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RTCA SC-228
Summary of Plenary 11 – RTCA Paper No. 305-16/SC228-044
Washington, D.C.
9:00 am, Friday, October 7, 2016

The eleventh Plenary of RTCA Special Committee 228 was called to order by SC-228 Co-Chair, Rick Heinrich at 9:01 am on 7 October 2016, from within the RTCA building in Washington, D.C. Rick welcomed all attendees.

1. Agenda Item #1 - Welcome/Introductions/Administrative Remarks.

- 1.1 The session started off with Rick Heinrich announcing himself as the Co-Chair for SC-228 and that Paul McDuffe would not be attendance.
- 1.2 Al Secen covered logistics, reminded attendees to sign-in and reviewed how to properly use the microphones.
- 1.3 Rick introduced Steve Van Trees, who read the Public Meeting Announcement from the Designated Federal Official.
- 1.4 Al reviewed the proprietary policy and community participation. He emphasized the membership policy and it doesn't apply to the plenary but it does apply to the Working Groups.
- 1.5 Rick asked each attendee to introduce him or herself. John Moore and Brandon Suarez, co-chairs of WG-2 and WG-1 respectively, also introduced themselves. Participants on the phone included Frank Tannus, John Hensyl and Kristina Carr. The complete list of session participants is listed in **Appendix A**.

2. Agenda Item #2 – Agenda Overview.

Rick went over the agenda and proposed that the Agenda Item #7, Phase 2 TOR, be moved to the first discussion item followed by the DAA (WG-2) discussion and then the C2 Link (WG-1) discussion. Jim Williams. like to add an item to Other Business.

3. Agenda Item #3 - Review/Approval of Minutes from Plenary #10 (RTCA Paper No. **218-16/SC228-039** held Thursday, July 14, 2016 at RTCA, Washington, DC). The minutes were approved after no comments from the floor.
4. Agenda Item #4 – Review of RTCA Steering Committee Activity. There has been no Steering Committee meeting since the Plenary #10.
5. Agenda Item #7 – The Phase 2 TOR was approved by the PMC with specific direction to develop White Papers.
6. Agenda Item #6 – Report from WG-2 for C2 progress on the C2 MOPS.

- 6.1 John Moore briefed; the presentation is available on Workspace. John reviewed the previous accomplishments. He indicated that FAA Aircraft Certification will invoke the MOPS through an Advisory Circular and DO-362 C2 Datalink MOPS (Terrestrial). The MOPS was approved by the PMC on September 22, 2016.
 - 6.2 John reviewed the phase 2 deliverables, organizational structure and work plan. The WG will continue to hold quarterly face-to-face meetings and an additional face-to-face meeting after scheduled FRACs.
 - 6.2.1 Deliverables
 - 6.2.1.1 July 2017 – White Paper
 - 6.2.1.2 October 2017 – C2 MASPS/SATCOM
 - 6.2.1.3 July 2018 C2 MASPS/Networks
 - 6.2.2 Organizational Structure
 - 6.2.2.1 Committee of the whole.
 - 6.2.2.2 There are three writing teams: ConOps led by Marv, SATCOM led by Mike N. and Networks led by Ravi.
 - 6.2.3 Work Plan
 - 6.2.3.1 ConOps/Use Cases: The team will start by reviewing the SC-203 OSED and update recent commercial use cases. The intent is to stay aligned with external efforts that are similar.
 - 6.2.3.2 MASPS/SATCOM: An operational view of the pilot-aircraft interaction was presented. In response to a question from the floor, it was reiterated that the TOR only specifies performance standards for command and control.
 - 6.2.3.3 MASPS/Networks: The objective is to define the various networks including all the connectivity within the communications networks.
 - 6.3 John mentioned that a draft Inter-special Committee Request Agreement was sent to both SC-222 (SATCOM Committee) and SC-223 IPS and AeroMACS and that a final ISRA will be requested at the December PMC for AC-222. The goal is to stay aligned with groups.
 - 6.4 The DAA WG Co-Chair, Brandon Suarez, requested to coordinate the schedules for the two working groups.
7. Agenda Item #6 - Report from WG-1 for DAA progress on the DAA MOPS
 - 7.1 Brandon Suarez presented; the briefing is available on Workspace.
 - 7.1.1 FRAC Update: Two papers were released on August 19, 2016 and the comment period closed on September 20, 2016. There were several non-concurs on the SE process and Safety SRMP within FAA. The concerns will be noted in the introduction of the document and improvements will be identified for Phase 2. The document is currently 95% complete.
 - 7.1.1.1 Collision avoidance interoperability rely on SC-228/SC-147 ISRA.
 - 7.1.1.2 The definition of DAA well-clear has concurrence from the commenter.

