International Civil Aviation Organization

Seventh Meeting of the ICAO Asia/Pacific Search and Rescue Working Group (APSAR/WG/7)

Video Teleconference, 24 – 27 May 2022

Agenda Item 3: Global update

GADSS, THE ELT(DT), AND A MODEL/TEMPLATE LETTER FOR COMMUNICATION WITH SAR AUTHORITIES

(Presented by Cospas-Sarsat)

SUMMARY

This paper presents information on deployment of a new beacon type, the ELT(DT) (ELT for distress tracking), developed to support ICAO's Global Aeronautical Distress and Safety System (GADSS). ELT(DT)s will activate while an aircraft is still in flight, if certain distress conditions are detected, necessitating handling by SAR authorities of alerts in ways that might be different from legacy ELTs.

1. INTRODUCTION

1.1 ICAO requirements anticipate that most commercial aircraft (subject to its jurisdiction, e.g., on international routes) that are delivered on or after 1 January 2023 will be equipped with an ELT(DT) (or comparable device). It is expected that the first operational ELT(DT)s could be in flight during Q4/2022.

1.2 A model/template letter for use in making SAR authorities aware of the on the operational use of the ELT(DT) is provided.

2. DISCUSSION

2.1 Beginning in the fourth quarter of 2022, Cospas-Sarsat will deploy a new beacon type, the ELT for distress tracking. The ELT(DT) is an ADT device, and differs from the ELT which has additional requirements, for example to survive accidents, and to provide a 121.5 MHz homing signal. ELT(DT) may activate while the aircraft is still in flight, and therefore there is some urgency for ATS and RCCs to adapt their operating procedures and practices to handle this new means of notification.

2.2 **Attachment 1** provides a document which summarizes the current status of the ELT(DT) which was developed for the consideration of the Cospas-Sarsat Joint Committee.

2.3 **Attachment 2** provides a draft model/template letter for informing SAR authorities/RCCs on GADSS, ELT(DT)s and alerts originating from aircraft in a distress condition but possibly still in flight.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information provided on ICAO's 1 January 2023 required carriage date for ADT devices, and that operational use of ELT(DT)s will likely begin in the fourth quarter of 2022;

b) review and revise, as appropriate, the draft model/template letter for communication with SAR authorities; and

c) consider use of the model/template letter in **Attachment 2**, revised as appropriate, or any desired alternative means (workshop, telecon, etc.) inform SAR authorities/RCCs on GADSS, ELT(DT)s and alerts originating from aircraft in a distress condition but possibly still in flight.

…….

Cospas-Sarsat Joint Committee
Thirty-Sixth Meeting

31 May - 22 June 2022

JC-36/10/1
Origin: Secretariat, supported by Cyprus, France, Greece, Italy, Norway, Serbia, Turkey and UK
Date: 12 April 2022

Agenda Item 10.3

GADSS, THE ELT(DT), AND A MODEL/TEMPLATE LETTER FOR COMMUNICATION WITH SAR AUTHORITIES

1. EXECUTIVE SUMMARY

Purpose	This paper is in response to a JC-33 action item (OWG-33/AI.14) requesting the Secretariat to develop a model/template letter for MCCs to use in making their supported SAR authorities aware of the on the arrival of a new beacon type, the ELT(DT), scheduled to commence operations before 1 January 2023.
Description of topic	A new beacon type, the ELT(DT) (ELT for distress tracking) was developed to support ICAO's Global Aeronautical Distress and Safety System (GADSS). ELT(DT)s will activate while an aircraft is still in flight, if certain distress conditions are detected, necessitating handling by SAR authorities of alerts in ways that might be different from legacy ELTs. ICAO requirements expect that most commercial aircraft (subject to its jurisdiction, e.g., on international routes) that are delivered on or after 1 January 2023 will be equipped with an ELT(DT) (or comparable device). It is expected that the first operational ELT(DT)s could be in flight during Q4/2022.

2. ICAO'S GADSS AND THE LADR

2.1 GADSS Objectives and Documentation

A key aspect of GADSS is autonomous distress tracking (ADT),[1] applicable for most commercial aircraft (those over 27,000 kg maximum take-off mass), which is to:

- ensure timely detection of aircraft in distress, to facilitate confirmation of the distress condition and timely preparation for SAR action,
- ensure tracking of aircraft in distress and timely and accurate location of end of flight, to accurately direct SAR actions,
- enable efficient and effective SAR operations,
- ensure timely retrieval of Flight Recorder Data.

The GADSS is comprised of four main functions:

- Aircraft Tracking,

[1] The ability of the aircraft to autonomously (without intervention required from the aircrew) transmit information from which a position can be determined by the aircraft operator at least once every minute, when the aircraft is in distress.

- Aircraft in Distress Localization,
- Post Flight Localisation,
- Flight Data Recovery.

