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

SC-229/ WG-98 Update

2016 Beacon Manufacturer’s Workshop

Clearwater Beach, FL, USA
May 20, 2016
Recent Missing Aircraft

AF 447 5/2009
MH370 3/2014
MH17 7/2014
QZ 8501 12/2014
4U9525 3/2015
KGL9268 10/2015
MS804 5/2016
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.
WG-98 / SC-229 Meetings

- WG-98 Meeting 1: Paris 27 & 28 November 2013
- Joint meeting 1: Washington 10 to 12 March 2014
- Joint meeting 2: Toulouse 3 to 5 September 2014
- Joint meeting 3: Washington 13 to 15 January 2015
- Joint meeting 4: Hamburg 21 to 23 April 2015
- Joint meeting 5: Washington 1 to 3 September 2015
- Joint meeting 6: Paris 15 to 17 December 2015
- Joint meeting 7: US 16 to 18 March 2016
- Joint meeting 8: Lorient 6 to 8 September 2016
- Joint meeting 9: US 13 to 15 December 2016
The 7th Plenary Session of the SC-229/WG-98 on 406MHz ELTs was held at RTCA HQ Washington, DC  March 16-18, 2016

- 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
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
New EUROCAE publications March 11, 2016: We are pleased to announce the publication of the following EUROCAE documents:

ED-237 "MASPS for In-Flight Event Detection and Triggering Criteria"

- This document defines the minimum specification to be met for all aircraft required to carry a system which can be used to detect an in-flight event and to trigger the transmission of sufficient information for the purpose of locating an accident site. It specifies characteristics that should be useful as guidance material to regulatory authorities, designers, installers, manufacturers, service providers and users of systems intended for operation.
The Working Group 2 has made good progress in studying crash safety data, proposing experiments, collect data on simulated crashes,

Conducted three crash experiments with Cessna 172 airframes at NASA Langley.

This data is being analyzed and will form the basis for requirements and specifications.

This work should finish up by September 2016 and will be incorporated into the standard. The chair of WG2 has already proposed text to be inserted on the DO-204A/ED62A.

Considering Additional Fire Requirements

Taking on the Installation Requirements
WG-2 Crash Safety

Crash Tests of Three Cessna 172 Aircraft at NASA Langley Research Center’s Landing and Impact Research Facility

http://www.nasa.gov/langley/retired-aviator-on-hand-to-witness-drop-test-of-his-old-airplane


http://www.nasa.gov/langley/crash-test-assesses-plane-emergency-locator-transmitters
WG-2 Crash Safety

- LandIR main swing cables (left and right)
- Spreader bar
- LandIR pullback cable
- Rear pitch restraint cables
- Airplane main over-wing swing cables
- Front pitch restraint cables
- Airplane main pullback straps
WG-2 Crash Safety

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

2016 NOAA SARSAT Beacon Mfg Workshop
WG-2 Crash Safety
WG-3: SGB Homing
- Homing Trials
- Intelligent Transmit Scheduling
- TG-1/2016 Update

WG-4: GNSS, Power, RLS, etc
- SC-159 GPS Presentation, Dr. Hegarty
- SC-235 DO-235 Lithium Updates

WG-5 Standards
- Plenary work on combining DO-204a and ED-62a
- WG Telecons held bi-weekly converging on one document
- Next Steps to separate requirements from testing
- Add new requirements in
Impact of Dependent Organizations

- ICAO Annex 6 SARPs on Autonomous Distress Tracking (ADT) bring in question the role of the ELT.
Impact of Dependent Organizations

✓ The Cospas-Sarsat Program is behind schedule
  - MEOSAR deployment
  - MEOLUT deployment
  - Second Generation Beacon (SGB) specifications

✓ Cospas-Sarsat tasked a CWG on Triggered Flight (Oct 2015)

✓ Cospas-Sarsat is considering the inclusion of a new type of ELT to meet the ICAO ADT requirements,
  - 1st Generation Beacon – Encoded location, TX schedule
  - 2nd Generation Beacon – Encoded location
FAA Special Conditions on lithium batteries and the inclusion of the new DO-227 document which will be published by SC-235.

July 12, 2013
The decision was made by the committee chairs to decouple the work with Cospas-Sarsat and to concentrate finishing the merging of the standards with the inputs we have to date.

This might mean that Cospas-Sarsat Second Generations Beacons specifications are not referenced in the next publication of the DO-204B and ED-62B.

This does NOT mean that the C/S and ICAO activities on will be ignored. These activities are highly relevant to the US position on.

The committee leadership will keep the PMC up to date with the progress in these areas. If appropriate, the ToR will be revised.

The Current Work Plan is to complete the following:
- Finish Working Group Activities (Crash, Homing, GNSS, Power)
- Merging of documents and reconciling differences
- The addition of new requirements
- The reorganization of the structure to better segregate requirements from verification means.
- Draft reviews at Plenary
- Submission to FRAC and resolution of comments to prepare final draft.

It is estimated that this work will take 9-12 months to complete and enter into FRAC. This would put the planned FRAC submission in the Summer of 2017 and publication towards end 2017.
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