

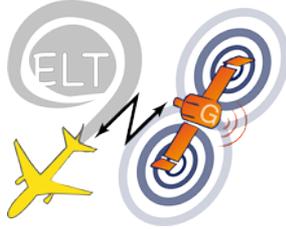
**WG-98 SC-229**  
**"Aircraft Emergency**  
**Locator Transmitters**  
**(ELTs)"**

**SC-229/ WG-98 Update**

**2014 Beacon Manufacturer's  
Workshop**

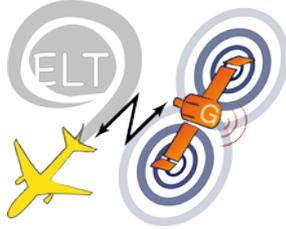
**Annapolis, MD, USA**

**May 1, 2014**



# Outline

- ✓ SC-229 Formation
- ✓ SC-229 Scope and Terms of Reference
- ✓ Work Structure
- ✓ Work Plan



# 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.

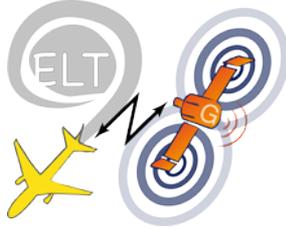
Sincerely,

  
Margaret Gulligan  
Associate Administrator for Aviation Safety

Enclosure

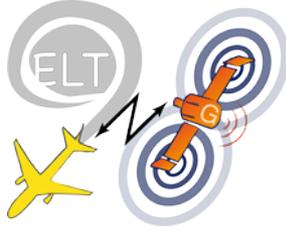
800 Independence Ave., SW  
Washington, DC 20531

- ✓ **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.



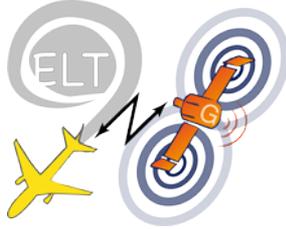
## SC-229 / WG-98

- ✓ May 2013: WG-98 ToR Approved by EUROCAE TAC/Council
- ✓ Nov 2013: WG-98 1<sup>st</sup> meeting in Paris
- ✓ Nov 2013: FAA requests RTCA to form a committee
- ✓ Dec 2013: RTCA PMC Approved SC-229 and the ToR
- ✓ Jan 2014: RTCA Announces SC-229 Formation
- ✓ Feb 2014: SC-229 Meeting announced in Federal Register
- ✓ Mar 2014: 1<sup>st</sup> Joint Meeting of SC-229 / WG-98



## SC-229 Contact Information

- ✓ Group Chair (SC-229)  
Thomas Pack  
ACR Electronics  
[thomas.pack@acrartex.com](mailto:thomas.pack@acrartex.com)
- ✓ Group Chair (WG-98)  
Philippe Plantin de Hugues  
Bureau d'Enquêtes et d'Analyses  
(BEA)  
[philippe.plantindehugues@bea-fr.org](mailto:philippe.plantindehugues@bea-fr.org)
- ✓ Secretary  
Stuart Taylor  
HR Smith Group of Companies  
[stuart@hrsmith.biz](mailto:stuart@hrsmith.biz)
- ✓ Manager  
Ms. Sophie Bousquet  
RTCA Program Director  
[sbousquet@rtca.org](mailto:sbousquet@rtca.org)
- ✓ Designated Federal Official  
Charisse Green  
Federal Aviation Administration  
[Charisse.Green@faa.gov](mailto:Charisse.Green@faa.gov)



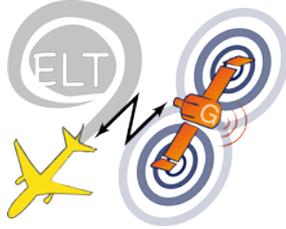
# ToR Scope and Coordination

## RTCA SC-229

- ✓ Update DO-204 standards to address the latest design, performance, installation and operational issues for 406 MHz emergency beacons.
- ✓ The updated MOPS will become the foundation for a new revision to TSO- C126x
- ✓ RTCA SC-229 plans to work jointly with EUROCAE WG-98, to ensure harmonization, as practical, is maintained between the RTCA and EUROCAE ELT documents.