More detailed information on the GADSS can be found in:

- ICAO document 100542, "Manual on Location of Aircraft in Distress and Flight Recorder Data Recovery",
- the 2022 edition of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual, which becomes applicable 1 June 2022, provides GADSS-related content in GADSS in Volume I (Appendix G – Mobile communication services, section G.6, Global Aeronautical Distress and Safety System) and in Volume II (Mission Coordination, Appendix V – Autonomous distress tracking of aircraft in flight). Attachment A to Appendix V describes procedures for using an ELT(DT) to locate aircraft in distress,
- an ICAO Skytalk "Global Aeronautical Distress and Safety System (GADSS) Implementation support tools", at https://www.youtube.com/watch?v=ZbD3IIdkzbk
- ICAO document 10165, "GADSS Manual" (not yet available) which will provide guidance on the implementation and operation of the GADSS as specified in ICAO Standards and Recommended Practices (SARPs) and Procedures for Air Navigation Services (PANS). This guidance is especially targeted to relevant staff working for Aeroplane Operators (AO), Air Traffic Service Units (ATSU), Rescue Coordination Centres (RCC), SAR Services (SAR) and Accident Investigation Authorities (AIA),
- the ICAO website "Update on GADSS-Related Global Aircraft Tracking Initiatives", https://www.icao.int/safety/globaltracking/Pages/GADSS-Update.aspx,
- Cospas-Sarsat documentation, specifically documents C/S A.001, which provides data distribution procedures for ELT(DT)s), C/S A.002, which provides the structure and several ELT(DT) distress alert messages samples sent to SPOCs, C/S T.001 and C/S T.018, which provide respectively FGB and SGB (ELT(DT) specifications, and C/S G.007 (RCC Handbook), which provides some basic information about ELT(DT)s but should be updated at JC-36.

2.2 The ICAO LADR

ICAO requires that the last known position of an aircraft in distress shall be made available to RCCs, air-traffic service units (ATSUs) and the aircraft operator (airline), for each to be able to take appropriate action. To facilitate the distribution of this information to the required entities, ICAO plans to implement a Location of an Aircraft in Distress Repository (LADR) as a single database, to collect and distribute the required information.[3] To satisfy the ICAO data-sharing requirements, Cospas-Sarsat nodal MCCs will input ELT(DT) data received in alert messages into the LADR.

2.2.1 LADR Host and Data Elements

ICAO currently anticipates that the LADR will be hosted by EUROCONTROL (Brussels, Belgium), possibly connected to regional secondary databases (or "sub-LADRs" such as

[2] ICAO documents are available at the ICAO Store, https://store.icao.int/
[3] RCCs, ATSUs and aircraft operators (and other entities as may be established by the State of the aircraft operator) becoming "LADR Users", and entities such as Cospas-Sarsat becoming accredited "LADR Contributors".

one proposed by Benin), and will be expected to receive and distribute the following mandatory data elements:

- Last known position (latitude/longitude, flight track (past position reports),
- Date and time of transmission,
- Aircraft operator identifier (3-Letter Designator (3LD), e.g., BAW for British Airways),
- Aircraft identification (completion of at least one field from options: aircraft registration with nationality mark (e.g., XA-GJH), aircraft 24-bit address, Selcall, and/or flight callsign and flight #),
- Contributor, data source (e.g., Cospas-Sarsat).

Optional information that may be sent to and made available in the LADR includes:

- Accuracy of position data,
- Altitude, altitude source,
- Groundspeed and heading,
- ELT(DT) Hex ID,
- Activation method (e.g., manual by pilot, or automatic by external means such as avionics detection of distress conditions)),
- Cancellation message (if provided),
- Validated distress event (true/false as updated by aircraft operator),
- Acknowledgement by data recipient of notification (true/false),
- Distress event trigger or type of emergency (i.e., why is the aircraft considered to be in distress).

In addition, the LADR will serve as the SWIM (ICAO's system-wide information management) entry point for additional information such as:

- Planned route as updated by air traffic control,
- Distress event trigger or type of emergency (why is the aircraft considered to be in distress),
- Flight Plan supplementary information (for search and rescue),
- Flight/cargo manifest information,
- Dangerous goods carried.

The LADR functional requirements state that, "The time taken from when data is first received by the system to when it is made available to a LADR User (the "end-to-end latency") shall be no longer than 30 seconds." ICAO does not place any requirement on timeliness of data input to the LADR by ADT providers; however, each location will be stamped with an associated time of transmission.

2.2.2 LADR Subscription

The LADR will notify subscribed users when data is available related to their subscription (e.g., geographic SRR, in the ATSU's flight information region, the particular aircraft's operator). Our current understanding is that the subscription area is user-defined, within a given ruleset, and SAR authorities will have no limitations on the data type and region they can include. Notifications can

be provided by email, SMS, or ATS message over AFTN/AMHS. Notifications can be filtered by aircraft operator, geometric polygon, or State of the operator.

The OPS Control Directory contains operational contact details for aircraft operators, area control centres, and rescue coordination centres, to assist with coordination in the event of an incident. Appropriate SAR authorities will be able to request a free subscription to the LADR through the ICAO Ops Control Directory (https://www4.icao.int/opsctrl).

To obtain access to OPS CTRL, the ICAO process requires that:

1. A State focal point (a single authority identified for each country, this could be a SAR Authority, MCC, SPOC, etc.) should email aircrafttracking@icao.int to request an account.
2. ICAO will verify that entity's authority to have an account, and approve them (the ICAO process to verify authority has not yet been clearly defined).
3. The national focal point can then authorize accounts within its own State/organization. Only the national focal point can edit the organizational data in the OPS CTRL system. Other users created by them will have read-only access to this data.

