

**RTCA SC-228**  
**Summary of Plenary 08 – RTCA Paper No. 132-15/SC228-021**  
**Scheduled for 9:00am to 12:00noon, Friday, 22 May 2015**

The Eighth Plenary session of RTCA Special Committee 228 was called to order by SC-228 Co-Chair, Paul McDuffee at about 9:00am on Friday, 22 May 2015, from within the RTCA Headquarters in Washington DC. Paul welcomed all attendees both in the room at RTCA, and in the overflow room at RTCA participating in the proceedings via the phone and WebEx. There was no phone or WebEx service provided for members external to the meeting site.

1. Agenda Item #1 for Welcome/Introductions/Administrative Remarks/Participation Guidelines

- 1.1 The session was started off with Paul McDuffee introducing Steve Van Trees, who read the Public Meeting Announcement as the Designated Federal Official for SC-228.



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- 1.2 Paul then introduced himself and George Ligler as the Co-Chairs for SC-228, and Kathy Ciaramella as SC-228 and WG-1 Secretary. Paul continued by asking each attendee to introduce himself or herself. Individual attendees introduced themselves throughout the room and in the over flow room across the hall. During the introduction process, Hal Moses of RTCA staff introduced himself and offered assistance to all attendees. The complete list of session participants is listed in Appendix A.
- 1.3 After the introductions were complete, Paul indicated that all Plenary sessions are open to the public. He welcomed the several members of the press in attendance, and he noted that it was against RTCA policy for anyone to record the Plenary sessions. He asked that all attendees please sign in on the attendance sheets placed outside of the meeting room in order for correct attendance to be established.
- 1.4 Paul discussed briefly the guidelines of participation for SC-228. He stressed that active participation in the Working Groups is very important as we continue to have a lot to do in a very short period of time. He stressed that all of those people that want to be members of SC-228, should consider themselves as active, and should contribute toward the actual work product of either or both Working Groups.
- 1.5 Paul asked all participants to review the RTCA Proprietary References Policy that was displayed and available in Working Paper SC228P08-WP03, and that covers any patented technology and copyrighted material *required to comply with* a RTCA Standard. The policy allows RTCA to consider proprietary technology for inclusion in an RTCA Standard, if it provides significant technical or economic benefit over non-proprietary technology. Paul encouraged each participant to read the Policy contained in the posted Working Paper and call RTCA if there were questions.



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## 2. Agenda Item #2 for Review of the Agenda

- 2.1 With the Agenda for Plenary #8 being displayed, Paul quickly indicated that there were several distinct areas for consideration today. There were no questions or comments from the Attendees concerning the proposed Agenda. Note the agenda contains a numbering error. Item # 4 is missing. These minutes align with the agenda numbering as posted.



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## 3. Agenda Item #3 for Review and Approval of the Minutes from Plenary #7

- 3.1 The minutes of SC-228 Plenary #7 held at RTCA on 21 November 2014 were introduced and Paul asked the Plenary Attendees if there were any questions, or comments regarding the contents of the posted Plenary #7 Minutes. Hearing none, Paul asked for a motion to accept the Minutes as published. There was a motion and it was seconded, and the Minutes of Plenary #7 were approved as previously posted on RTCA Workspace.

## 4. Agenda Item #5 for RTCA SC-228 Steering Committee activities

- 4.1 Paul recognized Jim Williams from the FAA UAS Integration Office as the Chairman of the SC-228 Steering Committee and asked Jim if he wished to provide any updates on the activity of the Steering Committee.
- 4.2 Jim Williams indicated that he was retiring as of June 1, 2015. There will be a replacement named.
- 4.3 The C2 WG has been coordinating with the FAA Spectrum Office, UAS Integration Office and the SC-228 leadership to better understand concerns voiced by the Spectrum office. There has been ongoing coordination with DoD on potential cooperation and mutual benefits in the use of the L Band in the 960-975 MHz subband. Interference test planning with the FAA Technical Center to augment currently planned work by NASA UAS in the NAS project is underway.

## 5. Review of Agenda Item #6 for an update of the activities of EUROCAE WG-73

- 5.1 Paul indicated that there had been no presentation received from WG-73 for updates on their progress. There was a reaffirmation of the verbal agreement to coordinate activities with WG-73 at the ICAO UAS Symposium held in Montreal. The agreement is to

coordinate their work with SC228 but neither organization will hinder the other group's progress. There will be a meeting of WG-73 on June 1-4, 2015 in Brussels. .

