

Minutes of the Thirty-Second Plenary Meeting
SC-213 Enhanced Flight Visions Systems/ Synthetic Vision Systems (EFVS/SVS)
Joint Meeting with EUROCAE WG79

Date: October 25 - 27, 2016

Place: 1150 18th St NW, Suite 910, Washington DC 20036

Host: RTCA

RTCA Paper Number 354-16/SC213-096

I. Welcome and Introduction

RTCA public meeting announcement and RTCA proprietary references and membership policies along with EUROCAE membership requirements and proprietary references were reviewed. Minutes from the thirty-first meeting were shared and approved. Brief overviews of previous action items were presented and discussed.

II. Working Group Updates

Randy Bailey, NASA, WG2 Chair EFVS for Takeoff Credit, reported status of committee. The committee is continuing to mature the draft MASP. Thea Feyereisen, Honeywell, WG3 Chair Aircraft State Awareness Synthetic Vision Systems, reported status of committee. The committee continues to mature the draft MASP.

III. WG79

Bruno Aymeric, Thales, reported on EUROCAE WG79 activities. The MASP for ASA SVS has been added to TOR. The date for CVS Rotorcraft MASP has been changed to Dec 2017. *Subgroup 1* has created an internal report on the various rotorcraft navigation operations and the effect of limited visibility. The draft has been posted to the European Share. *Subgroup 2* examined ED179 (D0315) and determined that there were minimal updates that could benefit rotorcraft operation. There has not been significant participation on the committee and “quick wins” have not been identified. The committee may be cancelled. *Subgroup 3* is working to create a MASP for CVS rotorcraft operations and has had good participation. A working document is available to EUROCAE members for review.

IV. NASA Augmented Flight Deck Countermeasures Research

Kyle Ellis, NASA Langley, reported on a recent study conducted by NASA in support of CAST SE-200 to evaluate display configurations representative of virtual day –VMC display as they support attitude recognition, attitude alerting and visual dominance.

V. EFVS Demonstrated Performance Discussion

Trent Prange, FAA, led a discussion on EFVS demonstrated performance discussion to help identify issues that applicants and regulators are facing to develop appropriate tests for system capability.

VI. EFVS Rule

Terry King, FAA, presented a status update to the new EFVS rule. She indicated that the rule is in its last stage at the executive level correspondence and moved to last stage.

VII. Dassault Elbit CVS

Alain Boucher, Dassault, shared a presentation and videos on the recently certified HUD CVS.

VIII. Air Transport SVS

Fabrice Bousquet, Airbus, presented summary results of recent simulator studies conducted by Airbus on synthetic vision.

IX. Roll Arrow Study

Mike Snow, Boeing, presented summary results of Boeing roll recovery arrow study. The roll recovery arrow will be basic equipment on B737MAX.

X. All Weather Operations

Frans van Gorkum, EASA, presented an update on the All Weather Ops rulemaking that is currently being undertaken by EASA.

IX. WG2

Randy Bailey, NASA LaRC, presented current draft for EFVS takeoff for review and edit.

X. WG3

Thea Feyereisen, Honeywell, presented current draft MASP for ASA SVS for review and edit.

XI. WG4

Carlo Tiana, Rockwell Collins, presented the current Rotorcraft MASP that is being crafted by WG79. Cliff Johnson, FAA, presented an FAA rotorcraft briefing.

XII. Surface Movement

The current study on surface movement operations being conducted in Oklahoma City by FedEx and the FAA was presented to the committee.

XIII. Action Items

- a. Dror Yahav, Elbit, to establish a small group to establish EFVS demonstrated performance objectives for testing.
- b. Patrick Krohn, Universal, and Tim Etherington, Rockwell Collins, to clarify RTCA proprietary policy for DO-XXX document content that is not a requirement.
- c. Bruno Aymeric, Thales, to update WG79 TOR so show that ASA will be a joint document and change CVS Rotorcraft date to December 2017.
- d. Trent Prange, FAA; Patrick Krohn, Universal; Tim Etherington, Rockwell Collins; to update SC-213 TOR as follows:
 - a. ASA is a joint document and date will move to August 2017
 - b. CVS Rotorcraft date change to February 2018
 - c. Change *Vision System for Takeoff* from MASPS to SPR and move date to February 2018
 - d. Additional minor edits

XIV. Other

The next meeting (thirty-third plenary) will be at EASA in Cologne Germany. It will be a four day joint meeting with WG-79, and is scheduled for May 9 – 12, 2017. The first day will be dedicated to WGs work.

The committee would like to recognize the service of John White, ALPA. John has been a member of RTCA SC213 since its inception and will be retiring from ALPA prior to our next plenary meeting. We wish John and his family good health in his retirement and thank him for his participation and representation.

The committee would also like to recognize the service of Mark Humphreys. Mark has been a member of RTCA SC213 since its inception. After 35 years in the FAA, 27 years as a pilot at the LGB AEG, Mark is retiring. Mark's expertise and pilot experience in EFVS and SVS systems has been critical to the success of the committee. We wish Mark well in his retirement and good luck in his new business endeavors.

XV. Attendees

Richard Adler, *FAA*
Bruno Aymeric, *Thales*
Randall Bailey, *NASA*
Tony Barber, *Bombardier*
Emmanuel Belanger, *Transport Canada*
Alain Boucher, *Dassault*
Fabrice Bousquet, *Airbus*
Kevin Burnett, *Sierra Nevada*
Daniel Chiew, *Rockwell Collins*
Glenn Connor, *Discover Technologies*
Dale Dunford, *FAA*
Kyle Ellis, *NASA*
Tim Etherington, *Rockwell Collins*
Thea Feyereisen, *Honeywell*
Andrew Fickling, *Bombardier*
Sean Flack, *FAA*
Daren Gulbransen, *Boeing*
Matt Harmon, *FAA*
Gerald Holtorf, *FAA*
Mark Humphreys, *FAA*
Simon Innocent, *Honeywell*
Robert Joslin, *FAA*
Paul Kenward, *Lockheed Martin*
Dan Kiggins, *NASA*
Terry King, *FAA*
Lynda Kramer, *NASA*
Patrick Krohn, *Universal*
Andre Lamprecht, *Esterline*
Scott McLellan, *FAA*
Laurence Mutuel, *Sierra Nevada*
Peter Neumeier, *Lockheed Martin*
Stephanie Nicholas, *NASA*
Lance Prinzel, *NASA*
Trent Prange, *FAA*
Mitch Serber, *Mitre*
Tetsu Shimizu, *Japan International Transport Institute*
Leslie Smith, *Discover Technologies*
Trent Smith, *Boeing*
Michael Snow, *Boeing* (phone)
Carlo Tiana, *Rockwell Collins*
Andrew Tinkling, *Bombardier*
Frans van Gorkum, *EASA*
Oscar Vela, *Alaska Airlines*
Trish Ververs, *Honeywell*
John Waddle, *Astronautics*
Jim Ward, *Gulfstream* (phone)
Jim Wilkerson, *Boeing*
John White, *ALPA*
Dror Yahav, *Elbit*

Prepared by Thea Feyereisen, RTCA SC213 scribe