ICAO has noted that functionality for RCCs is not yet available in the Ops Control Directory. ICAO plans to send a State letter notifying SAR authorities when the functionality is available and access requests can be processed, expected in the August 2022 time frame.

3. THE ELT FOR DISTRESS TRACKING (DT)

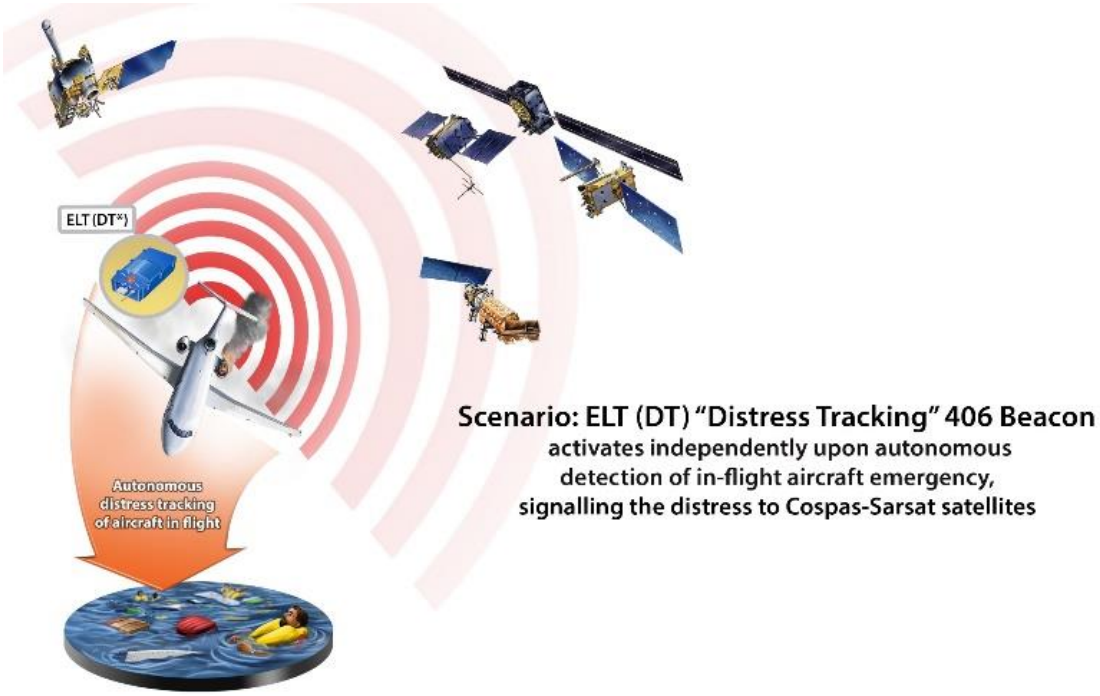

Figure 1: The ELT for Distress Tracking (ELT(DT)) operational scenario

Though the ICAO documentation for GADSS and specifications for ADT are "performance-based" and are not technology-specific, we note that the major aircraft manufacturers of which we are aware have selected the ELT(DT) to comply with the new requirements. Airbus, Boeing, Bombardier, and Embraer (OEMs) have selected the ELT(DT) to satisfy the European operational requirements (see ED-237) and ICAO GADSS recommendations.

Airbus: https://www.prnewswire.com/news-releases/orolias-distress-tracking-emergency-locator-transmitter-selected-by-airbus-for-gadss-compliance-301189020.html

Boeing: https://www.acrartex.com/news/boeing-selects-artex-distress-tracking-emergency-locator-transmitter/

Bombardier: https://aiac.ca/wp-content/uploads/2018/11/GAUTHIER-ANDR%C3%89.pdf

Embraer: https://www.acrartex.com/news/embraer-selects-skytrac-and-acr-electronics-to-provide-gadss-solution/

Figure 2: Cospas-Sarsat ELT(DT)s were designed in support of ICAO GADSS

3.1 ELT(DT) Characteristics

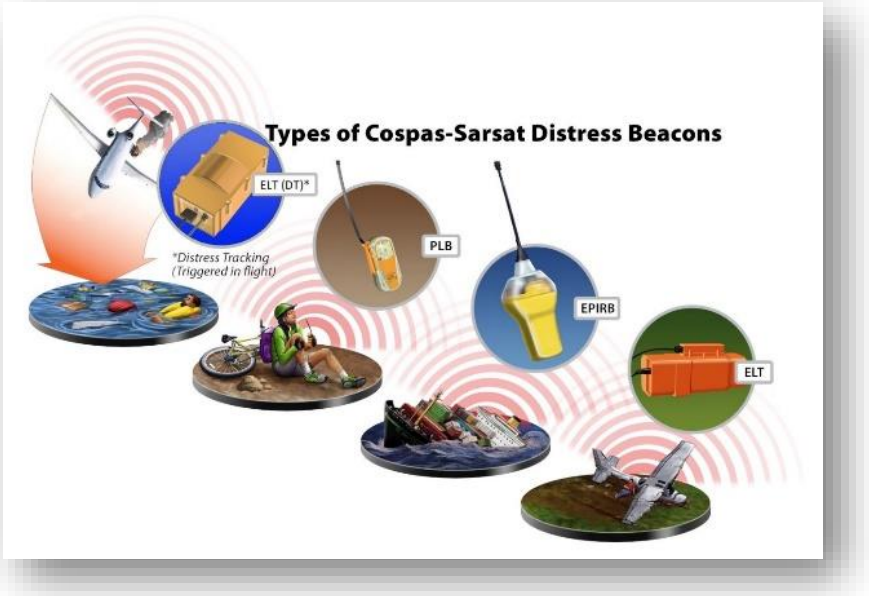

Figure 3: Cospas-Sarsat beacon "types" now include the ELT(DT) for distress tracking