## EUROCAE WG-98

- ✓ Draft amendment to ED-62A MOPS Specification for Aircraft ELTs
- ✓ Technical Report on the practicability on the use of the amendments with respect to their effectiveness.
- ✓ A MASPS covering the function that would trigger the ELT transmission, defining some high level concepts and the typical functional interface requirements between the ELT and the emergency triggering element.
- ✓ ...it is proposed the work of the working group be undertaken as a joint activity with RTCA.



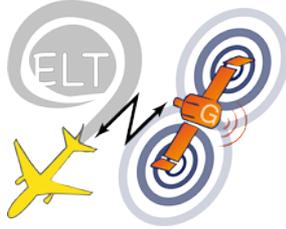
# Specific Guidance

## RTCA SC-229

- ✓ Invite Participation
- ✓ Review ToR
- ✓ Review C/S SGB for Aviation
  - GNSS
  - Antenna Cabling
  - In Flight Activation
- ✓ Develop C/S Proposals Papers
- ✓ Crash Safety
  - Mounting Requirement and Test
- ✓ 121.5 Homing
  - Evaluate Operational Requirement

## EUROCAE WG-98

- ✓ In Flight Activation
  - Create a new class of automatically activated next generation ELTs prior to impact,
  - Definition of ELT technical requirements
  - Define the criteria for in-flight activation,
  - Define the criteria for termination of an ELT triggered in flight
  - Define the frequency of transmission of data and applicable parameters.

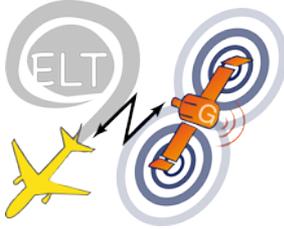


## A Few Observations

### ✓ Initially....

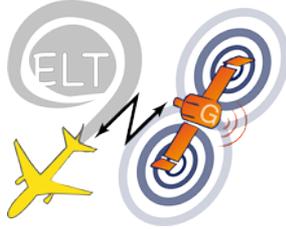
- SC-229 ToR had work items that were not in the WG-98 ToR
  - The FAA had not requested the creation of a MASPS
  - The evolution of the C/S Second Generation Beacon standards will gate certain SC-229/WG-98 activities
  - The evolution and deployment MEOSAR system will affect the adoption of DO-204b into TSO-c126x
  - Some activities already exist with other organizations including C/S and NASA. Lack of clarity of 1<sup>st</sup> vs 2<sup>nd</sup> Generation Beacon applicability
- ✓ **SC-229 and WG-48 ToR have been aligned during the first meeting in Washington DC and should be submitted at the next EUROCAE TAC in May and RTCA PMC in June for Approval**





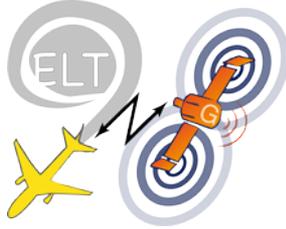
# Structure and Work Plan

- ✓ It is proposed to create working groups to address the committee deliverables.
  - Standards Documentation
  - Flight Activation
  - GNSS / RLS / Power Sources
  - Crash Survivability
  - 2<sup>nd</sup> Generation Homing
- ✓ It is proposed that the working groups meet as often as necessary to meet plan commitments.
- ✓ Some WG will have significant coordination with C/S WG's
- ✓ SC-229/WG-98 coordination meetings should occur monthly to share and consolidate input, and track progress.



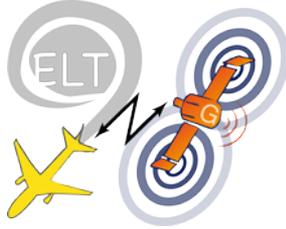
# Standards Document Work Group

- ✓ **Objective:** Harmonize the DO-204a ED-62a
- ✓ **Leader:** Thomas J. Pack and Philippe Plantin de Hugues
- ✓ **Activities**
  - Background: Review and understand current document and structure.
  - Create project plan for work group coordination and timeline deliverables..
  - Coordinate and agree upon on document structure and flow
  - Work with RTCA and EUROCAE on draft structure
  - Edit existing specification to update, correct, clarify, and possible change requirements.
  - Coordinate with other work groups to align the deliverables.
  - Coordinate with C/S to incorporate applicable SGB standards not specifically addressed in WG's
  - Maintain Drafts DO-204b and ED-62b and revision control
  - Review Activity at meetings and conference calls.
- ✓ **Deliverables**
  - Draft DO-204b and ED-62b
  - Consolidate Input to C/S SGB Specifications



