

**SUMMARY OF THE FORTY-SEVENTH MEETING**

**RTCA SPECIAL COMMITTEE 135**

**ENVIRONMENTAL CONDITIONS AND TEST  
PROCEDURES FOR AIRBORNE EQUIPMENT**

The Forty-Seventh meeting of RTCA/SC-135 was held March 22 – 23, 2006 at Honeywell Aerospace 21111 N. 19 Ave, Phoenix, AZ.

The following were in attendance:

Mike Kroeger, <u>Chairman</u>	Honeywell International, Inc.
Douglas Ballard	L-3 Comm
Joshua Bakk	DLS Electronic Systems
Susan Beard	Rockwell Collins
Christian Bertran	Airbus
Erik Borgstrom	Environ Laboratories
Tony Camera	Gables Engineering
Jean-Paul Chaussonnet	Airbus
John Covell	BF Goodrich
Roger Dieterich	Universal Avionics
William Donoghue	Pratt & Whitney
Terence Donohoe	Honeywell International
Richard Errhalt	U.S. Army Electronic Proving Grounds
Bradley Green	Honeywell International
Brad Hakey	Universal Avionics
Jim Hatlestad	Boeing Company
Richard Hess	Honeywell International
Kamiar Karimi	Boeing Company
David Kerr	Garmin
James Lyall	Embry-Riddle Aeronautical University
Leo Makowski	HV Technologies, Inc
Evelyn Matheson	Boeing Company
Bryan McCoy	Rockwell Collins
Allan Meyer	Rockwell Collins
Art Nemirow	Bruce Industries
Evelyn Matheson	Boeing Company

Jeff Phillips	Cessna Aircraft
Marc Ponçon	Eurocopter
Mario Rinaldi	Hamilton Sundstrand
Ben Shamberger	Garmin AT
Paul Schwerman	Honeywell International
Tim Shaver	Federal Aviation Administration
Michael C. Smith	Ametek
Gary Veith	Boeing Company
Dave Walen	Federal Aviation Administration
Kenneth Webb	Rockwell Collins
Matthew Wills	Cessna Aircraft
David Zimmerman	TUV America

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In Accordance with the Federal Advisory Committee Act – Mr. Timothy Shaver of the Federal Aviation Administration was the designated Federal Employee for this meeting.

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**The agenda for the meeting was as follows:**

1. Chairman’s Opening Remarks, Introductions.
2. Approval of Summary from the Forty-sixth meeting.
3. Review Results of EUROCAE ED-14 Meeting.
4. Review Current List of Errata
5. Review Status of Working Group 16
6. Review Status of Working Group 20
7. Review Status of Working Group 21
8. Review Change Proposals for all other Sections.
9. Discuss Status/Progress of DO-160 User Guide Information
10. Discuss Status of New Section 27, Toxic Fumes
11. Review Schedule for DO-160F
12. New/Unfinished Business.
  - Rick Gaynor’s Resignation
    - Nominee for Secretary
    - Change Coordinator for Section 25 ESD
  - Seattle Times Article re: Boeing 787 & Lightning
13. Establish Date for Next SC-135 Meeting.
14. Closing.

**Agenda Item 1**                      **Chairman's opening remarks, Introductions, Recognize Federal Representative.**

The Forty-Seventh meeting of RTCA/SC-135 was called to order at 9:00 AM on 22 March 2006. Mr. Mike Kroeger opened the meeting by welcoming those in attendance. Mr. Timothy Shaver was introduced as the new FAA representative for SC-135; the replacement for John Dimtroff who has retired. Tim was recognized as the Federal Aviation Administration representative for this meeting.

**Agenda Item 2**                      **Approval of the Summary of the Forty-Sixth Meeting, RTCA Paper 037-06/SC135-653.**

The summary of the Forty-Sixth meeting was approved as written.

**Agenda Item 3**                      **Review Results of EUROCAE ED-14 Meeting.**

Mr. Marc Poncon discussed the activities of the EUROCAE WG-14 at the January meeting. The meeting attendance was small and the meeting was focused on Sections 20 and 21. Change Proposals on those sections were discussed and dispositions determined.

**Agenda Item 4**                      **Review Current List of Errata.**

Mike presented the draft of the errata paper for DO-160E. He asked whether there are additional issues that need to be included. Mr. Douglas Ballard identified a couple of additional changes in Section 6, Humidity.

**Agenda Item 5**                      **Review Status of Working Group 16.**

Mr. Paul Schwerman reported that the working group met all day Tuesday and made good progress. The working group also met most of Wednesday, specifically on the issues around the 270VDC power systems. Paul presented the Change Proposals that the working group had completed. The committee reviewed the proposed dispositions and made the decision on all of the dispositions.

The working group will continue to have weekly or bi-weekly electronic meetings to continue development of the issues in the section. The outstanding issues include in-rush current limits, DC current emission limits and various elements of the 270V DC tests.

**Agenda Item 6**

**Review Status of Working Group 20.**

Mr. Jim Hatlestad led a working group meeting on Tuesday to review the open change proposals on Section 20. The proposed dispositions determined by the working group were discussed and modified in the plenary meeting.

