

RTCA SC-229 ELT UPDATE

2019 NOAA Beacon Manufacturers Workshop

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AGENDA

1. RTCA SC-229 Update
2. EUROCAE WG-98 SC1 Update
3. ARINC AEEC Committee Update
4. FAA Update
5. EASA Update
6. ICAO Update
7. Industry View



RTCA SC-229 ELT COMMITTEE



- RTCA DO-204B Published December 2019

- Triggered in Flight ELT
 - Second Generation C/S
 - Crash Robustness
 - Harmonized with EUROCAE ED-62B

- Committee Active Monitoring Status

- Comments Received

- Crash Activation : unreferenced chart; clarify test procedure;

- ELT(DT) Loss of Communication Requirement Clarification

- Errata – wrong figure referenced,

- Options

- Errata Correction : Republish with corrections.

- Change 1 : minor changes, public comment on changes only

- Revision : Change in requirements; Public Comment on complete document

- Change of Terms of Reference

- Change to ACTIVE status

- Address Comments

- Limited to Change Option – No change in scope (*ie* requirements)

- Schedule

- August 2019: Plenary to review comments

- September 2019: PMC Approved new ToR

- Fall 2019: Resolve Comments, webex

- December 2019: Plenary @ EUROCAE HQ St Denis, Paris

- 1Q FRAC

- 3Q Final Plenary

- Sept 020 : RTCA PMC Approval

- Dec 2020 : Publication Change 1



EUROCAE WG-98 SC1 RLS TRIGGER



- Special Committee 1 (SC1)

The subgroup will develop a MASPS for RLS
MASPS = Minimum Aviation System
Performance Specification
Aircraft ELT Return Link Service

- Galileo Return Link Service

Type 1 – Auto Acknowledge
Type 2 – Manual Ack, messaging.
Command Services: Remote
Activation/Deactivation; Beacon Parameters

- Remote activation an Inflight ELT

Scenario 1: Confirmed Hi jacking.
Scenario 2: Confirmed non-cooperative crew
(crew incapacitation, suicide).
Scenario 3: Confirmed high risk of coming
in-flight destruction of the aircraft (in-flight fire,
Bomb warning).
Scenario 4: Unexpected crew/aircraft behavior
for unexplained reason(s):
ATSU decision making.

- Status

Reviewing MASPS Draft
Cyber Security Issues
Operational Scenarios

- Schedule

Sept 30-Oct 4: Plenary Orolia, Guidel, FR
Dec 18-20: Plenary EUROCAE, St Denis, FR
2020 : MASPS Publication
2021: Operational Validation – Operators, Galileo,
and ATSU
2022: 1st deployment with a few select airlines
2023: Full deployment for all airlines.

- **ARINC Project Initiation Process**
 1. Document the end-to-end system requirements that are being levied by ICAO /CAA's..
 2. Develop candidate architectures that would meet these system-level requirements
 3. Choose an architecture(s) in which to develop detailed equipment and aircraft installation requirements, as well as ground system requirements

- **Autonomous Distress Tracking (ADT)**
 - ARINC Report 680
 - Published May 2019
 - ELT(DT), Iridium, Inmarsat, and ADS-B

- **Timely Recovery of Flight Data (TRFD)**
 - ARINC Report 681
 - Auto Deployable Flight Data Recorder with ELT (ADFDR)
 - Flight Data Streaming : Continuous or event triggered.
 - Active Editing of Report
 - Publish 3Q 2020
 - Next Mtg @ NTSB November 2019.

FAA



- FAA TSO-C126c issued March 2019
- FAA Advisory Circular AC 91-44B Install Procedures for ELTs
 - Standard AC format is to provide an acceptable means to show compliance with a CFR 92.207
 - Extensive information related to ELT systems to aid the industry and hopefully reduce the number of false alarms and systems not working when needed.
 - Input from NOAA Aviation Team of Experts.
 - AC Sections include: Background, ELT System Overview, Design and Manufacturing Considerations, Purchasing considerations, Installation Considerations, Operational Considerations, Maintenance Considerations, Storage and Disposal Considerations, and Documents and Acronyms
- House Resolution 302, Section 305
 - Assess data access and retrieval systems of Part 121, ETOPS capable aircraft (Commercial Aircraft)
 - Examine various methods for improving detection and retrieval of flight data, including ULDs, battery life for ULDs and ULBs, ADFR, ELTs, triggered transmission of Flt Data and other satellite-based solutions, Distress Tracking, and protections against disabling flight recorder systems

