

Summary of the 31st Plenary Special Committee 235 - Non-Rechargeable Lithium Batteries

Meeting Summary:

The 31st Plenary Meeting of Special Committee 235 (SC-235) was held on October 23, 2023. The meeting was conducted as a Virtual Meeting with the following attendees participating via WebEx.

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.
Antonio Chiesa	Transport Canada
Tom Jaeger	American Airlines
Nazih Khaouly	Federal Aviation Administration
Christopher Kusak	U.S. Air Force
Thomas Maloney	Federal Aviation Administration
Sam McCrory	National Institute for Aviation Research
Paul Pfeifer	Textron
Fernando Menedez Rodriguez	EASA
Ray Rodriguez	U.S. Air Force
Jim Russell	The Boeing Company (retired)
Mel St John	National Institute for Aviation Research

Opening Plenary

- The 31st Plenary meeting of SC-235 was convened on October 23, 2023 at 10:00am EDT 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 #30 was reviewed and approved as written. The meeting summary has been posted on AerOpus.

- All documents and presentation material reviewed during Plenary #31 have been uploaded and are available in the RTCA AerOpus documents folder for this meeting.

Plenary #30 Action Item Review

There were no open Action Items following Plenary #30

Terms of Reference (ToR):

Given the delays in reaching consensus and the need for a second Final Review and Comment (FRAC) process, the committee discussed updating the ToR to reflect revised timing of completion. The committee reviewed and APPROVED the following update to the ToR for a FRAC completion date of June 2024. The TOR will be updated accordingly and presented to the PMC on December 14, 2023

DELIVERABLES:			
Product	Description	FRAC Completion Due Date*	Change
DO-227B	Minimum Operational Performance Standard for Non-Rechargeable Lithium Batteries	June 2023 March 2024	March 2022 2023

*Note: Final Review and Comment (FRAC) completion Due Date refers to the date that the committee plenary approves the document after completing the FRAC Process. SCs should submit the final document at least 45 days before the PMC meeting where it will be considered approval.

DO-227B Comment Resolution

At the conclusion of the previous Plenary meeting (#30) held in September, the committee was unable to reach consensus on several open issues with Draft DO-227B. These included:

1. Battery external short circuit with protections disabled.
2. Battery Cell Series Polarity Reversal Test Update
3. Gas Analysis
4. Thermal Runaway Chamber Sizing Discussion

Several Working Group meetings were held to review these items prior to Plenary #31.

Battery Short Circuit with Protections Disabled Discussion

At the close of Plenary #30, the committee suggested applying a reliability factor to determine if battery fuses required disabling. Some sources of these reliability ratings were cited such as the Nonelectronic Parts Reliability Data (NPRD) database and MIL-HDBK-217. The committee requested that this be explored further in working group meetings.

During working group meetings, it was concluded that these reliability handbooks and / or databases were not an effective means for determining failure rates of specific fuses and was dropped for consideration in this requirement. Instead, the working group revisited the DO-311A approach and ultimately agreed on a similar approach whereby fuses and fusible links between cells be exempt from being disabled.

The recommended wording from the working group was discussed at length during the Plenary and consensus was eventually reached. However, this discussion did raise concerns to changes made to the Draft DO-227B earlier this year to the Cell Short Circuit test (2.4.1.2.3). These changes removed the requirement to disable cell protective devices such as PTCs that are located outside of the hermetically sealed cell housing. There was disagreement expressed to this earlier change which could not be resolved during the Plenary meeting.

The committee discussed the above topic for an extended period leaving no time to discuss the other items on the list above. Thus, the meeting concluded without an opportunity to recommend the document for approval for a second Final Review and Comment (FRAC) process. The committee did express a desire to reach FRAC as quickly as possible and agreed to focus on the remaining open topics in working group meetings.

Action Item Summary

There were no new actions generated during Plenary #31:

Working Group Meetings

It was agreed that Working Group meetings should be held on October 25, October 30, and November 1 to finalize the remaining open items and prepare the document for approval to proceed to FRAC at the next Plenary.

Next Plenary

Plenary #32 was scheduled for November 6, 2023, at 10am (EST). The plan for this meeting is to approve DO-227B for a second FRAC.

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Jeff Densmore
Secretary

CERTIFIED as a true and accurate summary of the meeting.

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John Trela
Chairman