



ICAO

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Eighth Meeting of the ICAO Asia/Pacific Search and Rescue Working Group (APSAR/WG/8)

Bangkok, Thailand, 22 – 25 May 2023

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 ELT for distress tracking (ELT(DT)s), to support ICAO's Global Aeronautical Distress and Safety System.

ICAO has announced that the required ADT equipage date was postponed to 1 January 2025 (although applicable to all aircraft over 27,000kg first issued with a Certificate of Airworthiness from 1 January 2024). Consequent delays in the publication of the GADSS manual and the availability of the Location of an Aircraft in Distress Repository (LADR) are discussed.

Cospas-Sarsat announced FOC for first-generation ELT(DT)s from 1 January 2023. In some cases, an ELT(DT) will replace an ELT(AF).

Advice to SPOCs/RCCs for use until the LADR becomes available was developed, and an ELT(DT) information distribution management flow is presented.

1. INTRODUCTION

1.1 An ELT(DT) is an Autonomous Distress Tracking (ADT) device developed in support of ICAO's Global Aeronautical Distress and Safety System (GADSS). This new beacon may differ from a legacy ELT which has requirements such as to survive accidents and to provide a 121.5 MHz homing signal. An ELT(DT) is designed to activate in flight, automatically via avionics or manually by the crew. Therefore, there is some urgency for Air Traffic Service Units (ATSUs) and Rescue Coordination Centers (RCCs) to adapt their operating procedures and practices to handle this new means notification of potential distress situations.

2. DISCUSSION

2.1 ICAO has announced that the required ADT equipage date was postponed to 1 January 2025 (although applicable to all aircraft over 27,000 kg first issued with a Certificate of Airworthiness from 1 January 2024).

2.2 However, several major aircraft manufacturers (e.g., Boeing, Airbus) have indicated that they anticipate delivering aircraft equipped with ELT(DT)s as early as March 2023.

2.3 On 1 January 2023, Cospas-Sarsat declared the full operational capability (FOC) for ELT(DT)s designed using first-generation beacon (FGB) technology, and work is in progress towards declaring FOC for the ELT(DT)s whose design is based on second-generation beacon technology.

2.4 A Model/Template Letter entitled “Draft Advice to SPOCs/RCCs for Use Until Such Time the LADR Becomes Available” is provided at **Attachment 1** for consideration and comments at this meeting.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note that the required ADT equipage date was postponed to 1 January 2025 (although applicable to all aircraft over 27,000 kg first issued with a Certificate of Airworthiness from 1 January 2024);
- b) note that aircraft equipped with ELT(DT)s have been in the process of being delivered since March 2023;
- c) review and revise, as appropriate, the draft model/template letter for communication with SAR authorities to inform them on GADSS, ELT(DT)s and alerts originating from aircraft in a distress condition but possibly still in flight, until such time as the LADR becomes available, noting this text will also be considered at JC-37 in May-June 2023; and
- d) consider use of this letter, revised as appropriate, or any desired alternative means (workshop, telecon, etc.) to inform SPOCs and ATSU's of the operational use of ELT(DT)s from January 2023.

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ATTACHMENT 1

MODEL/TEMPLATE LETTER

**Advice to SPOCs/RCCs for Use Until Such Time as the LADR Becomes Available
[to be reviewed at the 37th Session of the Cospas-Sarsat Joint Committee]**

ELT(DT) information distribution management

This document provides guidance for the position information distribution management of ELT(DT)s in the absence of the Location of an Aircraft in Distress Repository (LADR), to comply with the ICAO SARPs related to the location of an aircraft in distress through Autonomous Distress Tracking (ADT).

At the time this document was developed, the LADR was under development and not yet ready to accept position information from an ADT device transmitting from an aircraft in distress and notify the appropriate subscribers.

As of 1 January 2023, Cospas-Sarsat declared readiness to operationally process and distribute data from a new beacon type, the ELT(DT). This ELT for Distress Tracking (DT) was specifically developed to support new ICAO Standards as part of its GADSS initiative.

