

## **GADSS ADT Phase Basic Guidance**

### Purpose and Scope

1.1 This Guidance Material is intended to provide basic information on the Autonomous Distress Tracking (ADT) as part of the ICAO Global Aeronautical Distress and Safety System (GADSS).

1.2 The key stakeholders of this phase are:

- Air Navigation Service Providers (ANSPs);
- Aircraft Operators;
- ADT Service Providers; and
- Search and Rescue (SAR).

1.3 It should be noted that ADT Service Providers had not yet been determined. The providers of Automatic Dependent Surveillance-Broadcast (ADS-B) surveillance systems and Cospas-Sarsat were potential ADT providers, but the requirements for an autonomous power source for the airborne distress tracking component would need to be taken into account as current ADS-B systems may not meet this requirement.

### ICAO OPS Control Directory

2.1 An online OPS Control Directory portal had been established at <https://www4.icao.int/opsctrl> by ICAO, to assist the implementation of the Annex 6 Aircraft Tracking standard which became applicable on 8 November 2018. It is provided to facilitate communication and exchange of information between air operators and ANSPs. It also provides a link to a map depicting ANSP surveillance where position reports are received at less than 15 minute intervals to assist air operators with meeting Aircraft Tracking requirements.

### Autonomous Distress Tracking (ADT)

2.2 There are two high-level functional objectives for an ADT system. These are to:

- a) receive timely notice of an aeroplane in a distress condition to facilitate timely SAR operations, and
- b) locate an accident site with high probability after a crash based on last known position of the aircraft.

2.3 The ADT function would be used to identify the location of an aircraft in distress with the aim of establishing, to a reasonable extent, the location of an accident site within a 6 NM radius. The accuracy of position information shall, as a minimum, meet the position accuracy requirements established for Emergency Locator Transmitters (ELTs).

2.4 It is important to note that there was not expected to be many ADT-generated notifications at the beginning of operations. From 1 January 2021 the Standards and Recommended Practices (SARPs) of ICAO Annex 6 – *Operation of Aircraft, Part I – International Commercial Air Transport – Aeroplanes* (11<sup>th</sup> Edition, July 2018):

- a) mandated that newly manufactured aircraft over 27,000 kg maximum certificated take-off mass to autonomously transmit information from which a position can be determined by the operator at least once per minute when the aircraft is in distress;

- b) recommend the same requirement be applicable for defined aircraft over 5,700 kg maximum certificated take-off mass; and
- c) require the aircraft operator to make the position information of a flight in distress available to Air Traffic Services Units (ATSUs), Rescue Coordination Centres (RCCs) and any additional entity as established by the State of the Operator.

2.5 The ADT capability requires the automatic triggering and transmission of distress data when the aircraft enters a state which, if left uncorrected, is likely to result in the crash of the aircraft. Aircraft position information will be transmitted automatically at least once every minute when the aircraft is in a distress condition. The initial transmission shall commence immediately or no later than five seconds after the detection of the activation event. Pilots may also manually activate the ADT. The ADT will only be able to be deactivated by the same mechanism that activated it.

#### Distress Tracking Data Repository (DTR)

2.6 The GADSS Concept of Operations (CONOPS) identified the need to collect, store and provide access to ADT data to notify and assist appropriate stakeholders such as ATSUs and RCCs to locate an aircraft in distress and enhance SAR and recovery capabilities. A centrally managed data repository, the DTR, is considered the preferred means to enable this.

2.7 The DTR is planned by ICAO as a secure web-based storage facility where aircraft ADT data will be communicated and stored to enable the last known position of an aircraft in distress, or potential distress, to be available to authorized stakeholders in a timely manner.

2.8 DTR stakeholders will include DTR Administrators, Contributors and Users. Users will have read-only access. RCCs, as DTR Users, will need to subscribe as an authorized user to access ADT data in the DTR. Other Users will have access to available information according to their profile. For example, Air Operators will only have access to ADT data for their aircraft and ANSPs to ADT data within their Flight Information Region (FIR) and within a planned area 80 NM outside the FIR boundary.

2.9 Subscribers will receive a notification whenever new ADT information relevant to them arrives in the DTR. Subscribers will then need to look in the DTR to access the ADT data. Subscription will be voluntary.

2.10 States will determine who will have access to the DTR data as this is potentially sensitive. For example, an airline will only have access to its own aircraft, and ATSUs will only be able to access information within, or close to their area of responsibility.

#### End of Flight Localization

2.11 SAR experts had stressed the value of the 121.5 MHz homing signal from real SAR incident experience, as the ADT system had not yet determined whether the 121.5 MHz ELT homing feature would be retained.

#### Operational Considerations

2.12 Existing Annex 11 and Annex 12 SARPs between ATSUs and RCCs remain unchanged.

2.13 The ADT system was not intended as a distress alerting system like ELTs. It was intended as a means to identify and notify a distress, or potential distress, condition.

2.14 Upon the triggering of an ADT transmission, the aircraft operator was responsible for validation of the transmission and initial checks, if possible, including attempted contact with the aircraft to confirm the situation. The aircraft operator would then notify the relevant ATSU of the results including if a false activation. The ATSU will declare an emergency phase as appropriate and notify the relevant RCC per existing Annex 11, Chapter 5, *Alerting Service*.

2.15 DTR notifications would be sent to all affected DTR subscribers. Typically an initial ADT notification would go to the aircraft operator and the ATSU and RCC associated with the aircraft's position. This was one of the reasons why the establishment of clear areas of responsibility with non-overlapping or separated SRR boundaries was a priority.

2.16 Notwithstanding the responsibility of the aircraft operator, it was highly likely that the responsible ATSU and RCC could already be aware of an in-flight emergency for that aircraft by other alerting means and have already initiated a response. Aircraft operators, ATSUs and RCCs would need to ensure their staff understand each other's roles, responsibilities and processes to ensure clear communication and coordination to avoid, where possible, conflicting effort and unnecessarily increasing workload; hence special training and awareness programmes would be necessary.

*Note – States may consider this as part of meeting the expectations of Preferred SAR Capability Specification (PSCS) 7.4 (h) of the ICAO Asia/Pacific SAR Plan, which states that all States should facilitate a programme of regular liaison visits between relevant RCCs, ATC units and airline operating centres in order to understand those organizations, facilities and capabilities.*

2.17 More detailed information on GADSS and Global Tracking Initiatives is at the following ICAO HQ webpage: <https://www.icao.int/safety/globaltracking/Pages/Homepage.aspx>.

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