- 7.1.1.3 There are 6 editorial comments (i.e., page numbers and tables).
 - 7.1.1.4 There are five comments related to CNPC that were resolved to align with the CNPC MOPS.
 - 7.1.1.5 An agreement was reached between the FAA and the DoD Spectrum Office on band availability between the Radar MOPS and DAA Radar Frequency Band. The resolution is to expand the appendix and include the bands allocated by law. Brandon commented that a note is being added to the document to encourage readers to contact the FAA Spectrum Office prior to developing a system.
 - 7.1.2 All non-concurrences are to in principle however, changes impact both the test vectors and procedures. WG-1 requested a Plenary be scheduled for November 14, 2016 prior to the DAA/Radar MOPS PMC to allow finalization of the MOPS.
 - 7.1.3 It was agreed that a virtual meeting will be registered in the usual way and that it will be noted that the only topic is the concurrence of the DAA MOPS.
 - 7.1.4 John M. suggested posting the resolutions prior to the virtual Plenary.
 - 7.1.5 There were concerns regarding the probability of resolving the remaining non-concurrences.
 - 7.1.5.1 The Army submitted 17 related to the System Engineering process and the definition of well-clear. Brandon assured the attendees that the Army is trying to better understand the process and is not trying to stall the completion of the document. The Army will have an opportunity to review the updates of the SRMP results to assess if mitigations need to be enacted. The Army wants to minimize its risk to certification if its current process is divergent from the FAA.
 - 7.1.5.2 A second question regarding the likelihood for concurrence related to the listing of the band allocations.
 - 7.1.5.3 Don stated that the risks to making the date are related to performing the modeling and simulation; the writing of the document is a minor component.
8. Agenda Item #8 – Action Items
- 8.1 AI will schedule a consensus tool, meeting notice and distribution of the comment matrix.
 - 8.2 WG-1 Co-chairs will post the comment resolution matrix.
9. Agenda Item #9 – Other Business
- Rick shared that EUROCAE WG-105, Remotely Piloted Aircraft Systems was approved on September 29, 2016 to replace WG-73 and -93. He noted that the TOR primarily focuses on the large and references working with RTCA-228 to stay aligned. Considerations for a process to share information are being developed (e.g., document exchange).
- 9.1 Jim Williams. stated that FCC reallocated bands 37.5-38.5 GHz for mobile radio service. This has a potential impact for an implementation of a Due Regard radar system being developed by Echodyne.

10. Agenda Item #10 - Date, Place and Time of Next Meeting: It was agreed that a virtual Plenary will be scheduled for November 14th, 2016 to vote on the acceptance of the C2 MOPS. The following Plenary will be driven by the whitepaper. A Steering Committee may be needed in late January or early February.

11. Agenda Item#11 – Adjournment: With no further questions or comments from the Plenary participants and adjourned the meeting at about 10:29 AM, Thursday, 7 October 2016.

Appendix A – List of SC-228 Plenary Participants

Richard Heinrich	SC-228 Plenary Co-Chair	Rockwell Collins
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	Organization
An, Song	Northrop Grumman Corporation
Arthur, Keith	NASA
Askar, Naiel	General Atomics Aeronautical Systems, Inc.
Balanga, RJ	NASA
Baraban, Dmitri	The MITRE Corporation
Boci, Tony	Exelis
Box, Frank	The MITRE Corporation
Calhoun, Sean	Calhoun Analytics
Campbell, Paul	Federal Aviation Administration
Carino, Joslin	Federal Aviation Administration
Casey, Tamara	Ligado Networks
Chappell, Sherry	Federal Aviation Administration
Cirulli, Dave	Meggitt
Connolly, Jack	NASA
Cook, Stephen	Northrop Grumman Corporation
Cowles, Lawrence	Federal Aviation Administration