Unlike other ELTs, ELT(DT)s are designed to be activated, either automatically or manually, while the aircraft is still in flight. As with all Cospas-Sarsat alerts, ELT(DT) messages shall be distributed directly to SAR authorities by MCCs in accordance with document C/S A.001 section 3.2.3.2.2. An ELT (DT) alert indicates that, if no corrections are made, an accident is likely to occur.

An ELT(DT) may be designed using either a First-Generation Beacon (FGB) technology, per document C/S T.001, or as a Second-Generation Beacon (SGB) technology, per document C/S T.018. Currently, all operational beacons are FGBs.

Major aircraft manufacturers (e.g., Boeing, Airbus) have indicated they anticipate delivering aircraft equipped with ELT(DT)s as early as March 2023. However, the planned ICAO LADR, currently being developed by EUROCONTROL is not expected to be available before early 2024. As a result, there will be a number of months during which aircraft will be flying with ELT(DT)s, but the LADR, into which data from ELT(DT)s (and any other ADT devices) is to be submitted for access by air traffic service providers, aircraft operators and other interested parties, will be unavailable.

When the LADR becomes available, Cospas-Sarsat will place data from each ELT(DT) transmission there and continue to alert SPOCs and RCCs directly (as shown in Figure 1).

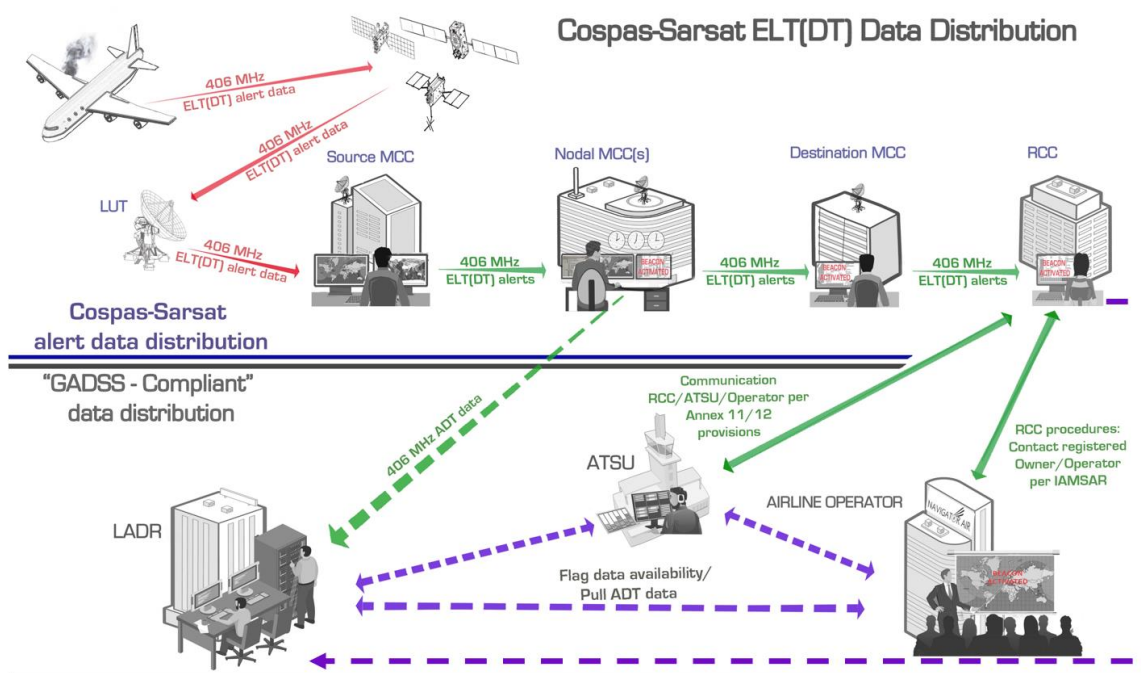


Figure 1: ELT(DT) data will be automatically distributed to designated SAR authorities (i.e., SPOCs), as well as placed in the future in the ICAO LADR, where it will be made available to ATS units, Operators and RCCs that have subscribed to the LADR.

Until the LADR becomes available, search and rescue (SAR) authorities should consider developing procedures to appropriately respond to distress messages emanating from an aircraft still in flight.

