

RTCA SC-228
Summary of Plenary 10 – RTCA Paper No. 218-16/SC228-039
Washington, D.C.
9:00 am, Thursday, July 14, 2016

The tenth Plenary of RTCA Special Committee 228 was called to order by SC-228 Co-Chair, Paul McDuffee at 9:04 am on 14 July 2016, from within the RTCA building in Washington, D.C. Paul welcomed all attendees.

1. Agenda Item #1 - Welcome/Introductions/Administrative Remarks
 - 1.1 The session started off with Paul McDuffee announcing himself and Rick Heinrich as the Co-Chairs for SC-228. Paul continued with asking each attendee to introduce him or herself. Steve Van Trees, the FAA Designated Federal Official (DFO), John Moore and Brandon Suarez, co-chairs of WG-2 and WG-1 respectively, also introduced themselves. The complete list of session participants is listed in Appendix A.
 - 1.2 Paul introduced Steve Van Trees, who read the Public Meeting Announcement from the Designated Federal Official.
 - 1.3 Al Secen read the proprietary information policy and discussed the new process and requirements for continuing membership as an RTCA member. He also provided logistical information for breaks and reviewed how to properly use the microphones.
2. Agenda Item #2 – Agenda Overview. Paul went over the agenda and indicated that a majority of the Plenary would focus on the status of the two Working Groups. There were no action items from last meeting. Paul pointed out that agenda item #9, Other Business, is specific to the future activities the sub-committee would undertake.
3. Agenda Item #3 - Review/Approval of Minutes from Plenary #9 (RTCA Paper No. 010-16/SC228-030 held Friday, November 20, 2015 at NASA Ames, CA.). The minutes were approved after no comments from the floor.
4. Agenda item # 4 - EUROCAE WG-73 Update.
 - 4.1 Paul McDuffee shared that WG-73 and WG-71 have been combined into a Working Group for Remotely Piloted Aircraft Systems (WG- RPAS). Under this WG a TOR has been developed and several sub-groups were established including, Geo Limitations, C2, DAA, RPAS for auto taxi/landing, Design Standards and Operational Risk Assessment.
 - 4.2 Paul noted that there is a continuous reference and expectation of support from SC-228.

4.3 In response to Rick Henrich's question, Paul indicated that an OSED, CONOPS and MASP is planned to be developed for each sub-group by 2017/2018.

5. Agenda Item # 5 – Review of RTCA Steering Committee Activity

5.1 Steve George spoke. Earl Lawrence attended the May 27th Steering Committee and complimented SC-228 team for their efforts. Steve echoed Earl's comments that Phase 2 is moving forward, acknowledged that standardization is needed and the regulatory framework is still challenging. Part 107 goes into effect in August and the FAA is looking to continue to expand its provisions. AVS is working with several organizations across the FAA, namely, PMO, ATO, and AFS & Aircraft Certification, to tease out the hidden assumptions that are needed to operationalize the standards. Steve commended Paul McDuffee and Rick Heinrich on their efforts towards meeting the MOPS deadlines.

5.2 Paul mentioned that there is a follow-up Steering Committee meeting scheduled in the next week.

6. Agenda Item #6 - Report from WG-1 for DAA progress on the DAA MOPS

6.1 Brandon Suarez presented; the briefing is attached.

6.1.1 He highlighted the Verification and Validation activities that included NASA's Flight Test #4 and Part-task 6. Flight Test #4 included 19 days of flying and generated over 260 encounters. Part-Task 6 generated over 466 encounters and included 16 participants. Data from both activities is being fed into the MOPS. He expressed thanks to NASA.

6.1.2 He discussed the approach to operationalizing the MOPS and thanked the United States Air Force (USAF) for providing the simulation environment. The FAA established an SRMP that is open to participation from both industry and the broader stakeholder community. Two additional meetings are scheduled.

6.1.3 He reviewed the current schedule and noted that FRAC has begins August 19th (instead of August 13th) and the next face-to-face meeting is scheduled from October 2-6, 2016; ahead of the October 7th Plenary.

Paul commented that the current schedule represents minimal slippage and the quality of work produced by WG 1 is remarkable. A question was asked regarding the FAA's support of the schedule date changes given the FAA's interest (as per E. Lawrence's comments at the last Leadership meeting) in RTCA meeting its deadlines. The participants were reminded that only the FRAC dates changed; the milestones remain intact.

7. Agenda Item #7 - Report from WG-2 for C2 progress on the C2 MOPS

- 7.1 John Moore briefed; the presentation is attached. John reviewed the previous deliverables and reminded the group of that the charge for WG2 was to maintain the integrity of the schedule and stay focused. Between twenty-five and thirty people have consistently participated in the WG through independent writing teams contributing the larger team. John gave a special acknowledgement to NASA and MITRE for their participation in the Validation & Verification and Analytics, respectively.
 - 7.2 John shared that consensus has been reached on resolution of all FRAC comments and the MOPS will be delivered on schedule - July 29th. A total of 828 comments were received. A summary of the resolutions for the 61 non-concurs was provided.
 - 7.3 John went over the outline of the MOPS and discussed the limitations of the current MOPS. A decision was made to go forego an OSED or MASPS; accordingly, the number of appendices represents the components of those documents needed to develop the MOPS.
 - 7.4 On behalf of WG2 John recommended that the MOPS move forward for PMC approval.
 - 7.4.1 Steve Van Trees asked what was the group [WG2] looking for in terms of stakeholder feedback (i.e., what are the expected next steps?) John re-framed the question asking how the MOPS will be mechanized. Both Steve and John agreed that there is not enough information to develop a technical standard order (TSO) but a draft could be developed along with a draft Aircraft Circular (AC) and sent to SC-228 member for review and comment.
 - 7.4.2 Steve George requested that confirmation that concurrence was received from both the FAA Spectrum Office and the Department of Defense (DoD). The Spectrum Office representative concurred. The DoD representative was not presents but Steve Van Trees reassured the group that DoD would not have allowed the FAA to move forward if they weren't agreeable.
8. Agenda Item #8 – Action Items – none.
 9. Agenda Item #9 – Other Business
 - 9.1 Kelly Markin briefed on the Phase 2 TOR, the slides are attached.
 - 9.1.1 Paul provided background on the Phase 2 Terms of Reference (TOR). An ad hoc team was created in September of 2015 and has met 5 times since.
 - 9.1.2 The scope of Phase 2 is 1)DAA ground-based and airborne non-cooperative sensors to enable UAS-specific operations in all classes of airspace and, 2)C2 Beyond Radio Line of Sight (BRLOS). Similar to the approach used for Phase 1 white papers would be developed for each domain.