6. Agenda Item #7 for Review of the DAA Working Group Progress toward developing MOPS
  - 6.1 Paul introduced Paul Schaeffer and Don Walker, the co-chairs of the Detect and Avoid Working Group 1 (WG-1). Paul then briefed from Working Paper SC228P08-WP05.
  - 6.2 Paul indicated that it has been a busy week for WG-1. He indicated that there had been a meeting on Monday including the WG-1 Leadership and all Subgroup Leads. Issues discussed during the Monday meeting included, but were not limited to: (a) the Safety Subgroup has the need for increased group communications and collaboration, (b) the Requirements Subgroup discussion on radar MOPS and the TCAS UAS antenna performance, (c) the Definition Subgroup was working on what to call "Clear of Conflict" and is now known as "DAA Conflict Resolved", and (d) The Verification and Validation Subgroup was provided with a DAA White Paper on the assumptions for DAA V&V and the NASA flight test harmonization.
  - 6.3 In following slides, Paul detailed the summary of activities for Tuesday through Thursday. The WG-1 focus was on the schedule. The schedule remains highly aggressive. The draft Phase One DAA MOPS for Verification and Validation will be available for comment on July 27, 2015. The comments will be due August 17, 2015. There will be a period of four days for the comments to be consolidated. The consolidated comments will be distributed August 21, 2015. The comments will be adjudicated during the face to face meeting to be held at RTCA August 24-28, 2015.
  - 6.4 The Draft Phase One DAA MOPS for Verification and Validation will be released to the PMC on September 9, 2015.
7. Agenda Item #8 for Review of the C2 Working Group progress toward developing MOPS
  - 7.1 Paul introduced Steve Van Trees and John Moore, the co-chairs of the Command and Control (C2) Working Group 2 (WG-2). John Moore began to brief from Working Paper SC228P08-WP04.
  - 7.2 John discussed the summary of the current meeting. The majority of the Draft Phase One CNPC MOPS for Verification and Validation text had been reviewed and all formal "shall" statements from section 2 were reviewed. NASA is providing a document manager and the document will be under formal configuration management.
  - 7.3 The draft CNPC MOPS will be distributed June 12, 2015 for review by the membership of SC-228. Comments will be due July 10, 2015. The comments will be reviewed during the face to face meeting at RTCA July 21-23, 2015. The Draft Phase One CNPC V&V MOPS will be provided to the PMC August 7, 2015.

8. Agenda Item #9 for Action Item Review

8.1 There were no outstanding actions to be reviewed.

9. Agenda Item #10 for Any Other Business

9.1 Paul called for the Plenary Attendees to identify any other business that needed to be discussed during this Plenary.

9.2 There was the presentation of a plaque to Jim Williams by Margaret Jenny for his contributions to RTCA.



In recognition of our friend and colleague

**James "Jim" Williams**  
**Federal Aviation Administration**

Special Committee 167 & DO-178B - Software Considerations in  
Airborne Systems and Equipment - September 1989 - December 1992  
Special Committee 159/WG-4 & DO-217 - MASPS DGNSS Instrument Approach System:  
Special Category I (SCAT I) - August 1992-1993  
Program Management Committee - November 2005 - March 2012  
SC-228 - UAS Steering Committee - July 2013 - May 2015

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Margaret T. Jenny, President

10. Agenda Item #11 for Date, Place and Time of Future Meetings

10.1 There will be no Plenary for the WG2 – C2 July 21-23, 2015 or the WG1- DAA August 24-28, 2015 meetings.

10.2 The next Plenary will be hosted by NASA Ames at their facilities in Mountain View, California on November 20, 2015.

11. With no further questions or comments from the Plenary participants, Paul thanked everyone for their participation and the meeting was adjourned at about 10:40am, Friday, 22 May 2015.

12. The currently agreed to and proposed meeting dates for SC-228 are summarized as follows:

| Meeting #      | Dates                | Meeting Location  |
|----------------|----------------------|---|
| WG1            | Weekly               | Monthly calls on Monday, 3:00pm to 5:00pm                       |
| WG2            | Weekly               | Weekly calls on Wednesdays, 11:00am to 1:00pm                   |
|                |                      |   |
| WG Mtgs C2     | 21-23 July 2015      | C2 WG Face-to-Face Meetings at RTCA (No plenary session)        |
| WG Mtgs<br>DAA | 24–28 August 2015    | DAA (all five days, no Plenary session) 1:00 pm start first day |
|                |                      |   |
| WG Mtgs        | 16 –19 November 2015 | DAA & C2 WG Face-to-Face Meetings at NASA Ames                  |
| Plenary #9     | 20 November 2015     | Plenary Meeting # at NASA Ames starting at 9:00am EDT           |

