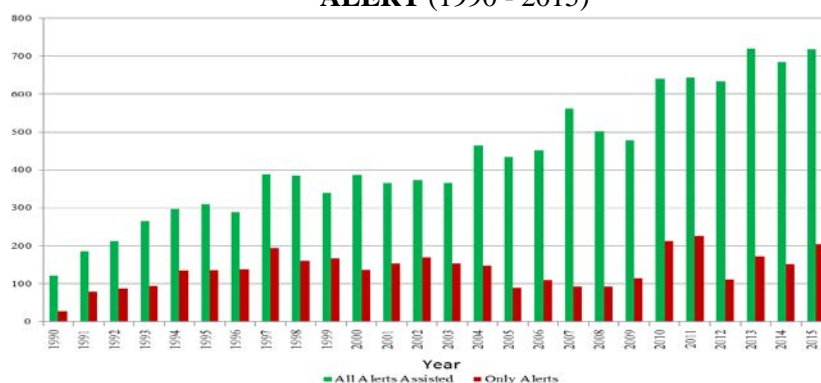
2.7 The Council noted the outcomes of the International Telecommunication Union World Radiocommunication Conference 2015 (WRC-15) related to agenda item 9.1.1 (Protection criteria for Cospas-Sarsat SAR instruments in the band 406.0 to 406.1 MHz) and that WRC-15 had decided to amend the ITU Radio Regulations to add a footnote to allocations in the frequency ranges 403-406 MHz and 406.1-410 MHz referring to the applicability of WRC-15 Resolution 205. Resolution 205 requests Administrations to not make new frequency assignments within the frequency bands 405.9 to 406.0 MHz and 406.1 to 406.2 MHz (directly adjacent to the frequency band used by Cospas-Sarsat) and to urge Administrations to take all practical steps to limit the levels of emissions of stations operating within the 403 to 406 MHz and 406.1 to 410 MHz frequency ranges in order not to cause harmful interference to mobile-satellite systems (i.e., Cospas-Sarsat) operating in the 406.0 to 406.1 MHz frequency band.

2.8 The Council decided to invite Participant Administrations to ensure that agencies in charge of radio licensing within their Administrations were made aware of the new radio regulations adopted by the WRC-15, in particular for the 403 to 410 MHz band and to report on possible issues on the implementation of the new regulations.

### System Operation

2.9 In 2015 provisional statistics indicate that Cospas-Sarsat alert data assisted in 718 distress incidents (703 in 2014) and 2,185 persons were rescued (2,104 in 2014). There were 121 aviation incidents, with 233 persons rescued. Since September 1982, the Cospas-Sarsat System has provided assistance in rescuing at least 41,750 persons in 11,788 SAR events. The final statistics for 2015 still are being collected and compiled.

### **ANNUAL EVENTS WHERE COSPAS-SARSAT ASSISTED OR PROVIDED THE ONLY ALERT (1990 - 2015)**



2.10 It is worth a reminder that ELTs remain a significantly disproportionate contributor to false alerts: six times greater than maritime EPIRBs and ten times greater than personal locator beacons. This appears to be due, at least in significant part, to training and information issues for cockpit crews and maintenance personnel, who activate beacons for testing without realizing that all transmitted alert signals are treated as real. The “Testing Your 406-MHz Beacon” page of the Cospas-Sarsat website has been updated to emphasize proper procedures. In part as a result of incidents where ELTs fail to transmit a burst before destruction in fire or submersion in water, the “wait” time for beacon first-burst transmission is being reduced from 50 seconds to 3 seconds in the next generation of beacons. Without proper training of cockpit crews and maintenance personnel, this could lead to an increase in false aviation-related alerts.

#### 406-MHz Beacons

2.11 Based on information received from manufacturers on beacon production and a standard assumption made about beacons removed from the market at the end of an assumed ten-year service life, there were approximately 1.7 million 406-MHz beacons in use worldwide at the end of 2015, an approximate 8% increase from the prior year. Using a different method of estimation, based on registration rates reported by Administrations, the total beacon population is over two million (up 12%), with over 300,000 ELTs.

2.12 The ratio of production (not deployment) of beacons capable of acquiring position data from radio navigation satellites (such as GPS and Glonass) and encoding this position information into the transmitted alert data (“location protocol beacons”) has increased from 66.7% in 2014 to 70.5% in 2015.

#### **ESTIMATED TOTAL 406-MHz BEACON POPULATION** (Calculated Based on Registration Rates, 2011 - 2015)

Beacon Type / Year	2011	2012	2013	2014	2015
<b>EPIRBs</b>	682,155	751,392	816,260	896,446	1,006,041
<b>ELTs</b>	<b>216,186</b>	<b>230,868</b>	<b>246,400</b>	<b>269,872</b>	<b>303,219</b>
<b>PLBs</b>	421,287	510,769	579,595	612,101	691,278
<b>Total</b>	1,319,628	1,493,029	1,642,255	1,778,419	<b>2,000,538</b>

The figures show an average beacon registration rate for the period from 2011 to 2015:

- 2011 - 77.8%,
- 2012 - 78.4%,
- 2013 - 78.4%,
- 2014 - 77.8%,
- 2015 - 75.9%.