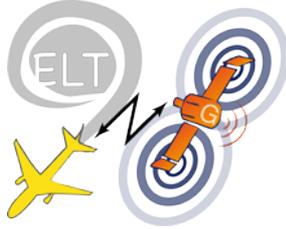
# In-Flight Work Group

- ✓ **Objective:** Define Flight Activation/deactivation specifications
- ✓ **Leader:** Philippe Plantin de Hugues
- ✓ **Activities**
  - Background : Review existing body of knowledge
  - Coordinate with SGB in Specifications Progress (C/S, RTCM, etc)
  - Define the criteria for in-flight activation,
  - Define the criteria for termination of an ELT triggered in flight
  - Antenna and Cables
  - Define the frequency of transmission of data and applicable parameters.
  - Create proposals and paper for JC-28
  - Create the MASPS
  - Draft DO-204b ED-62b Input Section
  - Review Activity at meetings and conference calls.
- ✓ **Deliverables**
  - Specific Input to draft DO-204b and ED-62b
  - Creation of the MASPS
  - Specific Input to C/S SGB Specifications



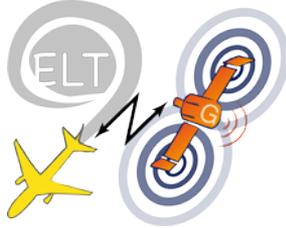
# GNSS / Return-link / Power Source

- ✓ **Objective:** GNSS, power source and return link services specifications
- ✓ **Leader:** Plenary session
- ✓ **Activities**
  - Background: Existing RTCA, EUROCAE, C/S Requirements
  - Coordinate with SGB in Specifications Progress (C/S, RTCM, etc)
  - Identify and create technical and testing standards for GNSS receivers/nav input
  - Identify and create technical and testing standards for return link services
  - Identify and create technical and testing standards for power source
  - Create proposals and paper for JC-28
  - Draft DO-204b ED-62b Input Section
  - Review Activity at meetings and conference calls.
- ✓ **Deliverables**
  - Specific Input to draft DO-204b and ED-62b
  - Specific Input to C/S SGB Specifications



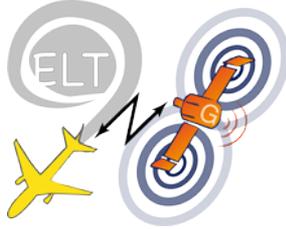
# Crash Safety Work Group

- ✓ **Objective: Develop crash safety specifications**
- ✓ **Leader: NASA and Allan C. Knox**
- ✓ **Activities**
  - Background: DO-204a References, NTSB reports, CAA report, ICAO reports
  - Review and amend the current crash safety requirements and tests to ensure the ELT remains secured and operable in its mounting tray after a crash.
  - Review and amend cable antenna and cable crash survivability
  - Gather information from NTSB and international counterparts
  - Identify and create/modify technical and testing standards
  - Draft DO-204b ED-62b Input Section
  - Review Activity at meetings and conference calls.
- ✓ **Deliverables**
  - Specific Input to draft DO-204b and ED-62b
  - Specific Input to C/S SGB Specifications



# Second Generation Homing Work Group

- ✓ **Objective:** Second generation homing specifications
- ✓ **Leader:** Allan C. Knox
- ✓ **Activities**
  - Background: DO-204a References, FCC Rulemaking, CAP reports
  - Evaluate the operational requirement of 121.5 MHz homing beacons on 406MHz ELTs to determine if the 121.5 MHz homing device is needed to support search and rescue authorities.
  - Evaluate the use and need of 243MHz Homing
  - Coordinate with SGB in Specifications Progress (C/S, RTCM, etc)
  - Identify and create/modify technical and testing standards for 121.5MHz Homing
  - Draft DO-204b ED-62b Input Section
  - Review Activity at meetings and conference calls.
- ✓ **Deliverables**
  - Specific Input to draft DO-204b and ED-62b
  - Specific Input to C/S SGB Specifications