**Agenda Item 7**

**Review Status of Working Group 21.**

Mr. Matthew Wills led a working group meeting on Monday to review the open change proposals on Section 21, including the proposed draft procedure for reverberation testing. The proposal was accepted in principle but significant work is still needed in several areas. The proposed dispositions determined by the working group were discussed and modified in the plenary meeting.

The working group has the action to collect more test data and then meet again this summer in order to complete another draft of the reverberation procedure for the next SC-135 meeting.

**Agenda Item 8**

**Review List of Change Proposals.**

We reviewed each of the change proposals. The dispositions are shown in the updated Change Proposal Log (attached).

**Agenda Item 9**

**Discuss Status/Progress of DO-160 User Guide Information.**

The subject of including user guide information into the next revision was mentioned during the discussions on each section. The general agreement is that the material will be added at the end of each section. However, no change coordinator had yet prepared an example of the format and actual contents.

**Agenda Item 10**

**Discuss Status of New Section 27, Toxic Fumes.**

Mike reported that the SC-135 Change Coordinator, Mr. Alan Thompson, and the WG-14 Change Coordinator, Mr. Sant Anna Phillipe, are discussing the new draft proposal. They have committed to have a draft to review for the next SC-135 meeting

**Agenda Item 11**

**Review Schedule for DO-160F.**

The schedule for preparation of the DO-160F document was reviewed. Key milestones are listed below.

	<b>Rev F</b>	<b>Rev E</b>
Development of substantive content changes	Now thru Q2, '06	
Deadline for last substantive change proposals	August 2006	N/A
SC-135/ED-14 meeting on last substantial changes	October 2006	11/14/03
Final draft for SC-135/ED-14 review	Q4, 2006	1/16/04
SC-135 meeting to review final draft	Q1, 2007	3/11/04
Rev F to RTCA for FRAC	Q2, 2007	5/28/04
SC-135 meeting to review results of ballots	Q3, 2007	8/25/04
Final Sections to RTCA	October, 2007	9/30/04
RTCA PMC approval & publish DO-106F	Q4, 2007	12/04

The section 21 working group expressed some concern that they will complete on schedule. They will know more by the next SC-135 meeting

**Agenda Item 12**                      **New/Unfinished Business.**

- Rick Gaynor's Resignation

Mike announced that Rick Gaynor has submitted his resignation from the committee. He has served for many years as Secretary. The committee supported Mike in his effort to get the RTCA to recognize Rick for his years of service.

With Rick's departure, the roles of Secretary and Change Coordinator for Section 25 need to be identified. Mr. Leo Makowski and Mr. Terrence Donohoe expressed interest in the role of Secretary and will advise Mike after they have considered it. Mr. Erik Borgstrom volunteered for the position of Change Coordinator for Section 25.

**Follow-up:** Mr. Leo Makowski has accepted the position of Committee Secretary.

- Seattle Times Article re: Boeing 787 & Lightning

Mike started a discussion of an article from the Seattle Times which discussed the potential concerns regarding lightning effects on the Boeing 787. The RTCA office asked Mike if SC-135 and DO-160 properly address the issues in this article. Al Meyer, Dave Walen, and Jim Hatlestad then discussed that Boeing and the FAA are indeed addressing the concerns. There

are also change proposals for DO-160F that might add more categories to Section 22, Indirect Effects of Lightning.

- SC-135 response to proposed FAA NPRM HIRF rules

Al Meyer asked if the SC-135 would like to send a formal response to the FAA on their proposed HIRF rules. Mike took the action item to discuss this with Hal Moses if there is policy regarding formal responses. The committee agreed that SC-135 should submit a response and that Al Meyer and Jim Hatlestad should prepare the response and forward it to Mike.

**Follow-up:** Hal Moses responded that the RTCA does require that a response from Special Committee should be reviewed by their office. Therefore, an additional two weeks of lead time should be added to our schedule for the response.

- Change Coordinator Changes

Mr. Kenneth Webb volunteered to assume the role of Change Coordinator for Section 15, Magnetic Effect. After some discussion with Mr. Paul Schwerman, Paul admitted that his activities with Section 16, Power Input, have not allowed him the time to devote to Section 15. So, Paul agreed to transfer responsibility for Section 15.

- FAA Concerns On Section 26, Flammability

Mr. Dave Walen commented that Mr. Jeff Gardlin of the FAA has some concerns that the test procedure and levels in Section 26, Flammability, do not meet the FAA's requirements. Jeff Gardlin and the section 26 change coordinator, Mr. Alan Thompson, are trying to get together to discuss the issues. Mike accepted the action item to contact Jeff and express the urgency of changes to revision F.

### **Agenda Item 13**

### **Establish Date for Next SC-135 Meeting.**

The next meeting is scheduled for October 25 & 26, 2006 in Washington, DC. October 23 and 24 will be available for working groups on sections 16, 20, and 21.

### **Agenda Item 14**

### **Closing.**

The meeting was adjourned at 1:00 PM on Thursday, March 23, 2006.

Certified as a true and accurate summary of the meeting.

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Michael J. Kroeger  
Chairman