2.13 It is a useful reminder that Cospas-Sarsat operates the International 406-MHz Beacon Registration Database (IBRD, [www.406registration.com](http://www.406registration.com)) which is freely available to users with no access to national registration facilities. By allowing their beacon users to register beacons in the IBRD, Administrations help to facilitate proper registration by beacon owners while avoiding administrative costs and inconvenience to their governments. Administrations may also avail themselves of the facility to upload their national beacon registration data to the IBRD to ensure that it is available 24/7 to other SAR services when they receive alerts from active beacons in their SAR area of responsibility. As of August 2016, there were 63,430 beacons registered in the IBRD (up from

51,788 a year earlier) from 138 Administrations. On average 667 SAR users per month log into the IBRD to search for beacon registration information.

2.14 The Guidance on the IBRD, adopted at the Ninety-fourth Session (17-21 November 2014) of the IMO's Maritime Safety Committee, though previously provided to the APSAR Task Group, is again included for information as Attachment 2 to this document, considering that it is largely applicable to ICAO and the aviation community.

2.15 Cospas-Sarsat is in the process of building specifications for a new IBRD. Input from Administrations would gratefully be welcomed. New IBRD specifications are targeted at:

- a user interface that is easier to understand and navigate,
- accommodation of the hexadecimal identification system for next-generation beacons,
- accommodation of combined-device identifications (e.g., being able to associate the 406-MHz beacon identification with an identifier for an integrated AIS or non-406-MHz satellite communicator),
- allowing the entry of more information about emergency contacts and voyage/flight/trekking plans,
- identification of temporary users (beacons borrowed or rented), and
- allowing entry of photos of vessels/aircraft.

#### The LEOSAR and GEOSAR Systems

2.16 As of August 2016, five LEOSAR spacecraft were in operation: Sarsat-7, Sarsat-10, Sarsat-11, Sarsat-12 and Sarsat-13. Planned LEOSAR launches include the Russian Cospas-13 and Cospas-14 in 2016 and 2017 respectively, and the U.S. LEOSAR program being in the process of planning and funding of a dedicated LEO satellite to be launched into an ascending early afternoon orbit, no earlier than 2019.

2.17 Seven satellites operating at full operational capability (FOC) presently comprise the GEOSAR space segment: an Indian geostationary satellite, INSAT-3D at 82° E; two U.S. geostationary satellites, GOES-15 (West) at 135° W and GOES-13 (East) at 75° W; two EUMETSAT geostationary satellites, MSG-2 (9.5° E) and MSG-3 (0°); and one Russian geostationary satellite Electro-L1 No. 1 operated at 76° E. Russia's Louch-5A, Louch-5V and Electro-L1 No. 2 remain under test, with New Zealand supporting Russia in evaluating options to track the Louch-5A (167°E).

2.18 As of August 2016, 55 LEOLUTs, 21 GEOLUTs and 30 MCCs were in operation.

#### The MEOSAR System

2.19 The new MEOSAR system will bring many advantages to the Cospas-Sarsat system: faster detection of beacons, earlier location determination and better accuracy. One of the challenges of adding MEOSAR to the Cospas-Sarsat system has been how to integrate MEOSAR with the existing LEOSAR and GEOSAR system.

2.20 The current model for managing this integration during EOC consists of legacy MCCs, that have only capability for LEOSAR and GEOSAR data ("LG MCCs"), and MCCs that are capable

of also managing MEOSA data (“LGM MCCs”) working together during EOC. An LGM MCC will merge data from LEOSAR, GEOSAR and MEOSAR detections. For example, a LEOSAR initial detection with A and B positions could be confirmed by a later MEOSAR detection by an LGM MCC. An LGM MCC that needs to send a MEOSAR alert to an LG MCC will send the alert in Cospas-Sarsat SIT 915 format. The body of the SIT 915 will contain the MEOSAR data in SIT 185 (plain text) format. This temporary workaround, pending the time that all MCCs will be fully converted to LGM MCCs, will need to be kept in mind by SAR operators.

2.21 The Cospas-Sarsat Council will formally advise stakeholders, including ICAO and IMO, on transitions to operational configurations as future decisions are made.

#### SPOC Communication Tests

2.22 Available results indicate that about 20% of all tested SPOCs remain insufficiently responsive or non-responsive. The majority of less responsive SPOCs are found in the African region. Fortunately this is an improvement from the historical 25% average non-response rate. For the purpose of these statistics, a success means that the requested human-initiated feedback (not an automatic acknowledgement) was received from the SPOC. A total of 14,619 unique tests have been conducted since testing began in October of 2008.

2.23 For the Asia-Pacific region the good news is that the APSAR community has no Administrations on the list of non-responsive SPOCs. Nonetheless, some Administrations, in their own judgments, view themselves as deficient with respect to their implementation of Cospas-Sarsat alert facilities and procedures, as reported in the SAR Compatibility Matrix.

2.24 To help to address the issue of poor SPOC communications, the Cospas-Sarsat and ICAO Secretariats jointly developed a draft model agreement for use by MCCs and their SPOCs, based on existing agreements provided by some MCC operators. The agreement was reviewed by JWG 22 in September 2015 and the Cospas-Sarsat Joint Committee at its 29th meeting the same month, and was approved by the Council at its CSC-55 Session. The model agreement can be found on the Cospas-Sarsat website (<https://www.cospas-sarsat.int/en/documents-pro/document-templates>) and at Attachment 3 to this document.