As a basis for further development, proposed SPOC/RCC actions to be taken after receipt of a SIT 185 message¹ from an ELT(DT) could include the following:

1. Note that the SIT 185 message reports the detection of a signal from the new beacon type, the ELT(DT); Paragraph 1 of the SIT 185 message contains “DISTRESS TRACKING” and Paragraph 3 clearly identifies the source of the message as “ELT DISTRESS TRACKING”.
2. Study the basic event information provided in the ELT(DT) SIT 185 message:
 - a. Paragraph 3 will provide the registration “flag” State of the aircraft decoded from the ICAO 24-bit address, and the operator, both contained in the beacon message,
 - b. Paragraph 4 will provide the aircraft position.
3. Contact the appropriate ATS unit(s) and the operator per ICAO Annexes 11 and 12 to exchange further information about the possible (or confirmed) distress event. The contact information for both ATS unit and operator should be available within the new Ops Control Directory² and/or listed in the RCC documentation and plans.

¹ The SIT 185 paragraph numbers and labels referenced apply to the recently agreed new format for SIT 185 messages. These may not apply if your supporting MCC has not yet adopted the new format.

² ICAO has not yet provided access to the Ops Control Directory to RCCs.

4. If necessary, request that the sending MCC send more of the data stored at the MCC level for the beacon event¹, to allow tracking of the flight using all (or more) of the information transmitted by the ELT(DT).
5. Contact your supporting MCC for any necessary clarifications about the content of a SIT 185 message.
6. Prepare for a SAR operation, while monitoring incoming messages for a possible cancellation message (in a SIT 185 Cancellation Message, Paragraph 1 contains “DISTRESS TRACKING COSPAS-SARSAT USER CANCELLATION ALERT”).
7. Launch SAR activities appropriate to your SRR (and IAMSAR Manual guidance) and/or communicate with the appropriate SAR authorities to inform them of the event in order to provide a proper response.

In 2023, some MCCs will not yet be ELT(DT)-capable (or are backed up by an MCC that is not yet ELT(DT)-capable). Their supported SPOCs and RCCs may receive SIT 185 messages from an ELT(DT) detection that indicate “DATA DECODED FROM THE BEACON MESSAGE IS NOT RELIABLE”). If such a message originates from an FGB ELT(DT), any associated “Doppler positions” are likely to be unreliable due to the rapid aircraft motion. Only on rare occasions would it be expected that for an aircraft still in flight this Doppler information might be useful to SAR efforts. In a SIT 185 message for an ELT(DT) on a moving aircraft the “GNSS position” (new term) or “Encoded position” (legacy term) is the one that should be relied on. Note that the “GNSS” or “Encoded” position is not provided in a SIT 185 message that indicates “DATA DECODED FROM THE BEACON MESSAGE IS NOT RELIABLE”.

The 15-digit Hex ID in the SIT 185 message may be decoded using an appropriate tool (e.g., <http://cospas-sarsat.int/en/beacons-pro/beacon-message-decode-program-txsep/beacon-decode-2019>) to help determine if the unreliable beacon message is associated with an FGB ELT(DT). In addition, a properly-upgraded nodal MCC associated with your supporting MCC may send a corresponding alert for the same Hex ID² (as forwarded by your supporting MCC), which could provide corroboration for an apparent FGB ELT(DT) message.

Further guidance for SPOCs/RCCs on ELT(DT)s, including sample messages, is available in the Cospas-Sarsat RCC Handbook at <https://www.cospas-sarsat.int/en/documents-pro/system-documents>.

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¹ By design, MCCs will distribute data to distress/SAR authorities for each ELT(DT) burst received within the first 30 seconds after activation, then will transmit a message only every 10 minutes thereafter. Once the LADR is available, SAR authorities generally should not need to request additional data from the sending MCC, since the LADR will contain data on every ELT(DT) transmission.

² When comparing the two Hex IDs you should compare only the first 11 characters. To compare the 11th character of the two Hex IDs, change the 11th character of each respective HEX ID to “0” if it is in the range of 0 to 7, and otherwise change it to “1”. The first 11 characters of the two HEX IDs will match if they are associated with the same FGB ELT(DT). Contact your supporting MCC for guidance of matching the two Hex IDs.