From a SAR perspective, an ELT(DT) alert differs from that of a legacy ELT (an ELT that is not an ELT(DT)) in that it originates from an aircraft that may possibly still be in flight. However, the ED-237 parameters used to automatically activate the ELT(DT) statistically indicate that in the case of a real (not false) alert, the aircraft would crash within approximately six minutes, making the data of immediate interest to the SAR authorities.

An ELT(DT) can be based on "first-generation beacon" (FGB) technology (using narrowband modulation for its transmissions per document C/S T.001) or "second-generation beacon" (SGB) technology (using spread-spectrum modulation for its transmissions per document C/S T.018).

All ELT(DT)s:

- must be capable of providing a GNSS4 location,
- start transmitting after a maximum of 5 seconds after its activation,
- transmit as frequently as once every 5 seconds, therefore the seconds of the minute should be provided in the SPOC message, to allow SAR authorities to properly sequence the messages,
- will provide the Aircraft Operator 3-letter designator (3LD), to allow nodal MCCs to meet ICAO requirements for inputting ELT(DT) data into the ICAO LADR, and to allow SAR authorities to identify and communicate with the aircraft's operator, possibly while the aircraft is still in flight,
- will include a user cancellation function whereby activation of an ELT(DT) can be cancelled by the same means by which it was initiated; cancellation messages are only sent to SAR authorities after verification by the MCC (SIT 185 with Beacon Message Type = DISTRESS TRACKING and Alert Status = USER CANCELLATION ALERT),
- are capable of providing data in rotating fields; this data will be available in only some beacon transmissions (per document C/S A.002, SIT 185 with Beacon Message Type = DISTRESS TRACKING and Alert Status = ROTATING FIELD UPDATE ALERT),
- will provide GNSS position, altitude and how current this information is.

SGB ELT(DT)s will have:

- a 23 Hex ID,
- additional encoded data and could provide time of GNSS location update, time since GNSS location generated, altitude of GNSS location, elapsed time since activation, and/or remaining batter capacity.

Additional SGB ELT(DT) operational characteristics will be sent to SAR authorities using information from the beacon's TAC (type approval certificate), in a SIT 985 message. This can include:

- Manufacturer, beacon model,
- Beacon type and sub-type,

[4] Per agreement at JC-35, "encoded location" is now referred to as global navigation satellite system "GNSS location". GNSS is the primary location source for the fast-moving ELT(DT).

- Temperature range,
- Homing type,
- AIS,
- Strobe.

3.2 ELT(DT) Processing and Data Distribution

Data distribution of ELT(DT) data is specified in document C/S A.001, Figure 3-2:

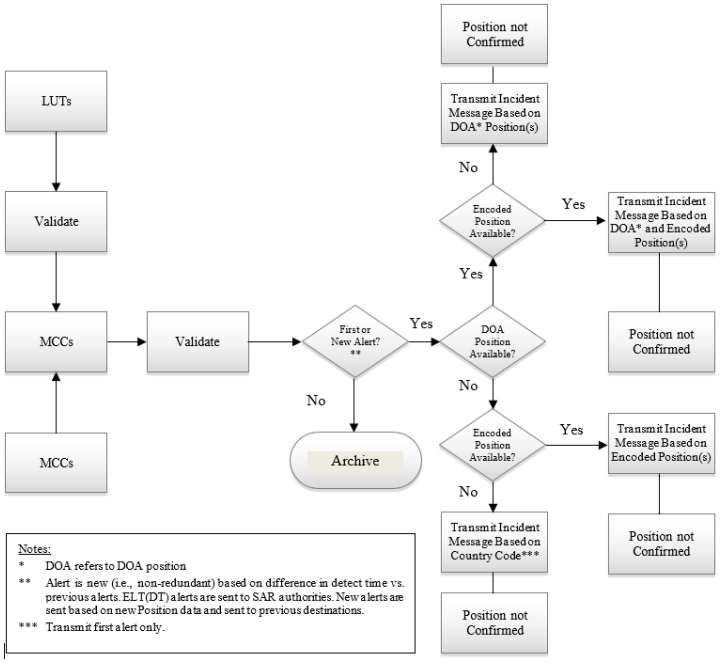

Figure 4: Document C/S A.001 (DDP) specifies data distribution procedures for ELT(DT)s

ELT(DT) data will be automatically distributed to SAR authorities in a SIT 185 message clearly identifying the source of the data as an ELT(DT). Sample ELT(DT) SIT 185 messages can be found at Attachment 1 to this document and in document C/S A.002 (Issue 8, March 2022). By design, not all ELT(DT) data will be sent to SAR authorities because of the large data volume provided by this beacon type. In parallel, nodal MCCs will also automatically distribute *all* ELT(DT) data to the ICAO Location of an aircraft in distress repository (LADR).