2.25 On 28 June 2016, the first MCC/SPOC agreement based on the model was signed between the ITMCC and Serbia.

#### Distress Tracking

2.26 Cospas-Sarsat is committed to the timely development of specifications for emergency locator transmitters for distress tracking (ELT-DTs) to meet ICAO mandates for 4-dimensional (location plus time) data at least as frequently as once per minute for aircraft in distress. As further explained in the letter from the Cospas-Sarsat Council Chair to Cospas-Sarsat Participants (Attachment 4), the development of these specifications will be a matter of priority at the Cospas-Sarsat Joint Committee meeting scheduled 18 – 27 September 2016. Two approaches are being pursued to allow for the greatest capability in a timeframe to meet ICAO needs.

2.27 It is useful to recall as well that the European Organisation for Civil Aviation Equipment (EUROCAE) created a working group (WG-98) to address specifications for a new class of automatically activated (prior to impact) next-generation ELTs, and definitions of ELT technical requirements, criteria for in-flight activation, criteria for termination of an ELT alert triggered in flight, and the frequency of transmission of data and applicable parameters. The Radio Technical Commission for Aeronautics (RTCA) created its SC-229 committee with similar objectives, and EUROCAE and RTCA decided to have their committees meet and work together in the interest of the

best synergies. This work will be taken into account during the Cospas-Sarsat Joint Committee meeting. However, the important work of WG-98/SC-229 continues.

2.28 As a separate but related matter, both ICAO and the International Maritime Organization have expressed interest in Cospas-Sarsat considering making its ground data-distribution system available for alerts originating through the Global Aeronautical Distress and Safety System (GADSS) and Global Maritime Distress and safety System (GMDSS), even when those alerts do not originate from a Cospas-Sarsat-specified 406-MHz beacon. Additionally, ICAO is exploring the use of a data repository as a single source of SAR information during a distress incident, and has invited Cospas-Sarsat to consider hosting this facility, depending on how it is further defined.

#### 121.5-MHz Homing Transmissions

2.29 Local “homing” (on-scene locating) technologies have evolved significantly since the original use of the analogue 121.5-MHz transmitter as a homing signal source. Some modern direction-finding equipment can home on a 406-MHz transmitter burst, and decode the beacon identity and any encoded location data. Similarly, maritime Automatic Identification System (AIS) search-and-rescue transponders (SARTs) readily display on shipboard navigation displays. Some beacon manufacturers are developing devices that combine a 406-MHz beacon with an AIS-SART. To allow for such new homing technologies without placing further demands on beacon batteries, manufacturers are exploring a reduction in the duty cycle of the 121.5-MHz homing transmitter (which does not provide a unique identification nor encoded position data) to allow, for example, an AIS-SART transmission (and for next generation beacons that will use a spread-spectrum modulation scheme, to also allow a narrow-band 406-MHz homing signal). In considering such a reduction in the duty cycle of the 121.5-MHz signal, it is important to ensure that legacy homing equipment widely deployed in the world will not be handicapped by such a signal.

2.30 The 55th Session of the Cospas-Sarsat Council noted that interested Cospas-Sarsat Participants and international organizations had been invited by IMO’s Sub-Committee on Navigation, Communications, and Search and Rescue (NCSR) to provide evidence to IMO that the proposal to reduce the minimum duty cycle of an EPIRB’s 121.5-MHz homing signal would have no detrimental effect on 121.5-MHz homing capability, as demonstrated through appropriate testing that was documented and provided for IMO review, and that only the United States had provided initial information to the JWG, and that further testing was on-going and submission of results to the IMO would be necessary. The Council further noted that most likely not enough test material would be available for NCSR to consider the matter before 2017.

#### Administrative

2.31 During July 2015 the Cospas-Sarsat Secretariat relocated from its offices at 700 de la Gauchetière West, in Montréal, to a building at 1250 René-Lévesque Boulevard West, about 500 metres to the southwest. The new office space, in suite 4215, accommodates the additional staff hired to augment the Programme’s type-approval activity, and to better support mission control centres and SAR points of contact during the transition to the MEOSAR space- and ground-segment architecture, and next-generation beacon technology. Through special arrangements made for acquiring the space, the office-space costs to the Programme are very similar to those for the smaller space at 700 de la Gauchetière West. 1250 René-Lévesque Boulevard West is located at the Bonaventure Metro station and still is convenient to the International Civil Aviation Organization (ICAO) headquarters.

2.32 With the move, the telephone numbers for the Secretariat changed. Please be sure to check on the Cospas-Sarsat website for the new telephone numbers before calling (main number: +1 514 500 7999).

2.33 The 2016 schedule of Cospas-Sarsat meetings is shown at Attachment 5. The 2017 schedule has not yet been established.

