RTCA SC-229 ELT UPDATE
2020 NOAA Beacon Manufacturers Workshop

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AGENDA

1. RTCA SC-229 Update
2. RTCA SC-235 Update
3. EUROCAE WG-98 SC1 Update
4. ARINC AEEC Committee Update
5. FAA Update
6. EASA Update
7. ICAO Update
8. Industry View
RTCA SC-229 ELT COMMITTEE

• RTCA DO-204B - MINIMUM OPERATIONAL PERFORMANCE STANDARD FOR AIRCRAFT EMERGENCY LOCATOR TRANSMITTERS 406 MHz

• Published December 2019
  Triggered in Flight ELT
  Second Generation C/S
  Crash Robustness
  Harmonized with EUROCAE ED-62B

• Committee Active Monitoring Status

• Comments Received
  Errata
  Clarifications
  References

• Committee Back to Active Status

• Schedule
  Fall 2019: Changes Reviewed
  December 2019: Plenary @ EUROCAE
  1Q 2020 FRAC
  2Q Virtual Final Plenary
  June 2020: Virtual RTCA PMC Approval

• DO-204B Change 1
  Published June 11, 2020

• Committee back to Active Monitoring Status
RTCA SC-235 NON RECHARGEABLE LITHIUM BATTERY COMMITTEE

- Update RTCA/DO-227 for Lithium battery to incorporate the latest understanding of lithium battery technology, including battery testing and installation considerations.

- RTCA DO-227B - MINIMUM OPERATIONAL PERFORMANCE STANDARD FOR NON-RECHARGEABLE LITHIUM BATTERIES
  - Published September 2017

- Committee in Active Monitoring Status
  - Oct 8, 2020: Plenary Discussion of Changes
    Inputs on DO-227A
    Possible Course of Action
    Possible TOR Revisions

- Committee Non Active Status

- 2020 Comments Received from EASA
  - ETSO-C142a Deviations
  - Shock Vibe Thermal Runaway
  - Sequencing
  - Modification of unit under test (TR)
  - Inconsistency of figures
  - Cell Discharge Tolerances
EUROCAE WG-98 SC1 RLS TRIGGER

• Special Committee 1 (SC1)
  ED-277 - MINIMUM AVIATION SYSTEM PERFORMANCE STANDARD FOR AIRCRAFT EMERGENCY LOCATOR TRANSMITTER RETURN LINK SERVICE

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

• Status
  Dec 2019 Live Plenary  Paris
  April 2020: Virtual Plenary
  June 2020: Start Open Consultation

• Remaining Schedule
  2021: EUROCAE Council Approval
  2021: MASPS Publication ED-277
  202?: Operational Validation – Operators, Galileo, and ATSU
  202?: 1st deployment with a few select airlines
  202?: 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
  • Possibly restart the committee 2021 for a Report Update

• 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 2Q 2021
FAA

• FAA TSO-C126c issued March 2019
  • In effect September 2020
  • Change 1 implicit since it was for errata and clarifications.

• 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 91.207
  • 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
  • Expected 2021

• 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 (37.5Khz), LF ULD (8.8KHz), battery life for ULDs and ULBs, ADFR, ELTs, trigged transmission of Flt Data and other satellite-based solutions, Distress Tracking, and protections against disabling flight recorder systems
EASA

EASA ETSO-C126C was issued 3Q 2020

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, 2023

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.

ELT(DT) Concerns

Nuisance Alert Considered a MAJOR failure classification: DESIGN ASSURANCE LEVEL C.

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.

2Q2020:
Open Solicitation of Comments Extended for Covid

Today:
Only ~800 comments left for disposition

ACR ARTEX
THE SCIENCE OF SURVIVAL
ICAO ELT / GADSS UPDATE

- Amendment 40-A to Annex 6 — Operation of Aircraft, Part I — 2 March 2016, with an applicability date of 10 November 2016. Included in this amendment were provisions (paragraph 6.18) related to location of an aeroplane in distress, requiring specified aeroplanes, as of 1 January 2021, to autonomously transmit information from which a position can be determined, when in distress.

- ICAO consulted States and industry to determine their readiness to apply these provisions, in State Letter AN 11/1.1.29 – 19/78. This consultation resulted in the ICAO Council extending the future equipage date in the Standards to 1 January 2023.

- ICAO opened a tender process for development and maintenance of the location of an aircraft in distress repository (LADR). Snowflake Software (UK) was awarded the tender for a web-based solution to ensure that position information of aircraft in distress can be made available to the appropriate organizations.

- PANS-OPS include air operator provisions supporting the implementation of the GADSS concept by establishing requirements for operators to develop procedures to:
  - monitor the aircraft tracking systems in use for their aircraft;
  - respond to any information received from such tracking systems in an appropriate manner; and
  - require that information received from an ADT system be forwarded to the LADR.
INDUSTRY VIEW

• **When Can a FGB ELT(DT) be certified on an aircraft?**
  • TSO-C126c Issued
  • ….Requires Cospas Sarsat full TAC
    • Not test protocol
    • Not geographically restricted

• **When Can a SGB ELT(DT) be certified on an aircraft?**
  • TSO-C126c Issued
  • ….Requires Cospas Sarsat full TAC

• **C/S JC-34**
  • Paper 8/03 Updates to Beacon Implementation Plan
  • SGB Beacons on the Market – Sometime in 2022
  • Previous Target Date Sept 2018-2019
  • ELT(DT) - At least 6 papers on ELT(DT) proposing changes.

There is still a Need for Achievable Schedules and Milestones !!
THANK YOU!