

## Summary of the 15<sup>th</sup> Plenary Special Committee 235 - Non-Rechargeable Lithium Batteries Active Status Meeting

### Meeting Summary:

The 15<sup>th</sup> Plenary Meeting of Special Committee 235 (SC-235) was held on March 29, 2021. The meeting was conducted as a Virtual Meeting with the following attendees participating via WebEx:

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John Trela (Chairman)	The Boeing Company
Norman Pereira (Government Authorized Representative)	Federal Aviation Administration
Jeff Densmore (Secretary)	Radiant Power Corporation
Karan Hofmann (Program Director)	RTCA, Inc.
Susanna Bruffett	National Institute for Aviation Research
Antonio Chiesa	Transport Canada
James Christo	NOAA
Claud Cresp	ELTA
Rodolfo Duran	Astronics DME
Christopher Holt	Panasonic Avionics Corporation
Nazih Khaouly	Federal Aviation Administration
Sergio Machado	Agência Nacional de Aviação Civil (ANAC)
Brad Miller	Honeywell
John Neilson	Ultralife
Thomas Pack	ACR Electronics
Jim Russell	The Boeing Company
Adrian Sfetcu	Bell Helicopter Textron
Clayton Vondrasek	Garmin
Charlie Wright	Astronics DME

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## Opening Plenary

- The 15<sup>th</sup> Plenary meeting of SC-235 was convened on March 29, 2021 at 11:00pm EST by Chair John Trela (Boeing). Jeff Densmore (Radiant Power) was the SC-235 Recording Secretary.
- Norman Pereira was introduced as the Government Authorized Representative.
- An RTCA overview, including RTCA’s Proprietary References Policy was read by Karan Hofmann, the Program Director.
- Welcoming remarks were made by John Trela. Each person in attendance was invited to introduce themselves.
- The meeting agenda was reviewed.
- The Meeting Summary for SC-235 Plenary #14 was reviewed and approved.
- All documents and presentation material reviewed during Plenary #15 have been uploaded and are available on in the RTCA AerOpus documents folder. A link to this folder is provided below.  
<https://aeropus.i3cloudservices.com/Group/GroupLanding/199>

## Plenary #14 Action Item Review

There were no action items assigned during Plenary #14.

## Updated Terms of Reference (TOR) for SC-235

John Trela announced the RTCA’s Program Management Committee (PMC) approval of the updated SC-235 TOR during the March 18<sup>th</sup> PMC meeting. The revised TOR charters SC-235 to revise the Minimum Operational Performance Standard for Non-Rechargeable Lithium Batteries with a target date of March 2022 for the completion of DO-227B. The completion date was discussed amongst the committee members and it was suggested that EASA’s concurrence with the deadline be obtained (reference action items below).

## Identification of DO-227B Primary Editor

With the change in scope of SC-235 from “active monitoring status” to “active”, a primary editor is needed to incorporate and maintain all proposed changes to DO-227B. Jim Russell volunteered for this role and was unanimously approved by the committee. Thanks Jim!

## DO-227A Comment Review

Over the past year, SC-235 has reviewed and dispositioned 16 submitted comments to DO-227A as summarized in the table below.

Committee Disposition of Comments	Quantity
Accepted	8
Rejected	1
Tabled	7
Total Comments	16

During the meeting, these were reviewed at a high level, with the Tabled items grouped into three categories:

1. Temperature Variation Open Circuit Voltage (OCV) Requirement
  - o It was suggested that committee members from the Cell Manufacturers provide inputs to help refine these requirements
2. End Item Test Sequence
  - o No further discussions occurred during this meeting
3. Mitigation of Cell Test Failures at Battery and/or End Item Level
  - o This topic expanded into a discussion of the TSO-C142b Categories shown below. The FAA indicated that the “dash number” categories were provided to accommodate these types of situations.
  - o The FAA stated that the various dash numbers were intended to offer pathways for Cell, Battery, and End Item TSO’s, while considering the allowable mitigations for certain types of failures.
  - o There was some confusion expressed by members representing equipment and airframe manufacturers regarding dash number scheme.
  - o It was agreed that clarification of the “dash number” TSO categories was needed. It was also agreed that additional clarification is needed for the means of compliance with respect to the special conditions for lithium batteries. (AC 20-192).

X	Cell, Battery or End Item
-1	cell
-3	battery
-5	End Item
-7	< 5WH within End Item Cells and batteries must meet at a minimum UL1642 and UN 38.3 certification. (see Note below)

The committee also identified additional comments during the meeting. These have been captured in the DO-227A comments spreadsheet and summarized below.

Differences between DO-227A and TSO-C142b

- TSO-C142b, in Appendix 1, limits the 2Whr exception to Coin or Button Cells. DO-227A does not have this limitation. It was agreed that DO-227B should capture this difference
- TSO-C142b allows for 5Whr batteries to receive TSO-C142b-7 approval if they comply with UL1642 and UN38.3 as well as passing the End Item testing of DO-227A. It was agreed that DO-227B should capture this difference

Gas Collection and Analysis

- It was discussed that DO-227A does not provide much instruction regarding the collection and analysis of any vented gas. It was agreed that DO-227B should be expanded in this area.

Other Member Comments

- Two additional committee members stated that they have additional comments to DO-227A and will provide them for discussion. See action items below.

### **Action Item Summary**

- (1) Coordinate with EASA regarding the updated TOR and March 22, 2022 completion date.  
Assigned to: John Trela
- (2) Summarize and forward comments to DO-227A based on previous and on-going testing efforts  
Assigned to: John Neilson
- (3) Summarize and forward comments to DO-227A based on previous and on-going testing efforts  
Assigned to: Susanna Bruffett

### **Working Group Meetings**

The committee agreed to begin weekly working group meetings to review and discuss comments to DO-227A and maintain updates to the document. These meetings will be held weekly on Mondays at 10am (EDT) for one hour. The first meeting will be held on April 5, 2021.

### **Next Plenary**

Plenary #16 has been tentatively scheduled as a Virtual Meeting on June 14, 2021. A detailed agenda and WebEx meeting information will be issued closer to this meeting date.

-S-  
Jeff Densmore  
Secretary

***CERTIFIED*** as a true and accurate summary of the meeting.

-S-  
John Trela  
Chairman