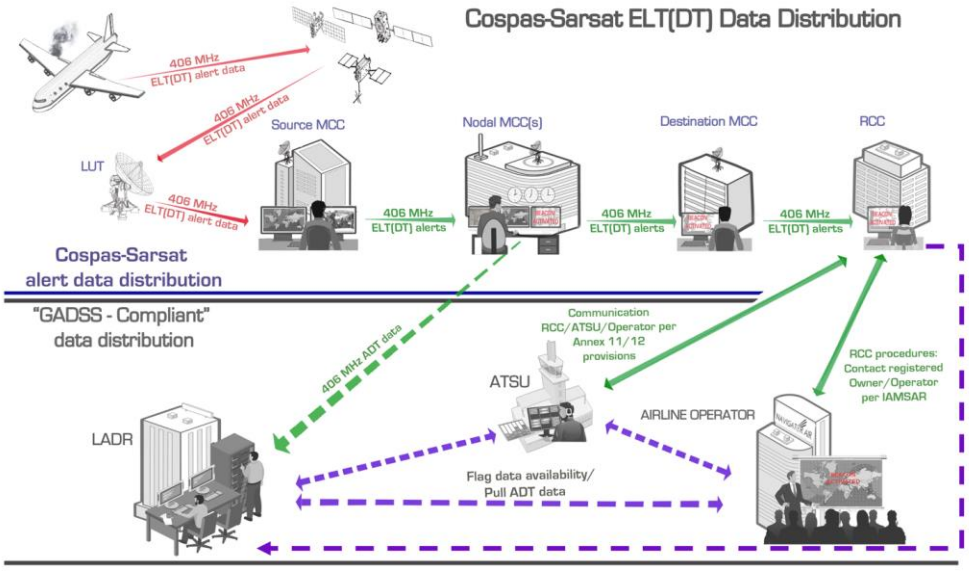

Figure 5: ELT(DT) data will be automatically distributed to designated SAR authorities (i.e., SPOCs) as well as placed in the ICAO LADR, where it will be made available to ATSUs, Airline Operators and RCCs

3.3 The ELT(DT) SIT 185 Explained

The SIT 185 message provides clear identification of the ELT(DT) as origin of the message. Sample ELT(DT) SIT 185 messages are at Attachment 1.

In the SIT 185 message:

- "Beacon Message Type" is "DISTRESS TRACKING",
- The Beacon type is "ELT" and "BEACON SUBTYPE: ELT(DT)",
- The Remarks section shall include "THIS DISTRESS TRACKING MESSAGE IS BEING SENT TO APPROPRIATE SAR AUTHORITIES" and "PROCESS THIS ALERT ACCORDING TO RELEVANT REQUIREMENTS".

The SGB SIT 185 can provide additional information in the SIT 185 paragraph 5 (Other Information):

- GNSS position Uncertainty,
- Time of GNSS position update,
- Time since GNSS location generated,
- Altitude of GNSS location with greater precision,
- Elapsed time since activation,
- Remaining battery capacity.

3.4 SIT 185: Updated Format and Terminology Agreed at JC-35

JC-35 agreed to update document C/S A.002 to improve the SIT 185 alert message sent to SPOCs. The related improvements will be implemented by March 2023 and include:

- use of the term “MCC Reference position” instead of “Confirmed position”, (to avoid possible RCC confusion on the fact that a ‘confirmed’ position is not confirmed as being the most accurate, but that it has been independently ‘confirmed’ by two sources (e.g., two different MEOSAR satellite combinations),
- use of the term “GNSS position” to replace “Encoded position”,
- reorganizing the content of the SIT 185 message to make it more readily understood by SPOCs.

4. THE RCC HANDBOOK

Document C/S G.007, “Handbook on Distress Alert Messages for Rescue Coordination Centres (RCCs), Search and Rescue Points of Contact (SPOCs) and IMO Ship Security Competent Authorities”, currently provides only basic information on ELT(DT)s. Participants should consider proposing updates to this document at JC-36 in June 2022.

5. OUTCOMES OF CSC-66

5.1 FGB and SGB ELT(DT) and SGB System Test

At CSC-66, the Council noted several input papers describing the FGB and SGB ELT(DT) System tests undertaken between June 2021 and January 2022 (document CSC-66/OPN/Inf.8 (RTCM/Canada/ France/Spain/Turkey/USA) and its full report at its Attachment 1, document CSC-66/OPN/4/5 (EWG-6C/2021 Chair) and document CSC-66/OPN/5/7(Canada/France/ Russia/USA)). The Council noted that the EWG-6C/2021 had recommended that it:

a) note that the Cospas-Sarsat System had demonstrated, during the test campaigns conducted by the CWG and reviewed by the EWG, its capability to receive, process, and distribute messages from FGB and SGB ELT(DT)s, pending the availability of the necessary global Ground Segment for this capability; and

b) note that, based upon the preliminary results of the SGB Capacity Do No Harm test and anticipating that there would be very few ELT(DT)s active at any given time, the EWG had seen no reason to date that would prevent the operational use of SGB ELT(DT)s at this time.

