

Date: October 7, 2016

RTCA Paper No. 296-16/SC230-022

EUROCAE WG-95 / RTCA SC-230 WG8 Plenary 5 (October 4 – 6, 2016) – Meeting minutes

Attendance list:

Name	Company	Attendance
Lagarde, Jérôme	Dassault Aviation	x
Caruhel, Camille	Airbus	x
Merle, Jean-Michel	Airbus	x
Tschacher, Luke	The Boeing Company	x
Gidner, Dawn	Honeywell International, Inc.	x
Christianson, Paul	Honeywell International, Inc.	x
Lukas, Jan	Honeywell International s.r.o.	x
Finley, Jeff	Rockwell Collins, Inc.	x
Stover, Keith	Rockwell Collins, Inc.	x
Harrah, Steve	NASA	x
Proctor, Fred	NASA	x
Ratvasky, Tom	NASA	x

* - Via Telecon/WebEx

x - In person

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October 4th – 6th, 2016

The team began by reviewing open action items and reviewing open comments in the feasibility report.

The document was then reviewed with the team, specifically those items which were revised since our last review and open comments. The majority of the updates were tentatively agreed upon and marked complete.

The remainder of the meeting was primarily spent reviewing flight test results and analysis from the various flight test campaigns and discussing how the analysis effects our feasibility report (Radar Section 5).

NASA provided the team with updated flight test data and analysis based on their HIWC RADAR flight test campaign conducted in August 2015. The data reviewed was primarily meant to analyze the correlation between radar reflectivity and ice water content at various outside air temperatures using a single radar frequency and polarization (RDR-4000 baseline). The data shown during the meeting showed some correlation but perhaps not enough to be able to reliably correlate radar reflectivity to varying concentrations of ice crystals. In particular the region between 1 and 2 g/m³ total water content (TWC), the radar reflectivity proved to be indistinguishable (reflectivity values were relatively flat across this range. Very few data were collected above 2.5g/m³. This discussion lead to a need to revise the current information in section 5 of the document to explain the constraints and correlate the information to actual measured data from the HIWC, HAIC and NASA flight test campaigns.

Honeywell was able to share data from their most recent HAIC flight test campaign (January 2016). Their data showed that it still may be possible to use the weather radar to reliably differentiate between a low and high threshold, but that other assumptions and information in addition to temperature and reflectivity may be necessary.

Finally, after the above discussions, it was determined that the understanding of the environmental conditions and the correlation of those conditions to radar observables is not mature enough to immediately begin a Minimum Operational Performance Standard (MOPS). There is however some advantage and need to have an industry collaboration and agreement on the current understanding of the problem space and to publish suggested performance goals and validation methods until a MOPS can be created. With this in mind, the group reviewed options available to accomplish this publication. The RTCA document the team will propose is the use of an RTCA Minimum Aviation System Performance Standards (MASPS). The team will include this recommendation in the feasibility report and propose a change to the Terms of Reference for RTCA special committee SC-230 as soon as the feasibility report is complete.

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Action Items:

Text	Actionee		Comment
Camille to provide additional information to NASA for a subset of probe events to help in the validation/evaluation of the models for HIWC.	Camille	31-Jan-17	10/4/16 – Steve/Fred informed Camille the applicable information would be as follows: Location, Time & any specific flight deck or failure information. Any applicable weather information is good as well if available. This action is not required to be closed for the feasibility report. It will support future validation models.
Honeywell/Rockwell to review data to be provided by NASA and come up with some suggested reasonable numbers for the must detect/must not detect values	Jan Jeff	20-Oct-16	10/6/16: Data was provided just prior to and during the October meeting. Jeff to work on section 5.3 with updated information from the meeting. By 10/20 we can review the updated information.
Steve to run some analysis to show probability of missed detection and false alert for the NASA data as an illustration to include in the final report. This data will be provided to Jeff for inclusion in Section 5.3 updates.	Steve Harrah	20-Oct-16	
Do a spot check to ensure we either use one term for Ice Crystal Concentration vs. IWC...if we use both, define each.	Luke	20-Oct-16	
Camille to complete all EUROCAE/RTCA information clean-up.	Camille	20-Oct-16	
Overall formatting clean up after all other changes incorporated.	Dawn	27-Oct-16	