Date: 23 February 2024
RTCA Paper No. 038-24/SC235-069

Summary of the 32nd Plenary
Special Committee 235 - Non-Rechargeable Lithium Batteries

Meeting Summary:

The 32nd Plenary Meeting of Special Committee 235 (SC-235) was held on November 6, 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
Nick Conquest	National Institute for Aviation Research
Tom Jaeger	American Airlines
Nazih Khaouly	Federal Aviation Administration
Sam McCrory	National Institute for Aviation Research
Frederic Menard	Safran Electronics and Defense Beacons
Fidele Moupfouma	Transport Canada
Kathryn Mulhollen	U.S. Air Force
Fernando Menedez Rodriguez	EASA
Ray Rodriguez	U.S. Air Force
Jim Russell	The Boeing Company (retired)
Adrian Sfetcu	Bell Helicopter
Greg Smith	U.S. Air Force
Clayton Vondrasek	Garmin Ltd

Opening Plenary

- The 32nd Plenary meeting of SC-235 was convened on November 6, 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 #31 was reviewed and approved as written. The meeting summary has been posted on AerOpus.

- All documents and presentation material reviewed during Plenary #32 have been uploaded and are available in the RTCA AerOpus documents folder for this meeting.

Plenary #31 Action Item Review

There were no open Action Items following Plenary #31

DO-227B Comment Resolution

The primary purpose of Plenary #32 was to discuss and resolve the last remaining comments and proceed to a second Final Review And Comment (FRAC) process. The follow two items were discussed:

1. Battery external short circuit with protections disabled.
2. Thermal Runaway Chamber Sizing Discussion

Several Working Group meetings were held to review these items prior to Plenary #32.

Battery Short Circuit with Protections Disabled Discussion

Between Plenary #31 and Plenary #32, this topic continued to be discussed during several working group meetings. Progress was made during these discussed and proposed final wording was brought forward to this Plenary. During the Plenary, the committee reached consensus on the wording of paragraph 2.4.2.2.6, specially regarding the Test Setup sub-paragraphs. After some refinement, the following test setup wording was agreed upon.

Test Setup:

a. Disable all protective devices in cells or the battery, (e.g., PTCs) located in the battery or under cosmetic or protective cell caps except protective devices that require cutting metal components of the cell to disable. Fusible links and non-SFE fuses that are connected between cells are not required to be disabled.
b. Instrument the battery for measurement of temperature, current, and battery voltage.
c. Allow temperature stabilization at 55 ℃, to take place per section 2.3.4.

Thermal Runaway Chamber Sizing Discussion

Between Plenary #31 and Plenary #32, this topic was also discussed during several working group meetings with proposed final wording brought forward to this Plenary. During the Plenary, the committee reached consensus on the wording of paragraph 2.4.3.3.2 Test Setup sub-paragraph (k) and additional sub-paragraph (l). After some refinement, the following wording was agreed upon.

k. The test vessel with the End Item installed shall have enough free air volume to provide sufficient oxygen during the test. Required minimum free air volume may be calculated by the following equation:

Free air volume (liters) = 5 x Watt-hours per cell x cells in TR x (0.3 liters / Wh)
Note: The relationship of 0.3 liters of cell gas per watt-hour has been established by the FAA Technical Center. The factor of 5 is an estimate based on previous testing.

l. There shall be gaps of at least 3" between the End Item and the chamber walls in all directions except the mounting surface to provide flame visibility and airflow.

DO-227B Final Review and Comment (FRAC)

With the final open items above resolved, the committee reached full consensus to proceed with a second FRAC on the current draft of DO-227B as voted on by all committee members present. There was much rejoicing.

The FRAC schedule was discussed and approved as follows:

- FRAC #2 Start: 13 November 2023 (or as soon as document is ready)
- FRAC #2 Comments Due: 12 January 2024 (extended due to holiday season)

Action Item Summary
There were no new actions generated during Plenary #32:

Working Group Meetings
There will be no working group meetings during the FRAC period. These will be scheduled after all comments have been received.

Next Plenary
Plenary #33 was not scheduled at this time. The schedule for this meeting will be reviewed after all comments have been received.

AFTER PLENARY NOTE: Plenary scheduled for 5-7 March 2024 at RTCA HQ, Washington, DC.

-S-
Jeff Densmore
Secretary

CERTIFIED as a true and accurate summary of the meeting.

-S-
John Trela
Chairman