

WG-98 SC-229
“Aircraft Emergency
Locator Transmitters
(ELTs)”

SC-229/ WG-98 Update
2015 Beacon Manufacturer’s
Workshop

Annapolis, MD, USA
May 8, 2015



SC-229 Formation



U.S. Department
of Transportation
**Federal Aviation
Administration**

NOV 18 2013

Ms. Margaret Jenny
President
RTCA, Inc.
1150 18th St, NW, Suite 910
Washington, DC 20036

Dear Ms. Jenny:

Emergency Locator Transmitters (ELTs) are a critical tool for search and rescue first responders and are credited with saving numerous lives over the past four decades. RTCA's DO-204A, "Minimum Operational Performance Standards for 406 MHz Emergency Locator Transmitters" is the current ELT standard. However, developments in emergency locator technology, as well as lessons learned with recent aviation accidents, provide an opportunity to update the existing standards.

The Federal Aviation Administration requests RTCA form a committee to update DO-204A to align with upcoming second generation Cospas-Sarsat ELT enhancements, to address air safety investigation recommendations, to add GPS requirements for ELT equipment, and to address installation issues with flexible mounting designs. Details for each of these initiatives are attached in a proposed terms of reference. This special committee should harmonize with planned complimentary European Organization for Civil Aviation Equipment efforts. I request your prompt consideration of this request and look forward to your favorable response. Thank you for your consideration in this matter.

Sincerely,


Margaret Gilligan
Associate Administrator for Aviation Safety

Enclosure

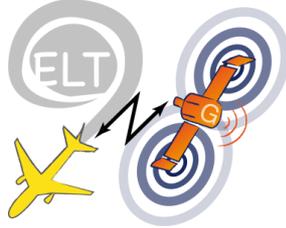
800 Independence Ave., SW
Washington, DC 20531

- ✓ **SCOPE and COORDINATION:**
 - The committee should update DO-204A Standard to address the latest design, performance, installation and operational issues for 406 MHz emergency beacons.
 - These standards should be useful to users, designers, manufacturers, and installers concerning the design and approval of these emergency beacons and their installations on aircraft and will help ensure a more standardized approach in these systems and installations approval.
- ✓ **ENVISIONED USE OF DELIVERABLE(S)**
 - The updated MOPS will become the foundation for a new revision to TSO-C126x.



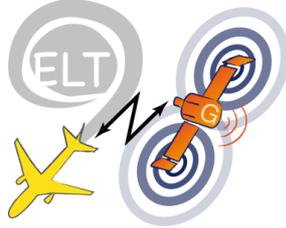
SC-229/WG-98 Meetings

- ✓ **WG-98 Meeting 1: Paris** **27 & 28 November 2013**
- ✓ **Joint meeting 1: Washington** **10 to 12 March 2014**
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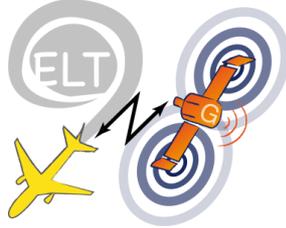
Plenary #4

- ✓ **The 4th Plenary Session of the SC-229/WG-98 on 406MHz ELTs was held at the Airbus facility in Hamburg, Germany April 21-23.**
 - Plenary Meeting was chaired by Tom Pack , ACR Electronics, Inc
 - The Working Groups are:
 - WG-1 : Triggered Flight was chaired by Philippe Plantin de Hugues, BEA, Chris Parfitt FAA
 - WG-2 : Crash Survivability chaired by Chad Stimson of NASA
 - WG-3 : 2nd Gen Homing reported on by Ed Thiedeman, USCG
 - WG-4 GNSS, RLS, power, etc to be chaired by Chris Hoffman, ACR
 - WG-5: DO-204 Standard Development reported on by Tom Pack, ACR



WG-1 Triggered Flight

- ✓ Finalized their work to provide specific input for the draft document for In-Flight Triggering criteria.
- ✓ WG-1 made good progress on the aircraft scenarios. There was plenty of spirited discussion.
- ✓ The key milestone to publish the MASPS is early 2016 to enable them to be referenced in the next issue of ICAO Annex 6 (November 2016).