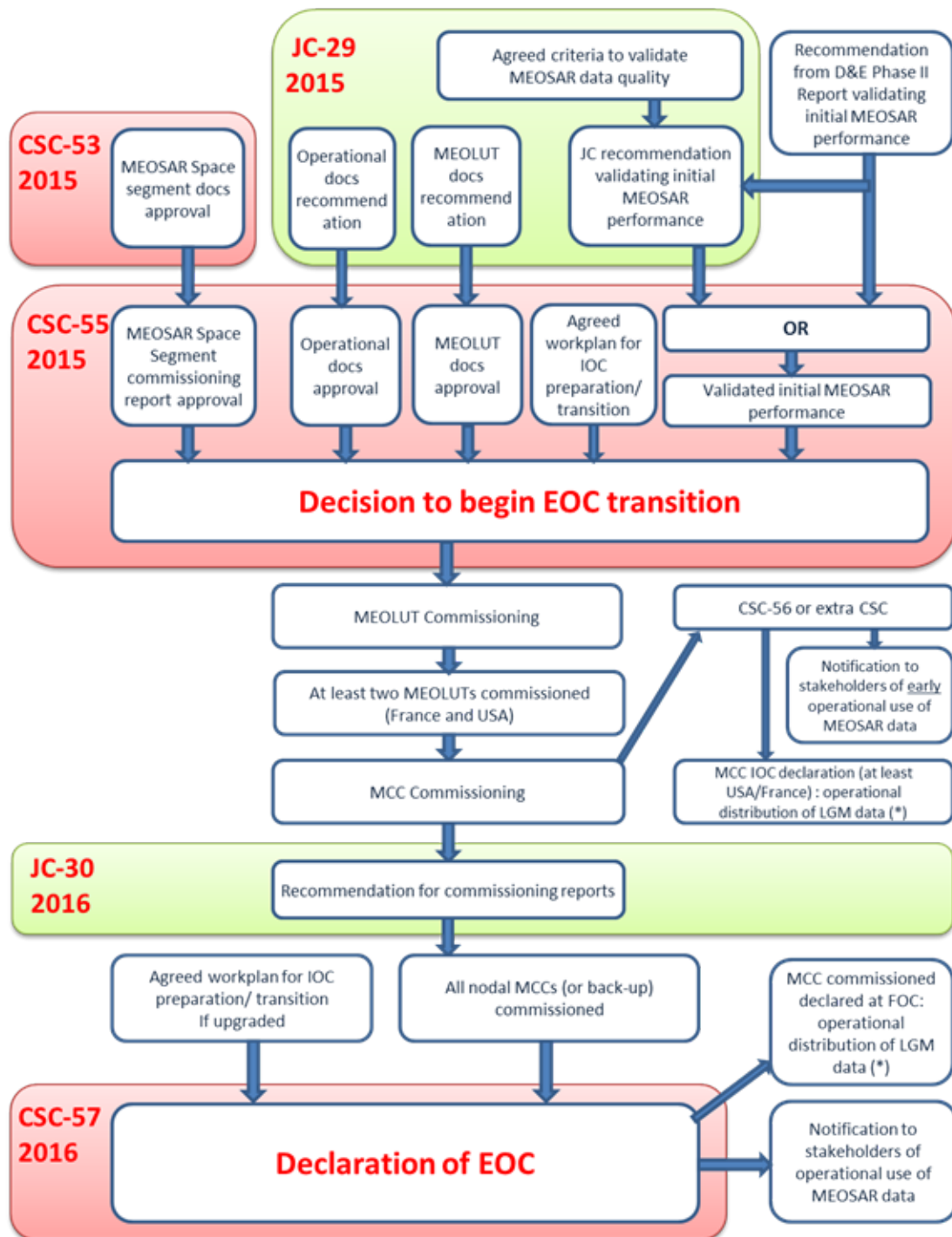
### **3. ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) review options to address problems with SPOC communications and false alerts;
- c) review 406-MHz Beacon Registration issues;
- d) discuss Cospas-Sarsat and MEOSAR developments and how they relate to the SAR Plan;  
and
- e) discuss any other relevant matters as appropriate.

Attachment 1

**FLOWCHART PATH TO DECLARATION OF MEOSAR EARLY OPERATIONAL CAPABILITY**



(\*) operational distribution of LGM data: process to be discussed for both IOC and FOC MCC status

## Attachment 2

### **The IMO Maritime Safety Committee approved *Guidance on the Cospas-Sarsat International 406 MHz Beacon Registration Database (IBRD)*, MSC.1/Circ.1210/Rev.1**

#### **GUIDANCE ON THE COSPAS-SARSAT INTERNATIONAL 406 MHz BEACON REGISTRATION DATABASE**

##### **Need for EPIRB Registration and Associated Databases**

1 Emergency position-indicating radio beacons (EPIRBs) perform distress alerting and other functions to support search and rescue (SAR) services covered by the 1979 International Convention on Maritime Search and Rescue, as amended, for any person in distress at sea, and the 1974 International Convention on Safety of Life at Sea (SOLAS), as amended, requires EPIRB carriage (Chapter IV, regulation 7.6) and registration.

2 The provisions relevant to EPIRB registration in Chapter IV, regulation 5-1 apply to all ships on all voyages, and are as follows:

“Each Contracting Government undertakes to ensure that suitable arrangements are made for registering global maritime distress and safety system (GMDSS) identities and for making information on these identities available to rescue co-ordination centres on a 24-hour basis. Where appropriate, international organizations maintaining a registry of these identities shall be notified by the Contracting Government of these assignments.”

3 It is crucial that 406 MHz EPIRBs be registered, and that the registration data be available to SAR authorities at all times. Experience has shown that EPIRB registration data is either critically important or otherwise often helpful in the majority of SAR cases involving an EPIRB alert.