The Council noted general agreement to take this information into account when considering any decision on the declaration of the Full Operational Capability (FOC) by the Cospas-Sarsat Programme to support FGB and SGB ELT(DT) distress tracking beacons.

The Council decided to invite participants to work intersessionally in an informal correspondence working group led by Mr. Chris Hoffman (RTCM, chris.hoffman@acrartex.com) to monitor progress toward ELT(DT) FOC readiness, considering the guidance provided at Annex 19 to the CSC-66 Summary Record. This annex provides guidance for the CWG’s work to monitor progress toward ELT(DT) FOC readiness.

5.2 ELT(DT) Development Phases and Criteria [Requirements] Checklist

The tasks of the CWG on ELT(DT) FOC readiness include actively monitoring and summarizing progress in each of the areas of activity necessary to be completed in order for the Council to consider an ELT(DT) FOC declaration. ELT(DT) development phases and criteria (requirements) are at CSC-66/OPN/SR Annex 18 and address:

- Phase 1 – Development,
- Phase 2 – Transition to Operations,
- Phase 3 – Continued Implementation.

5.3 ICAO Report

At CSC-66 in March 2022, the Council discussed information provided by ICAO that it had received a letter from the International Coordinating Council of Aerospace Industries (ICCAIA), co-signed by the International Air Transport Association (IATA), expressing the view that it would be extremely challenging for aircraft manufacturers to meet the 2023 ADT mandatory equipage date and requesting a delay. In the normal ICAO process, a final decision on this matter would not be made until the October 2022 timeframe.

ICAO also provided the information that a workshop for invited participants, including LADR developers (e.g., EUROCONTROL and Benin) and contributors (e.g., nodal MCCs) would likely occur in the May 2022 timeframe.

6. WHAT SAR AUTHORITIES NEED TO KNOW

The Joint Committee noted general agreement to invite (OWG-33/AI.014) the Secretariat to prepare a model/template letter to facilitate communications from MCCs to SAR authorities to raise their awareness about the procedures that would be followed in alerting them about in-flight ELT(DT) activations, to be further discussed at DDR and SPOC meetings, and regional meetings convened to address search and rescue matters. ICAO postponed the implementation deadline for GADSS from January 2021 to January 2023, making 2022 the appropriate time for MCCs to communicate with their supported SAR authorities about the new ELT(DT) beacon “type”.

While we anticipate that at the mandatory equipage date of January 2023 there will be a small number of operational aircraft equipped with ELT(DT)s, ICCAIA/IATA expect approximately 700-1100 aircraft carrying ELT(DT)s to be flying by 2025. All Administrations should clearly define national procedures for SAR response to the activation of an ELT(DT). As the alert is likely emanating from an aircraft still in flight, it is important that the alert messages should be either directly received or forwarded to an ARCC.

As a basis for further development, proposed RCC procedures for actions to be taken after receipt of a SIT 185 message from an ELT (DT) could include:

1. Take into account the new ELT(DT) beacon type generating the distress alert message, noting that Paragraph 1 will contain “DISTRESS TRACKING”, and Paragraph 3 will clearly identify the source of the message as an “ELT DISTRESS TRACKING”.
2. Study the basic event information provided in the ELT (DT) SIT 185:

- Paragraph 3 will provide flag of the aircraft decoded from the ICAO 24-bit address and the aircraft operator 3LD from the rotating field,
- Paragraph 4 will provide the aircraft position.

3. Login to ICAO's LADR to access all available information for this distress event, including the aircraft's last known position (LKP).
4. Using the point of contact information available in the ICAO Ops Control Directory, contact the appropriate ATSU(s) (and possibly the airline operator) per ICAO Annexes 11 and 12 to determine more information about the possible distress event.
5. If necessary, request that the sending MCC limit the continuous transmission of SIT 185 alerts for this beacon event[5] (to reserve the AFTN/AMHS terminal for other important information related to this event or other possible distress alerts in your SRR).
6. Monitor the Last Known Position available in the LADR to assist in determining whether the aircraft is a fixed or moving target, in coordination with the appropriate ATSU and neighbouring RCCs as appropriate.
7. Contact your supporting MCC for any necessary clarifications about the content or the distribution of SIT185 message.
8. Prepare for a SAR operation, while monitoring incoming alerts for a possible cancellation message (SIT 185 cancellation message, Paragraph 1 will contain "DISTRESS TRACKING COSPAS-SARSAT USER CANCELLATION ALERT").
9. Launch SAR per national procedures (and IAMSAR manual guidance).

The Secretariat has developed a draft letter at Attachment 2 for the consideration of MCC operators for use in any planned communication with their supported SAR authorities.

7. ACTIONS FOR MCC OPERATORS

After consideration of GADSS and ELT(DT) related matters at the CDDR meeting in April 2022, CDDR participants supported the text of the letter to SAR authorities as proposed by the Secretariat.

In addition, CDDR MCC operators suggested that all MCC operators consider putting in place a communications plan with their supported SPOCs, and that MCC-SPOC agreements (see template at https://www.cospas-sarsat.int/en/documents-pro/document-templates) be put in place or updated, as appropriate.

