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RTCA Paper No. 009-18/SC230-028
 Date: January 22, 2018

RTCA SC-230 Meeting Minutes (January 10-11, 2018)

Attendance list:

January 10, 2018	
Name	Company
JEANNEAU, Charlotte	Airbus
BERNUS, Christophe	Airbus
<i>BULANCEA, Andrei</i>	Airbus
<i>CARUHEL, Camille</i>	Airbus
Tschacher, Luke	The Boeing Company
Nguyen, Lee	Federal Aviation Administration
Blake, William	Garmin
Gidner, Dawn	Honeywell International, Inc.
Logan, Gloria	Honeywell International, Inc.
Lukáš, Jan	Honeywell International, Inc.
Harrah, Steve	NASA
Proctor, Fred	NASA
Marczinko, Jenó	Nordam
Finley, Jeff	Rockwell Collins, Inc.
Smith, Mark	Rockwell Collins, Inc.
Hofmann, Karan	RTCA
Fer, Emilio	unknown
Hudak, Joe	The MITRE Corporation
Chilson, Phil	University of Oklahoma
Rodrigo, Raffi	unknown
Jacob, Jamey	Oklahoma State University

January 11, 2018	
Name	Company
<i>VERSTRAETE, Olivier</i>	Airbus
<i>CARUHEL, Camille</i>	Airbus
Tschacher, Luke	The Boeing Company
Nguyen, Lee	Federal Aviation Administration
Blake, William	Garmin
Gidner, Dawn	Honeywell International, Inc.
Logan, Gloria	Honeywell International, Inc.
Lukáš, Jan	Honeywell International, Inc.
Harrah, Steve	NASA
Proctor, Fred	NASA
Finley, Jeff	Rockwell Collins, Inc.
Smith, Mark	Rockwell Collins, Inc.
Hudak, Joe	The MITRE Corporation
Marczinko, Jenó	Nordam
Hofmann, Karan	RTCA
Rodrigo, Raffi	unknown



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The SC-230 Final Review and Comment (FRAC) Plenary on January 10-11 was held with the following agenda:

- Welcome/Introductions/Administrative Remarks
- Introductions
- October 2017 Minutes Approval
- Review of Proposed Change 1 for DO-220A and DO-213A
- Discuss PWS, ADWRS and Turbulence Files Availability
- Decision to Approve the Release of Change 1 for FRAC
- Action Item Review
- Any other Business
- Adjourn

January 10, 2018

The meeting minutes from the last RTCA SC-230 teleconference held on October 5-6th, 2017 were reviewed and accepted by SC-230 without further comments.

We first began by going through the comments currently proposed on DO-213A.

Comment_213A_1: No additional discussion was held as the comment was accepted in the previous plenary.

Comment_213A_2: Suggested wording was reviewed with the team and revised as a group. The final wording was agreed to by the team as follows, "It may not be practical to perform all electrical performance tests with the final airline finish paint, nor can all possible customer paint configurations be predicted during initial qualification. A nominal finish paint may be used during baseline qualification testing. Additional analysis may be used to support the applicability of the test data to alternate paint configurations and radome boot configurations." This wording may be adjusted slightly and repositioned within DO-213 by Dawn, but the team agreed on the intent of the wording above.

Comment_213A_3: With regards to post-repair testing, the discussion continued on the need for testing to all polarizations for which the radome is qualified OR for the specific polarization for which the radome is intended to be installed. The team agreed there would be more complete methods for testing (i.e. testing all polarizations) for post repair, however, after a period of discussion and acknowledgment of the issues and complexities involved, the team determined the wording as is written is adequate for a minimum performance standard. The team concluded that while testing one polarization may not provide all possible data and catch all possible concerns, the differences in polarizations have traditionally shown to be minimal and if significant transmissivity issues were present in the repaired radome, the issue would present itself in all antenna polarizations. No further action required for this comment.