4 406 MHz EPIRBs should be registered regardless of whether they are carried aboard ships or other marine craft, and registrations should be reinforced by national requirements.

5 It is essential that IMO Member States provide a readily-accessible mechanism (preferably one that is available by internet as well as other conventional means) to enable EPIRB owners to fulfill their obligation to register the beacons, and to make this data available for SAR authorities 24-hours-per-day, seven-days-per-week for use in an emergency. Such arrangements can be implemented nationally, on a regional basis in co-operation with other Administrations, or by other suitable means. The COSPAS-SARSAT International Beacon Registration Database is a facility available free of charge to enable beacon owners to directly register their beacons and/or to allow Administrations to upload their national registration data to ensure that it is available to SAR authorities worldwide on a 24-hours-per-day, seven-days-per-week basis.

##### **International Beacon Registration Database**

6 The International COSPAS-SARSAT Programme processes 406 MHz EPIRB alerts and routes them to the identified SAR authorities. It also operates the International Beacon Registration Database (IBRD) for 406 MHz beacons, operational since January 2006.

7 The IBRD is hosted on the Internet at [www.406registration.com](http://www.406registration.com), with online help capabilities.

8 COSPAS-SARSAT provides the IBRD as a readily-available means for beacon owners to register their beacons unless an alternative method of registration is required by their national Administration. The registration information contained in the IBRD, whether directly entered by beacon owners or uploaded from national registration databases maintained by Administrations, is available 24-hours-per-day, seven-days-per-week for assisting SAR Services in SAR operations. The IBRD is available free of charge to individuals directly registering beacons and to Administrations uploading or retrieving registration data.

9 Administrations that maintain their own national registers are encouraged to upload their registration data to the IBRD to make their national beacon registration data available as quickly and easily as possible to SAR personnel on a 24-hour basis.

10 The IBRD can be used not only for registering 406 MHz EPIRBs, but also 406 MHz emergency locator transmitters (ELTs) carried on board aircraft, and personal locator beacons (PLBs) designed for personal use.

## Background

11 The COSPAS-SARSAT 406 MHz System provides distress alerts that include the unique 15-character hexadecimal identification of the transmitting beacon. This beacon identification can be decoded to obtain information that includes:

- .1 the type of beacon, i.e. ELT, EPIRB or PLB;
- .2 the country code and identification data which form the unique beacon identification; and
- .3 the type of auxiliary radio locating (homing) device, e.g., 121.5 MHz transmitter.

12 If a beacon is properly registered, the 15-character hexadecimal identification of the beacon can be used to access additional information. Beacon registration databases can provide information of great use to SAR personnel, including:

- .1 specific owner identification information;
- .2 the make/model and identification of aircraft or vessel in distress;
- .3 communications equipment available;
- .4 the total number of persons onboard; and
- .5 emergency contact information.

13 To have this valuable information available to SAR authorities in an emergency, it must be available from either a national database available 24-hours-per-day, seven-days-per-week maintained by a national Administration and/or from the IBRD, provided that the national Administration allows direct registration in the IBRD by beacon owners or the Administration uploads its registration data to the IBRD for access by other SAR authorities.

14 Registration of 406 MHz beacons is required in accordance with international regulations on SAR established by the International Civil Aviation Organization (ICAO) and by the SOLAS Convention. In addition, some countries have made 406 MHz beacon registration mandatory.

## **IBRD Concept of Operations**

15 The IBRD is designed to support:

- .1 beacon owners who wish to directly register their beacons;
- .2 Administrations to make their registration data easily available to other SAR authorities in an emergency by uploading that information to the IBRD; and
- .3 SAR authorities that need to efficiently access beacon registration data to assist persons in distress.

16 COSPAS-SARSAT has configured the IBRD to accept by default beacon registrations from beacon owners, unless the Administration associated with the beacon's country code(s) has advised COSPAS-SARSAT that it:

- .1 operates a national database with a 24-hour point of contact and does not want EPIRBs with its country code(s) included in the IBRD; or
- .2 wishes to control the inclusion of beacons with its country code(s) in the IBRD.

## **Establishing an IBRD Point of Contact**

17 Each Administration should provide COSPAS-SARSAT with a national IBRD Point of Contact for co-ordinating use of the IBRD. This Contact will decide the settings in the IBRD related to beacons with its country code and help to resolve problems arising with registration of beacons with that Administration's country code(s).

18 The national IBRD Point of Contact should be officially identified to the COSPAS-SARSAT Secretariat using a letter of the form that may be found at the Cospas-Sarsat website ([www.cospas-sarsat.int](http://www.cospas-sarsat.int) – on the “Cospas-Sarsat Professionals” page choose the “Documents” tab, then “Document Templates, and select the “IBRD” tab). This letter must be signed by the Administration's IMO representative, or by its representative to COSPAS-SARSAT or to the International Civil Aviation Organization (ICAO), and sent to the COSPAS-SARSAT Secretariat. Based on the letter, the COSPAS-SARSAT Secretariat will allocate the requested user identifications and passwords to the Administration's national IBRD Point of Contact.