[5] By design, MCCs will distribute data to SAR authorities for each ELT(DT) burst received within the first 30 seconds after activation, then will transmit a message only every 10 minutes.

8. RECOMMENDATIONS

JC-36 is invited to:

a) note the information provided on ICAO's 1 January 2023 required carriage date for ADT devices, and that operational use of ELT(DT)s will likely begin in the fourth quarter of 2022;

b) provide updates at JC-36 to document C/S G.007, "Handbook on Distress Alert Messages for Rescue Coordination Centres (RCCs), Search and Rescue Points of Contact (SPOCs) and IMO Ship Security Competent Authorities", to include information important to SAR authorities on the operational implementation of ELT(DT)s;

c) review and revise, as appropriate, the draft model/template letter for MCC/SPOC communication provided by the Secretariat, as requested by the Joint Committee at JC-33; and

d) use this letter, revised as appropriate, or any desired alternative means (workshop, telecon, etc.) to inform their supported SAR authorities/RCCs on GADSS, ELT(DT)s and alerts originating from aircraft in a distress condition but possibly still in flight.

ATTACHMENT 1

SAMPLE SIT 185: 406 MHz POSITION ALERT (FGB, ELT(DT))

1. **DISTRESS TRACKING** COSPAS-SARSAT DOA POSITION CONFLICT ALERT

2. MSG NO 21013 CMCC REF 1D1200F03BBFDFF

3. BEACON MESSAGE INFORMATION

BEACON TYPE **ELT DISTRESS TRACKING**

AIRCRAFT 24 BIT ADDRESS 01E077 ASSIGNED TO G BRITAIN

AIRCRAFT OPERATOR DESIGNATOR MMB

HEX ID 1D1200F03BBFDFF

COUNTRY OF BEACON REGISTRATION 232/G BRITAIN

ACTIVATION TYPE MANUAL

GNSS POSITION PROVIDED BY EXTERNAL DEVICE

4. ALERT POSITION INFORMATION

DETECTED AT 04 AUG 20 101501 UTC BY MEOSAR

ALERT LAST DETECTED AT 04 AUG 20 101501 UTC

GNSS - 01 54.40 N 045 37.53 E

UPDATE TIME WITHIN 2 – 60 SECONDS OF DETECTION TIME

ALTITUDE OF GNSS LOCATION BETWEEN 1600 AND 2200 METRES (BETWEEN 5200 AND 7200 FEET)

DOA - 02 00.1 N 046 06.2 E

5. OTHER INFORMATION

GNSS POSITION UNCERTAINTY PLUS-MINUS 2 SECONDS OF LATITUDE AND LONGITUDE

DETECTION FREQUENCY 406.0400 MHZ

POSITION CONFLICT BASED ON DISTANCE SEPARATION OF AT LEAST 20 KM

ELT(DT) POSITION DOES NOT REFERENCE ANY PREVIOUS POSITION

6. REMARKS

THIS DISTRESS TRACKING MESSAGE IS BEING SENT TO APPROPRIATE SAR AUTHORITIES

PROCESS THIS ALERT ACCORDING TO RELEVANT REQUIREMENTS

END OF MESSAGE

SAMPLE SIT 185 : 406 MHz POSITION ALERT (SGB, ELT(DT))

1. **DISTRESS TRACKING** COSPAS-SARSAT DOA POSITION MATCH ALERT

2. MSG NO 00192 AUMCC REF B27400F81FD4710

3. BEACON MESSAGE INFORMATION

BEACON TYPE SGB – **ELT DISTRESS TRACKING**

AIRCRAFT 24 BIT ADDRESS 7100CE ASSIGNED TO SAUDI

TAC 62 SERIAL NO 509

HEX ID B27400F81FD4 7100CE00000

COUNTRY OF BEACON REGISTRATION 403/SAUDI

ACTIVATION TYPE AUTOMATIC BY BEACON (G-SWITCH/PROBABLE CRASH)

4. ALERT POSITION INFORMATION

DETECTED AT 03 MAY 19 085310 UTC BY MEOSAR

ALERT LAST DETECTED AT 03 MAY 19 085310 UTC

GNSS - 02 24.40 N 046 04.11 E

TIME OF GNSS POSITION UPDATE: 03 MAY 19 085308 UTC

TIME SINCE GNSS LOCATION GENERATED: 0 MINUTES

ALTITUDE OF GNSS LOCATION: 125 METRES (410 FEET)

DOA - 02 25.1 N 046 06.2 E

5. OTHER INFORMATION

BEACON CHARACTERISTICS PER TAC DATABASE PROVIDED IN A SEPARATE MESSAGE

GNSS POSITION UNCERTAINTY PLUS-MINUS 1.7 METRES

ELAPSED TIME SINCE ACTIVATION: 0 HOURS

REMAINING BATTERY CAPACITY BETWEEN 75 AND 100 PERCENT

DETECTION FREQUENCY 406.0500 MHZ

ELT(DT) POSITION DOES NOT REFERENCE ANY PREVIOUS POSITION

6. REMARKS

THIS DISTRESS TRACKING MESSAGE IS BEING SENT TO APPROPRIATE SAR AUTHORITIES.