Name	Organization
Cox, Earl	AeroVironment (EUROCAE member)
Darrah, Sara	Booz Allen Hamilton (USAF Exempt)
Eckstein, Bruce	Harris Corporation
Edwards, Matthew	MIT Lincoln Laboratory
Euteneuer, Eric	Honeywell International, Inc.
Farrier, Thomas	ClancyJG International
Flavin, Melanie	Federal Aviation Administration
Flom, Nicholas	Northern Plains UAS Test Site (NPUASTS)
Gagne, Michael	Ligado Networks
Georgiou, Peter	Federal Aviation Administration
Gheorghisor, Izabela	The MITRE Corporation
Griner, Jim	NASA
Guendel, Randall	MIT Lincoln Laboratory
Haissig, Christine	Christine Haissig Consulting LLC (Exempt, ...)
Hammer, Jonathan	Noblis Inc.
Hammond, Marvin	Technology Providers,

Name	Organization
	Inc.
Heinrich, Richard	Rockwell Collins, Inc.
Hendrickson, Adam	U.S. Army
Hensyl, John	
Hirt, Ruth	Federal Aviation Administration
Hobbs, Alan	San Jose State University Foundation (Exempt)
Hoffler, Keith	Adaptive Aerospace Group
Hughes, Robert	Northrop Grumman Corporation
Hylinski, Steven	Adaptive Aerospace Group
Isaacson, Doug	NASA
Jack, Devin	Adaptive Aerospace Group
Jackson, Barry	Cahon Systems Inc
Jain, Ravi	Federal Aviation Administration
Janus, Mike	Twivision Engineering Services Group, LLC
Jarrell, Michael	NASA
Kaliardos, Bill	Federal Aviation Administration
Karr, Kristina	Federal Aviation Administration
Kay, Jacob	Bihrl Applied Research, Inc.
Kim, Heewook	Electronics and Telecommunications Researc...
Knickelbein, Jeffrey	Cobham Aerospace Communications
Kunzi, Fabrice	General Atomics Aeronautical Systems, Inc.
Leeper, Charles	The Johns Hopkins University
Lester, Ted	The MITRE Corporation
Lewis, Elliot	NASA
Lombard, Kolie	SAIC
Lu, J. J.	General Atomics Aeronautical Systems, Inc.

Name	Organization
Lucius, William	Air Line Pilots Association
Mariano, Sheila	Federal Aviation Administration
Maskasky, Robert	Aurora Sciences LLC
Mayes, Russell	RPA Communications (Exempt)
Mooney, Rose	Mid-Atlantic Aviation Partnership
Moore, John	Rockwell Collins, Inc.
Munoz, Cesar	NASA
Neale, Michael	General Atomics Aeronautical Systems, Inc.
Nguyen, Lee	Federal Aviation Administration
O'Leary, Michelle	Regulus Group
Olsen, Doug	University of North Dakota
Olster, David	Saab Sensis Corporation
Pagano, Thomas	Regulus Group
Pala, A. James	Air Line Pilots Association
Patterson, Brian	The MITRE Corporation
Pratt, Ethan	Bihrl Applied Research, Inc.
Reed, Mark	Air Line Pilots Association
Santiago, Confesor	NASA
Sivananthan, Siva	ARCON Corporation
Smearcheck, Samantha	Calhoun Analytics
Smith, Mark	L-3 Communications
Suarez, Brandon	General Atomics Aeronautical Systems, Inc.
Tannus, Frank	
Thadhani, Suresh	Peerless Technology
Theunissen, Erik	Information Systems Delft
Thippavong, David	NASA
Thompson, Mark	Northrop Grumman Corporation
Vu, Kim	NASA
Warren, Jeremy	Booz Allen Hamilton

Name	Organization
	(USAF Exempt)
White, Andy	Defense Research Associates
Wilkening, Christopher	Bihle Applied Research, Inc.
Williams, Jim	Dentons Aviation Practice

Name	Organization
Williams, Kevin	Federal Aviation Administration
Young, Daniel	Peerless Technology
Young, Ray	Northeast UAS Airspace Integration Researc...

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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