19 The request should specify whether user identification and passwords to be issued to the Administration's IBRD Point of Contact are required to:

- .1 enable the Administration to upload registration data about its beacons to the IBRD;
- .2 enable its SAR Services to access IBRD registration data in an emergency; and/or
- .3 make IBRD registration data available to authorized shore-based service facilities and vessel inspectors.

20 Passwords and user identifications will be sent via post to the national IBRD Point of Contact. The national IBRD Point of Contact must then forward the user identifications and passwords to those entities authorized by its Administration to access the IBRD.

21 It is critical that, at a minimum, passwords be requested for SAR Services to access beacon registration information in the IBRD during an emergency.

## Providing Details of Your National Beacon Registry

22 If an Administration maintains its own national beacon registry and decides not to allow beacons with its country code(s) to be registered in the IBRD, the Administration should review the information provided on the COSPAS-SARSAT website to the public (such as beacon owners) relating to its beacon-registration policies (please see the information contained on [www.cospas-sarsat.int](http://www.cospas-sarsat.int) on the “Cospas-Sarsat Professionals” page choose the “Contact Lists” tab and select “406 MHz Beacon Register”). Please provide the COSPAS-SARSAT Secretariat immediately with any updates, as appropriate. This is a source very commonly used by beacon owners to learn where to register their beacons and, therefore, it is critically important that accurate information is provided in order to keep these web pages up to date.

23 Based on the information that Administrations provide, a beacon owners who attempts to register a beacons on the IBRD will be advised through a “pop up” window on the IBRD website of how and/or where to register the beacon (based on the country code programmed into the beacon and the polices of that Administration reported to the Cospas-Sarsat Secretariat).

24 If no information is available regarding a national beacon registry for an Administration, COSPAS-SARSAT policy is to assume that no such registry exists and allow the direct registration in the IBRD by owners of beacons with that Administration’s country code(s) ([www.406registration.com](http://www.406registration.com)).

## National Administration Control of Beacon Registration in the IBRD

25 If an Administration has elected to prohibit direct registration by owners of their beacons in the IBRD, but wishes to upload to the IBRD some or all of its national beacon registration records, a national IBRD Point of Contact should be designated as described above so that the necessary arrangements can be made to enable the uploading of records.

26 The Administration will be able to upload in bulk its beacon registration data or, if desired, keep sole control of individual record inputs or updates. In that case, beacon owners who attempt to register beacons with that Administration’s country code(s) will be directed by the IBRD website to the Administration’s national website or point of contact for beacon registration.

## Means of Registration

27 Beacon registrations allowed on the IBRD only will be accepted via the online facilities of [www.406registration.com](http://www.406registration.com) and, under no circumstances can registrations be accepted in paper format nor by telephone, facsimile or any other communication facilities.

## Other Supported Beacon Types

28 In addition to EPIRBs, the IBRD supports two other types of beacons:

.1 Emergency Locator Transmitters (ELTs), for use in aircraft; and

.2 Personal Locator Beacons (PLBs), small beacons for individuals to carry or wear; these beacons sometimes may be used for purposes similar to an EPIRB or ELT, as allowed by local regulations and, therefore, sometimes may be coded to transmit distress messages

that have the same content as an EPIRB or ELT, and/or registered as an EPIRB or ELT in the IBRD.

### **Further Information**

29 Further information can be found at [www.cospas-sarsat.int](http://www.cospas-sarsat.int), or by e-mail at [dbadmin@406registration.com](mailto:dbadmin@406registration.com).

Attachment 3

**TEMPLATE FOR MCC/SPOC MODEL AGREEMENT**

**[Agreement]**

**between**

**[name] Mission Control Centre**

**and**

**[State name] SAR Point of Contact**

**for the Distribution and Reception of Cospas-Sarsat Distress Alert Data for Search and Rescue**

**DEFINITIONS**

**“Agreement”** means this Agreement;

**“Ground Segment Provider”** means any State which establishes and operates the ground segment equipment and avails itself to the System, under the terms of the International Cospas-Sarsat Programme Agreement (ICSPA) and in the context of this [agreement], [State];

**“Local User Terminal (LUT)”** means a computer hardware system installed to receive signals relayed by the satellites and processes them to determine radio beacon location;

**“Mission Control Centre (MCC)”** means a computer system established to accept the output from the Local User Terminal and convey distress alert and location data to appropriate authorities and in the context of this MOU, the [name] SPOC;

**“Radio beacons”** means distress alert instruments designed to be activated in a distress and to transmit a radio signal at 406 MHz, the characteristics of which comply with appropriate provisions of the International Telecommunication Union and Cospas-Sarsat specifications;

**“Search and Rescue Point of Contact (SPOC)”** means Rescue Co-ordination Centres and other established and recognized national points of contact which can accept responsibility to receive Cospas-Sarsat alert data to enable the rescue of persons in distress;

**“Service Area”** means that part of the world within which a Cospas-Sarsat alert data distribution service is provided by an MCC, in accordance with document C/S P.011 “Cospas-Sarsat Programme Management Policy”; an MCC Service Area is defined by the list of SPOCs to which that MCC distributes Cospas-Sarsat alert data;

**“System”** means the Cospas-Sarsat System comprising a Space Segment, Ground Segment and radio beacons operating at 406 MHz.