PROCESS THIS ALERT ACCORDING TO RELEVANT REQUIREMENTS.

END OF MESSAGE

ATTACHMENT 2

Draft text for letter to be sent by MCCs to their supported SAR authorities.

Dear [SPOC],

Before January 2023, Cospas-Sarsat will begin to operationally distribute data from a new beacon type, the ELT(DT). This ELT for distress tracking was specifically developed to support new ICAO requirements as part of the Global Aeronautical Distress and Safety System (GADSS). One way ELT(DT)s differ from traditional ELTs is that they will be activated, either automatically or manually, while the aircraft is still in flight. Alerts from ELT(DT)s will be automatically distributed directly to SAR authorities and may indicate that a crash is imminent.

Cospas-Sarsat will also place data for each ELT(DT) transmission in the ICAO Location of an aircraft in distress repository (LADR). All SAR authorities should register to access the ICAO Ops Control Directory and the LADR at https://www4.icao.int/opsctrl.

SAR authorities should consider developing national procedures to prosecute alerts emanating from an aircraft still in flight. As a basis for further development, proposed RCC procedures for actions to be taken after receipt of a SIT 185 message from an ELT(DT) could include:

1. Take into account the new ELT(DT) beacon type generating the distress alert message, noting that Paragraph 1 will contain "DISTRESS TRACKING", and Paragraph 3 will clearly identify the source of the message as an "ELT DISTRESS TRACKING"
2. Study the basic event information provided in the ELT (DT) SIT 185:
   - Paragraph 3 will provide flag of the aircraft decoded from the ICAO 24-bit address and the aircraft operator 3LD from the rotating field.
   - Paragraph 4 will provide the aircraft position.
3. Login to ICAO's LADR to access all available information for this distress event, including the aircraft's last known position (LKP).
4. Using the point of contact information available in the ICAO Ops Control Directory, contact the appropriate ATSU(s) (and possibly the airline operator) per ICAO Annexes 11 and 12 to determine more information about the possible distress event.
5. If necessary, request that the sending MCC limit the continuous transmission of SIT 185 alerts for this beacon event[6] (to reserve the AFTN/AMHS terminal for other important information related to this event or other possible distress alerts in your SRR).
6. Monitor the LKP available in the LADR to assist in determining whether the aircraft is a fixed or moving target, in coordination with the appropriate ATSU and neighbouring RCCs, as appropriate.
7. Contact your supporting MCC for any necessary clarifications about the content or the distribution of a SIT 185 message.

[6] By design, MCCs will distribute data to SAR authorities for each ELT(DT) burst received within the first 30 seconds after activation, then will transmit a message only every 10 minutes.

8. Prepare for a SAR operation, while monitoring incoming alerts for a possible cancellation message (SIT 185 cancellation message, Paragraph 1 will contain “DISTRESS TRACKING COSPAS-SARSAT USER CANCELLATION ALERT”).
9. Launch SAR per national procedures (and IAMSAR manual guidance).

Further guidance for RCCs will be available in the Cospas-Sarsat RCC Handbook, available at https://www.cospas-sarsat.int/images/stories/SystemDocs/Current/G007-MAR-26-2021.pdf.

- END OF DOCUMENT -

ATTACHMENT 2: Draft text for letter to be sent by MCCs to their supported SAR authorities.

Dear [SPOC],

Before January 2023, Cospas-Sarsat will begin to operationally distribute data from a new beacon type, the ELT(DT). This ELT for distress tracking was specifically developed to support new ICAO requirements as part of the Global Aeronautical Distress and Safety System (GADSS). One way ELT(DT)s differ from traditional ELTs is that they will be activated, either automatically or manually, while the aircraft is still in flight. Alerts from ELT(DT)s will be automatically distributed directly to SAR authorities and may indicate that a crash is imminent.

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2. Study the basic event information provided in the ELT (DT) SIT 185:
   - Paragraph 3 will provide flag of the aircraft decoded from the ICAO 24-bit address and the aircraft operator 3LD from the rotating field.
   - Paragraph 4 will provide the aircraft position.
3. Login to ICAO's LADR to access all available information for this distress event, including the aircraft's last known position (LKP).
4. Using the point of contact information available in the ICAO Ops Control Directory, contact the appropriate ATSU(s) (and possibly the airline operator) per ICAO Annexes 11 and 12 to determine more information about the possible distress event.
5. If necessary, request that the sending MCC limit the continuous transmission of SIT 185 alerts for this beacon event[1] (to reserve the AFTN/AMHS terminal for other important information related to this event or other possible distress alerts in your SRR).
6. Monitor the LKP available in the LADR to assist in determining whether the aircraft is a fixed or moving target, in coordination with the appropriate ATSU and neighbouring RCCs, as appropriate.
7. Contact your supporting MCC for any necessary clarifications about the content or the distribution of a SIT 185 message.
8. Prepare for a SAR operation, while monitoring incoming alerts for a possible cancellation message (SIT 185 cancellation message, Paragraph 1 will contain "DISTRESS TRACKING COSPAS-SARSAT USER CANCELLATION ALERT").

[1] By design, MCCs will distribute data to SAR authorities for each ELT(DT) burst received within the first 30 seconds after activation, then will transmit a message only every 10 minutes.

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