### Appendix A – List of SC-228 Plenary #8 Participants

|                    |   |                    |
|--------------------|---|--------------------|
| George Ligler      | SC-228 Plenary Co-Chair                                   | Consultant to PMEI |
| Paul McDuffee      | SC-228 Plenary Co-Chair                                   | Insitu Group Inc.  |
| Kathryn Ciaramella | SC-228 Plenary & WG1 Secretary                            | FAA, ANG-C31       |
| Paul Schaeffer     | SC-228 WG1 for DAA, Co-Chair                              | U.S. Air Force     |
| Don Walker         | SC-228 WG1 for DAA, Co-Chair                              | FAA, AIR-130       |
| John Moore         | SC-228 WG2 for C2, Co-Chair                               | Rockwell Collins   |
| Steve Van Trees    | SC-228 WG2 for C2, Co-Chair & Designated Federal Official | FAA, AIR-130       |
|                    |   |                    |

|    | Name               | Company/Agency                                | Name                | Company/Agency                                 |
|----|--------------------|---|---------------------|--|
| 1  | Ahn, Jae           | ETRI (Electronics and Telecommunications R... | Kim, Hee            | ETRI (Electronics and Telecommunications R...  |
| 2  | An, Song           | Northrop Grumman Corporation                  | King, Lance         | Northrop Grumman Corporation                   |
| 3  | Box, Frank         | The MITRE Corporation                         | Laveon, Thomas      | Craft and Theory LLC                           |
| 4  | Cannane, David     | U.S. Air Force                                | Lester, Ted         | The MITRE Corporation                          |
| 5  | Cassidy, Sean      | Amazon Prime                                  | Ligler, George      | Project Management Enterprises Inc.            |
| 6  | Chamberlain, James | NASA  | Loeering, Greg      | Northrop Grumman Corporation                   |
| 7  | Ciamella, Kathryn  | Federal Aviation Administration               | Mariano, Sheila     | Federal Aviation Administration                |
| 8  | Coleman, Brad      | Broadcast Microwave Services, Inc. (BMS, I... | Markin, Kelly       | The MITRE Corporation                          |
| 9  | Consiglio, Maria   | NASA  | McCullen, Robert    | ACSS   |
| 10 | Cox, Earl          | AeroVironment                                 | McDuffee, Paul      | Insitu Inc.                                    |
| 11 | DeMott, Ed         | Wendie L. Kellington, Attorney at Law PC      | McMullen, Kyle      | National Institute for Aviation Research (...) |
| 12 | Divis, Dee Ann     | Inside GNSS                                   | Moore, John         | Rockwell Collins, Inc.                         |
| 13 | Eckstein, Bruce    | Exelis  | Moses, Harold       | RTCA, Inc.                                     |
| 14 | Edwards, Paul      | NEDO  | Noth, Kyle          | The MITRE Corporation                          |
| 15 | Engh, Christina    | UASolutions Group                             | O'Leary, Michelle   | Regulus Group                                  |
| 16 | Farrier, Thomas    | ClancyJG International                        | Olsen, Doug         | University of North Dakota                     |
| 17 | Ferrell, Tom       | Ferrell and Associates Consulting, Inc.       | Plawecki, Daniel    | Northrop Grumman Corporation                   |
| 18 | Griner, Jim        | NASA  | Randall, Debra      | NASA   |
| 19 | Hall, Michael      | The MITRE Corporation                         | Reed, Mark          | Air Line Pilots Association                    |
| 20 | Henriksen, Stephen | Exelis  | Rogers, Jennifer    | Northrop Grumman Corporation                   |
| 21 | Hobbs, Alan        | San Jose State University Foundation          | Schaeffer, Paul     | U.S. Air Force                                 |
| 22 | Hoffler, Keith     | Adaptive Aerospace Group                      | Scribner, Kelvin    | Sagetech Corporation                           |
| 23 | Huckabee, Joey     | FreeFlight Systems                            | Stephens, Jonathan  | Defence Equipment & Support (UK MoD)           |
| 24 | Hughes, Robert     | Northrop Grumman Corporation                  | Suarez, Brandon     | General Atomics Aeronautical Systems, Inc.     |
| 25 | Jack, Devin        | Adaptive Aerospace Group                      | Swider, Christopher | Federal Aviation Administration                |
| 26 | Jackman, Chris     | Google  | Van Trees, Stephen  | Federal Aviation Administration                |
| 27 | Jackson, Barry     | Cahon Systems Inc                             | Walker, Don         | Federal Aviation Administration                |
| 28 | Jackson, Marshall  | <guest>                                       | Walton, Andre       | U.S. Air Force                                 |
| 29 | Jeziarski, Carl    | Federal Aviation Administration               | Warren, Jeremy      | Booz Allen Hamilton                            |
| 30 | Kelley, Mark       | Esterline AVISTA                              | Williams, James     | Federal Aviation Administration                |
| 31 | Kellington, Wendie | Wendie L. Kellington, Attorney at Law PC      |                     |  |
|    |                    |   |                     |  |

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Kathryn M. Ciamella  
Secretary, RTCA SC-228

CERTIFIED as a true and accurate summary of the Meeting.

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George Ligler  
Co-Chair, RTCA SC-228

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Paul McDuffee  
Co-Chair, RTCA SC-228