## 1. PURPOSE

- a. The purpose of this Agreement between the [MCC] and [SPOC] is to formalize the exchange of space based distress alerts received through the satellite system of the International Cospas-Sarsat Programme. This is to ensure that institutional arrangements between the two entities at the operational level are effective.
- b. This Agreement aims to ensure that rapid and reliable two-way communication is established between the two centres servicing the [name] Search and Rescue Region (SRR) for prompt provision of Search and Rescue Services to persons in distress in aviation, maritime and land incidents.

## 2. INTRODUCTION

- a. Knowing the importance of co-operation in search and rescue (SAR), and of the provision of expeditious and effective SAR services;
- b. Desiring to support the provisions of the Convention on International Civil Aviation of the International Civil Aviation Organisation (ICAO) and the International Convention on Maritime Search and Rescue of the International Maritime Organisation (IMO);
- c. Noting the Standards and Recommended Practices in Annex 12 to the Convention on International Civil Aviation of ICAO and the provisions of the International Convention for the Safety of Life at Sea (SOLAS);
- d. Supporting the principles of the Cospas-Sarsat Programme as determined by the Cospas-Sarsat Council;
- e. The [MCC] and [SPOC] have agreed as follows:

## 3. OBJECTIVES

[Administration of MCC], as signatory to the International Cospas-Sarsat Programme Agreement, shall pursue the following objectives:

- a. Provide distress alert and location data from the System to the international community in support of SAR operations on a non-discriminatory basis;
- b. Support, by providing these distress alert and location data, the objectives of IMO and ICAO concerning search and rescue;
- c. Cooperate with other national authorities and relevant international organizations in the operation and co-ordination of the System;
- d. Provide and confirm distress alert and location data from the Cospas-Sarsat System from the [name] MCC to the [SPOC]; and
- e. Provide information concerning the System status to [SPOC].

The [SPOC] shall at all times endeavour to support the [MCC] in its efforts to fulfil its objectives and commitments under the ICSPA in accordance with the provisions of this [Agreement].

The MCC and SPOC shall establish reliable communication links (AFTN, fax, email) and operational procedures, which include backup routines.

In the spirit of close cooperation, the MCC and SPOC shall consult from time to time with a view to ensuring the full implementation of the provisions of this [Agreement] and necessary amendments as appropriate.

#### 4. PROCEDURES

- a. The [name] Mission Control Centre ([.]MCC) established in [location], [State], providing services under the ICSA shall communicate distress alerts located in the SRR of the SPOC, or for beacons which contain the country code of the SPOC to [SPOC], [State] for undertaking search and rescue services, assisted as required by RCCs within the State of the SPOC.
- b. MCC and SPOC agree that the distribution of alert data by [name] MCC is undertaken on a best effort basis and that [name] MCC cannot guarantee continuous system availability.
- c. [State] shall designate a single SAR point of contact (SPOC), where possible, for receiving Cospas-Sarsat alert and location data for distress locations in their SAR area of responsibility and provide the address, telephone, telex or facsimile number or AFTN address of their SPOC to [MCC] and the Cospas-Sarsat Secretariat (Attachment 1).
- d. [SPOC] will immediately notify [MCC] of any changes to the provided contact details in (Attachment 1).
- e. [SPOC] shall develop a comprehensive plan for the distribution of distress alert and location data to SAR authorities within its SRR, as appropriate.
- f. The [SPOC] shall endeavour to minimize false alerts in their country.
- g. The [SPOC] shall provide information on their national point of contact for beacon registers to the Cospas-Sarsat Secretariat and the [MCC].
- h. *If no national registry is available, the [SPOC] shall encourage use of the IBRD to register all beacons with the SPOC's country code.*
- i. The [SPOC] shall maintain reliable communication links with MCC and respond to monthly communication tests from the [name] MCC immediately after receipt thereof (not using an automatically generated response) to verify the integrity of communications links between the MCC and SPOC.
- j. [SPOC] shall communicate routine reports, such as alert summaries and monthly operations reports on SAR incidents that were assisted by Emergency Locator Transmitters (ELTs), Emergency Position-indicating Radio Beacons (EPIRBs) or Personnel Locator Beacons (PLBs) to [MCC] on a regular basis, with special reports as and when required.

## **5. DEPOSITARY**

The Depositary of this Agreement and any subsequent amendments thereto shall be the Secretariat of the International Cospas-Sarsat Programme.

The MCC and SPOC will also provide a signed copy of this Agreement to the ICAO Regional Office concerned with the [name] SRR and the IMO Secretariat, if desired by them.

## **6. ENTRY INTO FORCE, AMENDMENT, RENEWAL AND TERMINATION**

This [Agreement] will enter into effect when it has been signed on behalf of all parties. The [Agreement] shall remain in force for a period of two years from the date on which it enters into force and shall be extended automatically for successive periods of two years.

- a. This [Agreement] is signed on Day\_\_\_\_\_of\_\_\_\_\_20xx, between [MCC] and [SPOC].
- b. The [Agreement] will be reviewed as required and may be modified or amended by mutual agreement of both parties in writing.
- c. Both parties, in the event of initiating action to terminate the [Agreement] shall give the other party a minimum of 120 days prior notice in writing.