Two new Comments from Boeing were then discussed by the team:



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Comment_213A_4: There was a proposal to remove the requirement for testing Side Lobe (SL) patterns, Beam Deflection (BD) & Incident Reflection (IR) for production testing and after repair testing. The team agreed with the removal of requirements for BD & IR as this information was not previously required in DO-213 and does not provide significantly different/additional information beyond other testing already being required. It was also noted that most repair houses likely would not be able to perform BD and IR but should be able to conduct TE and SL (albeit with additional cost/time, but doable). There were some concerns with removing SL requirements for Quality/Production & After Repair test requirements as some in they have found some production build processes can have a significant enough effect on SLs that would not be seen in Transmission Efficiency testing only. There was some disagreement on this subject on the call, but ultimately, it was suggested to leave the requirement in place for SL testing and add a note to allow for the use of analysis to support only doing TE for production.

Comment_213A_5: The final DO-213 comment was a question posed to the radar manufacturers with regards to the need to include averages along each azimuth angle in the minimum average calculation for transmission efficiency given the scanning nature of the antenna (scanning in the horizontal plane). There was concern there could be issues that manifest themselves in the near field along a given azimuth that could potentially show up in the far field as an issue in the scanning plane if the damage/defect was severe enough. The Radome manufacturers provided information to indicate the normal build of a radome today (due to the overall shape, lightning diverter strip locations, etc.) results in TE results that are known to be good for the radar, but also likely to show small drops in TE along azimuth lines that could drop a radome a class when in-fact there is little effect on the function of the radar as has been shown over the past 20 years. In addition, the minimum TE requirements remain in place to ensure there are not significant holes in TE anywhere in the window area. In the end, it was agreed that we could move forward with an update to the definition of the Average TE requirement within DO-213A to only require looking at the minimum average along each elevation angle.

Dawn took an action to work with Steve on the wording for the availability of the various datasets in DO-220.

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After DO-213 comments were discussed, we dove into the proposed changes/comments that have been submitted to date on DO-220A.

Comment_220A_1: There was on-going discussion with regards to whether inhibiting caution alerts on approach at anything other than 50 feet was acceptable or if it should be revised to allow higher inhibit altitudes. Boeing presented information from equivalent level of safety documentation previously presented to the FAA as part of the original PWS certification in 1997 and William presented information on potential windshear scenarios that could result in an event that could eventually affect your aircraft but may not be annunciated as an alert or would be annunciated very late if cautions are inhibited



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above 50 feet. The team agreed that there are rare scenarios (those presented by William) in which cautions may not be shown for events that could intersect the aircraft's track. Boeing contended that these rare events would eventually be indicated by either a PWS warning or by other systems installed on the airplane, in addition to the other indications that may preclude this pilots from getting into this scenario. In line with the ELOS previously used, Boeing's position was that these installation factors and the fact this would open the door to alerting the pilot to more caution level events that don't have a bearing on his/her flight track, thereby degrading pilot confidence in the system, and outweighed changing the threshold to 50 feet. William's position was that not all aircraft are going to have these additional installation benefits and could use the additional caution information in order to prepare for a potential windshear encounter for which they would have no other warning. In the end, it was agreed that the inhibit altitude for caution events may need to be installation dependent and the document was updated to try to ensure the reader was aware that additional considerations need to be made before determining their specific caution inhibit altitude.

Comment_220A_2: Comment_220A_5 were previously accepted in the October Plenary.

Comment_220A_6: Everyone was in agreement with this change as the radar manufacturers will simply follow DO-160 per the existing language/requirements in that document without need for additional notes.

After going through the FRAC process, Current proposed date for the FRAC resolution is April 4-5th in Washington, D.C. The FAA and all on the call concurred that the documents were ready for release to the public following closure of the editorial changes reference in the Action Items on the following page (WG9_1 & WG9_3). Following the FRAC resolution meeting in April, current timelines should allow for having a final - clean document delivered to RTCA by 5/7/2018 and presentation for approval to the PMC in June of 2018.

This concluded the plenary for SC-230.