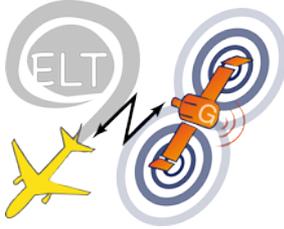
# SC-229 Work Space

## RTCA Collaboration Tools

- Meeting/Attendance information
- Agendas/Summaries
- Calendars
- Committee Papers
- Documents
- Final Review and Comment FRAC

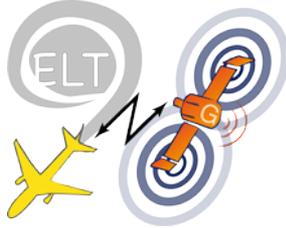
The screenshot shows the RTCA workspace interface. At the top, there are navigation tabs for 'rtca.org', 'Public Workspace', and 'Workspace'. The user 'Thomas Pack' is logged in, with options for 'ACR Electronics', 'Administration', 'Reports', and 'Help'. The RTCA logo is prominently displayed. Below the logo, there are navigation options for 'Groups' and 'ProjectView', along with a 'Take Action (0)' button. The main content area is titled 'SC-229 406 MHz Emergency Locator Transmitters (ELTs)'. It features a search bar and a list of tools and information:

- Group Info:** Group Chair: Thomas Pack, ACR Electronics (thomas.pack@acrartex.com); Group Chair: Philippe Plantin de Hugues, Bureau d'Enquêtes et d'Analyses (BEA) (poh@bea-fr.org); Manager: Ms. Sophie Bousquet, RTCA, Inc. (sbousquet@rtca.org); Manager: Brandi Teel, RTCA, Inc. (bteel@rtca.org); Designated Federal Official: Charisse Green, Federal Aviation Administration (Charisse.Green@FAA.GOV); Secretary: Stuart Taylor, HR Smith Group of Companies (stuart@hrsmith.biz).
- Group Email Addresses:** Post message: sc-229@workspace.rtca.org
- Documents:** quick add, add a document
- Roster:** My Profile, remove me, add member, edit email templates
- Calendar:** this week, add event
- Comments:** documents open for comment
- Ballots:** add ballot, add approval ballot, closed ballots, manage templates
- Action Items:** add an action item
- Email:** send email
- Settings:** change defaults, edit tabs