MASPS

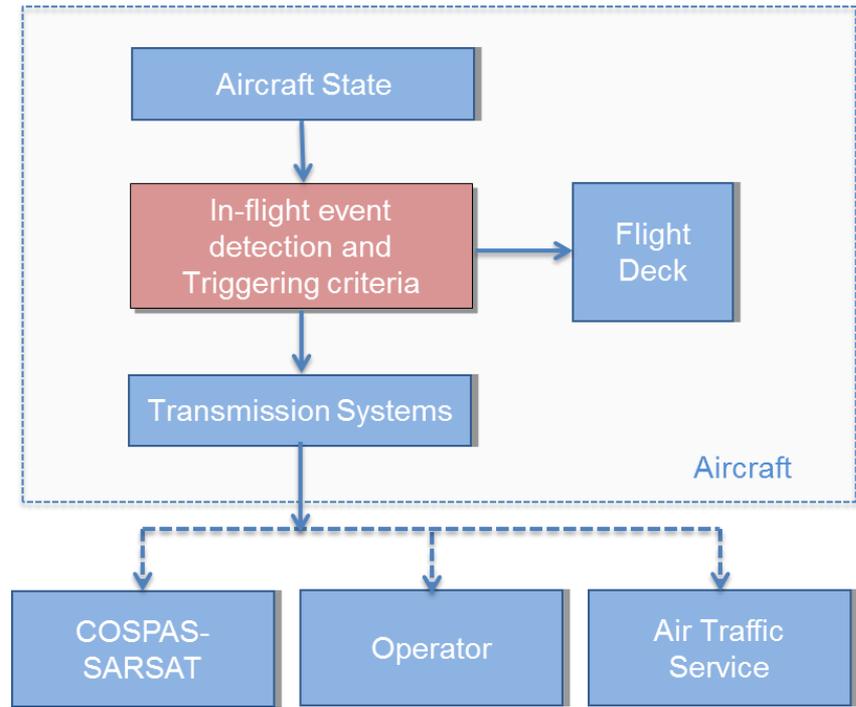
Minimum Aviation System Performance Specification

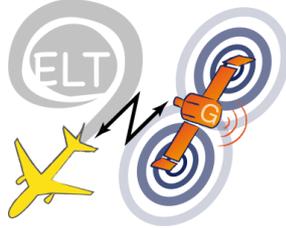
✓ Criteria

- Unusual Altitude
- Unusual Speed: low, high, vert.
- Excessive Accelerations
- Control Command Inputs
- Ground Proximity
- Excessive Pitch , Roll
- Stall

✓ Guidance

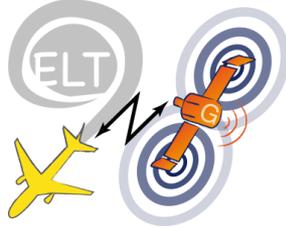
- Basic Limits
- Persistence Time
- Cancellation
- Test Procedures





WG-2 Crash Safety

- ✓ **WG-2, led by Chad Stimson, focused on crash survivability and reliability of ELTs in aviation accidents.**
- ✓ **They developed a draft of crash safety and fire recommendations and the next step is to work on the vibration recommendations.**
- ✓ **All the data and requirements should be available by the end of 2015 to be incorporated in the draft revision of DO-204A/ED-62A.**
- ✓ **WG-2 will have a Working Group session in July 29-30, joint with the real crash tests (GA aircraft with 12 onboard ELTs) scheduled for July 29 at NASA Langley Research Center.**
- ✓ **The needs to have more support from General Aviation and Helicopter manufacturers.**
- ✓ **The group also discussed the need to leverage as much as possible the DO-160G for environmental testing and understand the worst case of DO-160G category for ELTs.**
 - **RTCA SC-125 was recently started to update the DO-160G document**



WG-x

✓ **WG-3: SGB Homing**

- Ed Thiedeman provided an update of their work into second-generation homing activities and active participation in the Cospas Sarsat TG-1.
- Ed presented the current work activities planned on the 121.5 MHz Test activities.

✓ **WG-4: GNSS, RLS, etc**

- No Activity prior to Plenary #4
- Chris Hoffman graciously volunteers to kick start this effort.