- 9.1.3 Other ideas for Phase 2 include developing a Concept of Operations (CONOPS) and operating environment description for small UAS (sUAS) at lower altitudes and performance standards for low power L-band command and control (C2). Paul suggested discussing this further at the next Steering Committee meeting.
- 9.2 A question was asked if operations below 500 ft would be supported on the C- and L-bands. John Moore responded in the negative.
- 9.3 There was general discussion on the scope and problem space for 228. Steve George indicated that the existing TOR is clear on the direction for 228.
10. Agenda Item #10 - Date, Place and Time of Next Meeting : The suggestion was made to have the final Phase 1 Plenary meeting on the afternoon of Thursday, October 6th and carry-over to Friday (October 7th) if necessary.
11. Agenda Item#11 – Adjournment: With no further questions or comments from the Plenary participants, Rich commended the Working group Chairs for their diligence. Paul thanked everyone for their participation and adjourned the meeting at about 10:53 PM, Friday, 14 July 2016.

Appendix A – List of SC-228 Plenary Participants

Richard Heinrich	SC-228 Plenary Co-Chair	Rockwell Collins
Paul McDuffee	SC-228 Plenary Co-Chair	Insitu Group Inc.
Kristina Carr	SC-228 Plenary, Secretary	FAA
Paul Campbell	SC-228 Plenary, WG1 Secretary	FAA
Brandon Suarez	SC-228 WG1 for DAA, Co- Chair	General Atomics
Don Walker	SC-228 WG1 for DAA, Co- Chair	FAA
John Moore	SC-228 WG2 for C2, Co- Chair	Rockwell Collins
Steve Van Trees	SC-228 WG2 for C2, Co- Chair	FAA, AIR-130
Lee Nguyen	SC-228 WG2 for C2, Secretary	FAA
Al Secen	SC-228 Program Director	RTCA

Name	Company	Name	Company
Adams, Hal	Accord Software & Systems, Inc.	Jack, Devin	Adaptive Aerospace Group
Song, An	Northrop Grumman Corporation	Jewell, James	UAV MarketSpace, Inc.
Arthur, Keith	NASA	Kay, Jacob	Bihle Applied Research, Inc.
Baraban, Dmitri	MITRE	Koksal, Emre	Ohio State University
Battiste, Vernol	NASA	Kunzi, Fabrice	General Atomics Aeronautical Systems, Inc.
Calhoun, Sean	Calhoun Analytics	Lester, Ted	MITRE
Chemla, Meir	Israel Aerospace Industries LTD	Lewis, Elliot	NASA
Chen, Won-Zon	JeSTAR Associates	Lombard, Kolie	SAIC
Cirulli, Dave	Meggitt	Lu, J.J.	General Atomics Aeronautical Systems, Inc.
Connolly, Jack	NASA	Mariano, Sheila	FAA
Cook, Stephen	Northrop Grumman Corporation	Neale, Michael	ACES, Inc
Cowles, Lawrence	FAA	Nellis, Don	FAA
Crum, Vincent	US Air Force	Nesemeir, Gregg	FAA
Darrah, Sara	Booz Allen Hamilton (USAF Exempt)	O'Leary, Michelle	Regulus Group
Eckstein, Bruce	Harris Corporation	Pagano, Thomas	Regulus Group
Euteneuer, Eric	Honeywell International, Inc.	Patel, Vudyt	FAA

Name	Company	Name	Company
Flom, Nicholas	Northern Plains UAS Test Site	Pratt, Ethan	Bihle Applied Research, Inc.
Georgiou, Peter	FAA	Randall, Debra	NASA
Graeff, Richard	US Air Force	Santiago, Confesor	NASA
Grindle, Laurie	NASA	Sivananthan, Siva	ARCON Corporation
Hackenberg, Davis	NASA	Smearcheck, Samantha	Calhoun Analytics
Hirt, Ruth	FAA	Smith, Mark	L-3 Communications
Hobbs, Alan	San Jose State University Foundation (Exempt)	Theis, Sid	RDRtec, Inc.
Hoffler, Keith	Adaptive Aerospace Group	Theunissen, Erik	Information Systems Delft
Vu, Kim	NASA	Warren, Jeremy	Booz Allen Hamilton (USAF Exempt)
White, Andy	Defense research Association	Wilkening, Christopher	Bihle Applied Research, Inc.
Stybel, Thomas	NASA	Feinberg, Arthur	Intelligent Automation, Inc.

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Kristina Carr
Secretary, RTCA SC-228

CERTIFIED as a true and accurate summary of the Meeting.

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Richard Heinrich
Co-Chair, RTCA SC-228

– S –

Paul McDuffee
Co-Chair, RTCA SC-228