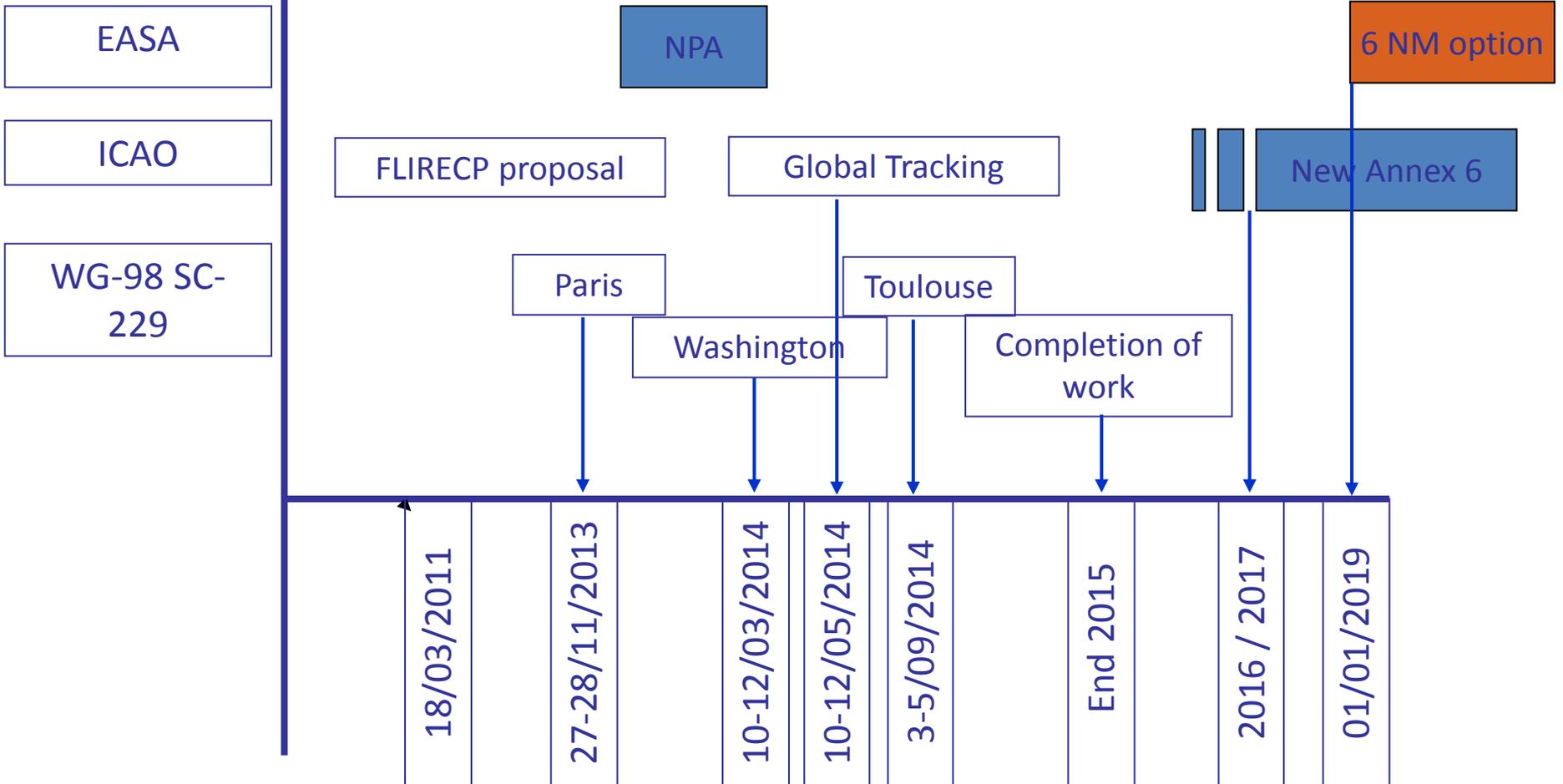


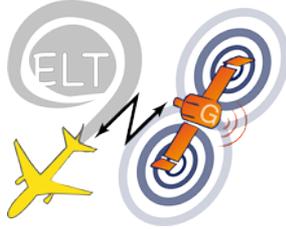
# COSPAS-SARSAT Coordination

- ✓ **COSPAS-SARSAT Task Group on SGB Specifications (Feb2014 )**
  - Presentation of an Information Paper to inform COSPAS-SARSAT members of the work of WG-98 and SC-229.
- ✓ **COSPAS-SARSAT Joint Committee Meeting (June 2014)**
  - Short Paper on In Flight Triggering of 1<sup>st</sup> Generation ELT's on the MEOSAR System. Call for investigation and performance analysis.



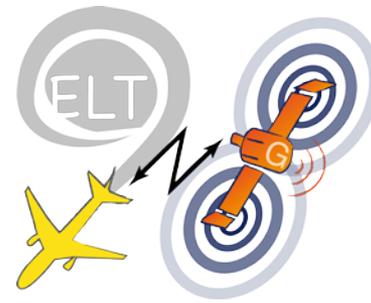
# Summary of various activities in progress





# WG-98 / SC-229 Meetings

- ✓ **WG-98 Meeting 1: Paris** **27 & 28 November 2013**
- ✓ **Joint meeting 1: Washington** **10 to 12 March 2014**
  - May Conference Call
  - July Conference CallTBD – after ICAO Tracking meeting  
TBD
- ✓ **Joint meeting 2: Toulouse** **3 to 5 September 2014**
- ✓ **Joint meeting 3: US** **xx to xx January 2015**
- ✓ **Joint meeting 4: Europe** **xx to xx May 2015**
- ✓ **Joint meeting 5: US** **xx to xx September 2015**



# WG-98 SC-229

## "Aircraft Emergency Locator Transmitters (ELTs)"

Thank you  
for your attention