

**EXHIBIT 1**

## Special 'task force' studied lithium-ion batteries long before JAL 787 incident

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A special task force was studying issues relating to the use of lithium-ion batteries in airliners long before the January 2013 Japan Air Lines fire. The effort began in 2008 and it met in December 2012, one month before the JAL fire.

Boeing, the FAA, Embraer, Airbus, GS Yuasa, American Airlines and ALPA are just a few who participated in these meetings, according to documents.

Randy Tinseth, VP Marketing for Boeing, referred to the group when he discussed the FAA approval to proceed with the Boeing plan to fix the 787 battery issues in his blog, [here](#).

Tinseth writes:

*The certification plan calls for a series of tests that show how the improved battery system will perform in normal and abnormal conditions. The test plans were written based on the FAA's standards as well as applicable guidelines published by the [Radio Technical Commission on Aeronautics \(RTCA\)](#), an advisory committee that provides recommendations on ways to meet regulatory requirements. The RTCA guidelines were not available when the original 787 battery certification plan was developed.*

We asked Boeing what the document was that Tinseth referred to above: it is a document numbered DO-311. [There are a number of documents](#) at RTCA containing the reference to DO-311.

DO-311 is described by RTCA as:

*DO-311, Minimum Operational Performance Standards for Rechargeable Lithium Battery Systems*

*Issued 03-13-08*

*Prepared by SC-211*

*This document contains Minimum Operational Performance Standards (MOPS) for rechargeable Lithium battery systems to be used as permanently installed power sources on aircraft. Compliance with these standards is recommended as a means of assuring that the Lithium battery will perform its intended function(s) safely, under conditions normally encountered in aeronautical operations. These standards apply to the chemical composition, cell size, cell construction, cell interconnection methods within batteries, venting provisions,*

operational and storage environments, packaging, handling, test, storage and disposal of rechargeable Lithium batteries, installed separately or in avionics equipment aboard aircraft.

[This recent document](#) notes that there had not been, as Tinseth wrote, there had not been standards for the current uses of lithium-ion batteries:

*Standards for non-rechargeable Lithium and for large rechargeable Lithium batteries exist in current RTCA documents; however certification guidance for small to medium size rechargeable lithium batteries and battery systems that are permanently installed on aircraft does not currently exist. The aviation industry is seeing increased use of these small and medium sized rechargeable Lithium batteries in Avionics and Cabin Systems equipment. Certification guidance addressing these batteries and systems will enable a more efficient and standardized certification approach across the industry.*

The document also reveals that Boeing had been in touch with Embraer and Airbus, but no detail is provided. Guidelines from the committee are due this month.

This [2011 document](#) contains a PPT presentation beginning on PDF page 10 that contains a lot of information about testing, the issues, etc., all pre-dating the January JAL fire. PDF page 45 specifically raises the concern about an internal short.

[This December 2012 document](#) is one month before the JAL fire.

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