✓ **WG-5 Standards**

- Provided an overview of the milestones 2015-2016 for the Revision to DO-204A and ED-62A.
- There is a need to harmonize the DO-204 and ED-62A with the objective to have the exact same revision published on both sides. The prevailing template is the ED-62A.
- The scope of the MOPS is to cover ELTs (AF, AP, AD and S) for 1st and 2nd Gen ELTs
- Discussion regarding “In Flight Triggering” environment: possibly @ altitude, -55C, Rapid decompression, violent dynamics.



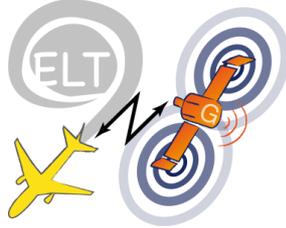
ICAO

- ✓ **ICAO made a presentation giving a preview of a Letter to the States regarding Global Aeronautical Distress Safety System (GADSS).**
- ✓ **The letter will outline the requirements for implementing GADSS normal and distress tracking with a mandate targeted at 2021**
 - The GADSS implementation is technology agnostic. Any combination of technologies can be implemented by the Operators (airlines) and ATS (Air Traffic Services).
 - It was specifically mentioned that the GADSS tracking device will be able to take the place of one of the two ELTs currently required by ICAO.
 - A 2nd Generation beacon can be used to meet the GADSS mandate, and a 1st or 2nd Gen beacon can be used to fulfill the carriage requirements.
 - ICAO Workshop on Normal Tracking will be held May 8-9 in Montreal.



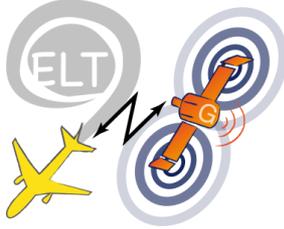
ELT Regulatory Timing

- ✓ **There is an action item to consolidate the C/S MEOSAR program schedule with the work plans of SC-229 and the new TSO-c126c and TSO-142b issuances.**
 - 3Q 2015: SC-125 on MOPS DO-227 on primary Lithium Batteries announced.
 - 4Q 2016: SC-229 completes DO-204b and receives final reviews.
 - 1Q 2017: RTCA approves the DO-204b and publishes
 - 2Q 2017: TSO-c126c is expected to be issued by the FAA
 - 4Q 2018: Estimate of issuance of TSO-142b with DO-227b
 - 1Q 2019: 2nd Gen Beacons expected to be certified.
 - 2020: ADS-B OUT Mandate
 - 2021: ICAO GADSS Mandate



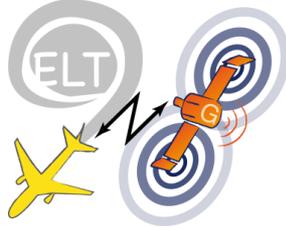
ELT Regulatory

- 1st Generation ELTs are expected to still be allowed to be certified under the new TSO126c, however, it is anticipated that they will have to meet the new survivability requirements. The operational scenario is on the ground, ie a crash situation.
- 2nd Generation ELTs will not only meet the C/S SGB requirements T.018, but will also be capable of supporting in flight automatic triggering. There was a pertinent discussion regarding maintaining beacon performance under abnormal flight conditions. Such conditions could include ambient flight temperature (-55C), thermal shock, pressure at altitude (38000ft), rapid decompression, high dynamic loads and shocks.



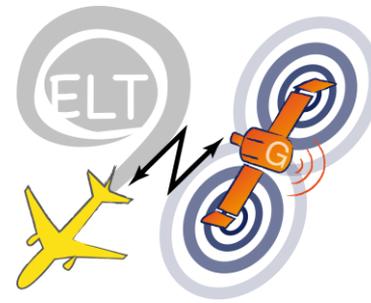
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- ✓ **Joint meeting 5: Washington** **1 to 3 September 2015**
- ✓ **Joint meeting 6: Paris** **15 to 17 December 2015**
- ✓ **Joint meeting 7: US** **April 2016**
- ✓ **Joint meeting 8: Europe** **September 2016**
- ✓ **Joint meeting 9: US** **December 2016**



SC-229 Contact Information

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Thank you
for your attention