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

SC-229/ WG-98 Update
2018 Beacon Manufacturer’s Workshop

Palm Beach Gardens, FL, USA
September 28, 2018
LG. in Response to AF447
- Crashed June 1, 2009
- FDR Recovered April 29, 2011
- BEA Recommendations
  - ULB Duration and Frequency
  - Transmission of Position
  - Trigger ELT prior to crash

EUROCAE Terms of Reference
- Revised ED-62A MOPS
- Crash Worthiness
- Trigger in Flight – MASPS
- SGB Requirements
- 1st Meeting: Nov 27-28 2013

Joint Committee with RTCA
- FAA Signed off on ToR - Nov 2013
- RTCA SC-229 PMC Approved - Dec 2013
WG-98 / SC-229 Joint Meetings

- **WG-98 1: Paris** 27 & 28 November 2013
- **1: Washington** 10 to 12 March 2014
- **2: Toulouse** 3 to 5 September 2014
- **3: Washington** 13 to 15 January 2015
- **4: Hamburg** 21 to 23 April 2015
- **5: Washington** 1 to 3 September 2015
- **6: Paris** 15 to 17 December 2015
- **7: Washington** 16 to 18 March 2016
- **8: Lorient** 6 to 9 September 2016
- **9: Fort Lauderdale** 13 to 16 December 2016
- **10: Cologne** 14 to 17 March 2017
- **11: Washington** 6 to 9 June 2017
- **12: Paris** 5 to 8 September 2017
- **13: Washington** 12 to 15 December 2017
- **14: Toulouse** 13 to 16 March 2018
- **15: Washington** 18 to 22 June 2018
- **16: Paris** 28 to 31 August 2018
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
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-3: SGB Homing
- Homing Trials
- Intelligent Transmit Scheduling

WG-4: GNSS, Power, RLS, etc
- SC-159 GPS Presentation, Dr. Hegarty
- SC-235 DO-2227 Lithium Updates
- WG-98 SC1 on RLS

WG-5 Standards (Plenary)
- Combine DO-204a and ED-62a
- Draft new requirements
- Address Installation
- Pair Requirements with Methods of Compliance
- Edit to new drafting standards
The Cospas-Sarsat Program Dependencies
- MEOSAR deployment
- MEOLUT deployment
- Second Generation Beacon (SGB) specifications

EUROCAE JC-29 Paper
- Explore Triggered in Flight ELT Transmission Requirements
- ELT(DT) CWG on Triggered Flight (Initiated Oct 2015)

Creation of a new type ELT(DT) to meet the ICAO ADT requirements,
- 1st Generation Beacon – Encoded location, TX schedule, Msg Content
- 2nd Generation Beacon – Encoded location, “”
ICAO GADSS
Global Aircraft Distress Safety System

✓ ICAO Annex 6 SARPs on Autonomous Distress Tracking (ADT)

March 8, 2014
Lithium Batteries
July 12, 2013

✓ SC-229 Inter-Committee Request for Lithium Battery MOPS update.
✓ SC-235 Launched & completed the DO-227a MOPS
✓ FAA Special Conditions on lithium batteries issued
The Way We Were

BMW 2016 SC-229 MOPS Status – May 2016

“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.”
The Way Forward

✔️ 4 June: the draft robust version provided to the group
✔️ 18-22 June: plenary session at RTCA Headquarters (5 days)
✔️ 25 June: the draft for publication provided to Anna
✔️ 1 July: FRAC/OC process started for 45 days (end on 15 August)
✔️ 28 to 31 August: Plenary session at EUROCAE Headquarters (4 days)
✔️ 5 September: File transmitted to Anna and Rebecca for publication
✔️ 14 December: Review by RTCA PMC (document need to be provided no later than beginning of November to Rebecca)
✔️ Review by EUROCAE Council aligned with RTCA dates
✔️ Publication of both ED-62B and DO-204B before end of December 2018
Accomplishments

✓ Minimum Operating Performance Specifications for ELTs (MOPS DO-204B)
  ▪ Rewritten, re-organized, and harmonized with the European standards
  ▪ Realistic crash safety and impact requirements
  ▪ Incorporates of GNSS standards in the MOPS
  ▪ Incorporates Robust installation guidance
  ▪ Includes the requirements for Second Generation ELTs
  ▪ The creation and specification of a new type of ELT, the ELT(DT)

✓ Minimum Aviation System Performance Criteria (MASPS ED-237)
  ▪ Incorporated in the ICAO Annex 6 and
  ▪ Integral to the GADSS Concept of Operations
  ▪ Referenced by the ARINC AEEC Industry Group – Global Aircraft Tracking

✓ Adoption into US FARS and EU Rules
  ▪ TSO-c126C
  ▪ ETSO-c126B

✓ SC-229
  ▪ Will go into “hiatus” for at least a year.
  ▪ In anticipation of future revisions (GADSS, RLS, ??)
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“...and just like that, 5 years of my life had passed!”