### **(I) SIGNATURE**

**AUTHORIZED REPRESENTATIVE [MCC]**

\_\_\_\_\_

### **(II) SIGNATURE**

**AUTHORIZED REPRESENTATIVE  
[SPOC]**

\_\_\_\_\_

Attachment 4

**LETTER TO COSPAS-SARSAT PARTICIPANTS CONCERNING EMERGENCY  
LOCATOR TRANSMITTERS FOR DISTRESS TRACKING (ELT-DT)**

**International Satellite System for Search and Rescue  
Système international de satellites pour les recherches et le  
sauvetage  
Международная Спутниковая Система Поиска и  
Спасания**

CS16/126/F302

Montréal, 6 July 2016

Cospas-Sarsat Joint Committee Participants

Dear Colleagues:

During its fifty-sixth (CLD) session, the Cospas-Sarsat Council made some important decisions with respect to new ELT specifications intended to meet requirements recently established by the International Civil Aviation Organization (ICAO) related to its Global Aeronautical Distress and Safety System (GADSS). The new specifications would be for an “ELT-DT” intended for distress tracking when activated in-flight by an aircraft in distress. This matter will require urgent attention at JC-30, for which working documents must be submitted no later than 22 August 2016.

The Council decided to:

- invite Participants to continue development of ELT-DT options to meet the GADSS requirements, based on their best estimates of success with FGB-based<sup>1</sup> and/or SGB-based<sup>2</sup> beacon models, and

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<sup>1</sup> An “FGB-based” option would be an ELT-DT specification based on the current “first-generation beacon” (“FGB”) specification in document C/S T.001, “Specification for Cospas-Sarsat 406 MHz Distress Beacons”, modified appropriately.

<sup>2</sup> An “SGB-based” option would be an ELT-DT specification based on the “second-generation beacon” (“SGB”) specification in the preliminary issue of document C/S T.018, “Specification for Second-

provide the outcome of their work, including the necessary amendments to relevant Cospas-Sarsat System documents, at JC-30 for review; and

- request that the JC-30 Chair, when considering documents submitted on the matter of ELT-DTs, consider these inputs with high priority (independent of whether an FGB- or SGB-based solution).

The priority and urgency of the establishment of ELT-DT specifications is a result of the adoption by the ICAO Council on 2 March 2016 of Amendment 40 to Annex 6, Part I, of the ICAO Convention<sup>1</sup> which included, among other elements, Standards and Recommended Practices (SARPs) relating to the location of an aircraft in distress. These SARPs address the GADSS autonomous distress tracking (ADT) concept. The SARPs will become effective on 11 July 2016 and will be applicable on 1 January 2021. Amendment 40 will be issued in July 2016.

Because of the time required for manufacturer design of beacons, type approval, manufacture, issuance of U.S. Federal Aviation Administration and/or European Aviation Safety Agency technical standard orders (TSO or ETSO, respectively), and integration into airframes during aircraft manufacture, it may be absolutely necessary to conclude an ELT-DT specification (based on either or both of the FGB or SGB approaches) during JC-30, for consideration for approval by the fifty-seventh session of the Council in December 2016, if the Cospas-Sarsat Programme is to meet the timeline established by ICAO (i.e., four years between Cospas-Sarsat specification approval and ELT-DTs being in service aboard aircraft in commercial service).

Please do not hesitate to contact me or the Cospas-Sarsat Secretariat if you need additional information or clarifications.

Yours sincerely,

Bruno Chazal  
Council Chair

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Generation Cospas-Sarsat 406-MHz Distress Beacons”, including the requirements of document C/S G.008, “Operational Requirements for Cospas-Sarsat Second-Generation 406-MHz Beacons”.

<sup>1</sup> <http://www.icao.int/publications/pages/doc7300.aspx>

## Attachment 5

## CALENDAR OF COSPAS-SARSAT MEETINGS – 2016

<b>Meeting</b>	<b>Duration (working days)</b>	<b>2016 Dates</b>
TG-1/2016 Meeting on Second-Generation 406-MHz Beacon Specifications	5	Monday to Friday, 4 to 8 April
56 <sup>th</sup> Session of the Council - Closed Meeting (CSC-56/CLD)	3	Wednesday to Friday, 18 to 20 May
TG-2/2016 Meeting on MEOSAR Evolution	5	Monday to Friday, 20 to 24 June
30 <sup>th</sup> Joint Committee Meeting (JC-30)	8	Monday to Wednesday, 19 to 28 September
57 <sup>th</sup> Session of the Council - Closed Meeting (CSC-57/CLD)	2	Thursday to Friday, 1 to 2 December (Paris)
57 <sup>th</sup> Session of the Council - Open Meeting (CSC-57/OPN)	4	Monday to Thursday, 5 to 8 December (Paris)

	2016 Meeting Calendar																																						
2016	Su	M	Tu	W	Th	F	Sa	Su	M	Tu	W	Th	F	Sa	Su	M	Tu	W	Th	F	Sa	Su	M	Tu	W	Th	F	Sa	Su	M	Tu	W	Th	F	Sa	Su	M	2016	
Jan						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		Jan	
Feb		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29									Feb
Mar			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31					Mar	
April					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30				April	
May	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31						May		
June			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30						June	
July					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			July	
Aug		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31						Aug	
Sept					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1			Sept	
Oct	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31								Oct	
Nov			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30						Nov	
Dec				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1			Dec	
Jan-17	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31							Jan-17		
			Canadian Holiday																																				