- EASA ETSO-C126C to be issued end of 2019

- CAT.GEN.MPA.210 Location of Aircraft in Distress

“The following aeroplanes shall be equipped with robust and automatic means to accurately determine, following an accident where the aeroplane is severely damaged, the location of the point of end of flight:

MCTOM >27000kg, 19 people
MCTOM > 45000kg

New Aircraft CofA Mandate January 1, 2021

- AMC/GM – Acceptable Means of Compliance and Guidance Material

Notice of Public Announcement (NPA) Draft Issued in June 2019

Purpose: to establish a simplified certification basis that will permit EASA to issue airworthiness approvals of aircraft type (or changes to aircraft types) intending to comply with CAT.GEN.MPA.210.

- Just an ED-62B ELT(DT) is **insufficient**

ELT(DT) should be crash survivable with 121.5 MHz homing signal
or the ELT(AF) should remain installed
“.....locates the point of end of flight with a two **dimensional location accuracy better than or equal to 200 m...**”

- ELT(DT) Concerns

For an ELT(DT) with crash survivability (C), a temperature classification of **Class 0 or 1** is stated.

Alternative compliance methods include an ELT(DT) (without crash survivability and Class 0, 1, or 2) and a conventional ELT(AF)(AP) at **Class 0 or 1**.

Applying environmental and robustness standards developed for a **Flight Data Recorder (ED-112)** if the system needs to transmit in order to meet the 200m accuracy. Unclear wording and intent.

- RLS Remote Activation:

...misses a concept of operation for remote activation accepted by the aviation and SAR communities, which would show clear safety or survivability benefits.

EASA



Commission Implementing Regulation (EU)
2019/1384 postponed the applicability date of
CAT.GEN.MPA.210 to 1 January 2023:

ICAO ELT UPDATE



- ICAO Annex 6 Standards will change in 2021 to require
 - 2 ELT's, one of them automatic
 - 1 ADT System and one ELT (not necessarily automatic)
- ICAO is pushing for
 - "...a means to accurately determine the location of the end of flight.." better than 6nm
 - However, it must be ".....performance-based approach to SARPs development.." not technology specific.
- This essentially opens up the possibility of not having 121.5MH homing signal.
- There is, however, strong support in the JWG for retaining a 121.5 MHz homing signal.
- Paper: Definition of the problem caused by non-carriage of an automatic ELT
 - This was a supportive position to amend Annex 6 to include at least on Automatic ELT
 - Proposes to set up a correspondence-based group within JWG-SAR to consider issues.
- Paper: Retention of homing capability upon implementation of the Global Aeronautical Distress and Safety System (GADSS) functions
 - GADSS may result in possible removal of 121.5MHz homing
 - Outlines the benefits of 121.5MHz Homing
 - The paper outlines reasons to retain 121.5 MHz or another globally accepted homing capability.
- RLS :The JWG concluded that it still did not support the introduction of any of the suggested RLS type-2 functionalities. In this context, the JWG agreed that, unless ICAO or IMO would instruct otherwise, it would not consider type-2 related matters at future meetings.
- ICAO 40th Assembly meeting – Late Sept 2019
 - Russia: Explore Delay in GADSS ADT until 2023 concerns about the realism of current ADT implementation plans

INDUSTRY VIEW

- **When Can an ELT(DT) be certified on an aircraft?**
 - TSO-C126c Ready
 -Requires Cospas Sarsat full TAC (not test protocol)
- **When Can a SGB ELT(DT) be certified on an aircraft?**
 - TSO-C126c Ready
 -Requires Cospas Sarsat full TAC (not test protocol)
- **List of Dependencies**
 - T.018, T.021
 - Lab Approvals (2 Available to US & EU Mfgs)
 - LUT: MEOSAR Upgrade; ELT(DT) Upgrade; SGB Upgrade
 - Data Distribution Network (SGB)
 - MCC (SGB) – USA & FR as of today
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BOMBARDIER



COMMERCIAL AIRCRAFT CORPORATION OF CHINA
(COMAC)

Need for achievable schedules and milestones



IT DOESN'T GET ANY BETTER THAN THIS!!

- A NOAA Weather Buoy
- An ACR EPIRB
- The Cospas-Sarsat System
- NOAA MCC
- A USCG Rescue

