SUMMARY: RTCA advises the public of the Eighteenth RTCA SC-228 Minimum Performance Standards (MPS) for UAS Plenary Session.

DATES: January 24, 2019 1:00 pm - 5:00 pm.

LOCATION: RTCA Headquarters, 1150 18th Street NW, Suite 910, Washington, DC 20036.

POINT OF CONTACT: Contact Al Secen by email asecen@rtca.org, telephone 202-330-0647, or mailing address RTCA, 1150 18th Street, NW, Suite 910, Washington, DC, 20036.

FOR FURTHER INFORMATION: Visit the RTCA Web site at https://www.rtca.org/content/special-committees

SUPPLEMENTARY INFORMATION: The agenda will include the following:

Thursday, January 24, 2019

1. Call To Order – Welcome/Introductions
2. Review RTCA Meeting Guidelines
3. Opening Remarks
4. Approve Meeting Minutes From Meeting #17
5. Approve Frac Resolutions For C2 Link MASPS
6. Wg1 Status Report
7. Wg2 Status Report
8. EUROCAE WG 105 Status
9. New Business
10. Adjourn

1 Call to order (John Moore)

2 Opening Remarks / Introductions (John Moore)
   - Actually happened 2nd instead of 3rd (3rd is the usual order)
   - Around the room and then around the phone
   - Al Secen took attendance

3 Review RTCA Meeting Guidelines (Al Secen)
   - Actually happened 3rd instead of 2nd (2nd is the usual order)
   - Emergency exit and webex procedures

4 Approve Meeting Minutes from Meeting #17 (Al Secen)
   - Al Secen posted to the Workspace for Meeting #17 on 24-Jan-19 – Christina submitted
   - Proposal to provisionally approve them; comments need to be submitted to Al Secen by 5PM Eastern Time 30-Jan-19
   - Last plenary was a proposal to accept the changes to the TOR
     - Marvin moves, Jim seconds the motion, motion approved

5 Approve Exit of FRAC for C2 Link Minimum Aviation System Performance Standards (MASPS) Presentation for PMC Approval (Jim Williams)
   - Summary of the organizations participating the WG2 (no changes from FRAC)
   - Document outline (no changes from FRAC)
- Key contributors (minor change)
  o Don Arnstein dropped off, Larry Cowles took over for Section 4
- C2 Link System MASPS Scope (no change)
- Description of Document
  o Prepared following a **tailored** DO-264 process
  o No interoperability specifications because a single entity has authority over **both** sides of the system
- FRAC Comment Process
  o 531 comments, 51 **Non-Concur**, 132 **High**; All comments reviewed and solutions captions in comment matrix
  o Some editorial comments marked as **Non-Concur** or **High** “priority inflation”
    - Review RTCA guidelines for the comment priority
    - **Non-Concur** means “your company cannot live with it, and will fundamentally affect your role” – should be used sparingly
  o Few comments actually drove major changes to the document (even the non-concurs or highs) though many revisions increased clarify to the reader
  o Redline version submitted to membership on 11-Jan-19
- FRAC Comment Resolutions
  o Done via email
  o Significant changes worked in person at F2F Meeting
- Significant Changes to the MASPS
  o Risk Table based on Kinetic Energy was considered to be incomplete representation of process to establish design requirements
    - The issue was the table **taken out of context**
    - Original risk matrix table was simplified
      - Removed the references to kinetic energy (since this was just a starting point anyway)
      - Removed the references to anything except the Risk Class III example aircraft
      - No qualitative values were changed; no changes to the requirements in Section 3
    - References to **Design Assurance Levels** was removed as there is no published FAA Guidance relating Risk Classes to Design Assurance Levels; general concept of design assurance is still referenced
    - Summary of the notes in the table viewed
  o Section 3.10 “Safety Requirements” was challenged as redundant to the performance requirements
    - Text modified to state that the objective of the MASPS is ONLY to capture safety requirements derived from the OSA (except security requirements)
    - Distinction was remove between performance requirements and safety requirements
- Approval of C2 Link Systems MASPS to Exit FRAC
  o Requests Plenary to approve to recommend
  o Jim made request to Chairs John M. and Paul M.
  o Marv moves to accept the revised version, Al Malaga seconds motion
  - **No objections from the phone or the room – uncontested consensus to move to PMC**
  o 8th product to come out of SC 228 (all on time and on schedule – woot!)
6 Working Group 1 Status Report (Ted Lester)

- WG1 Detect and Avoid Phase 2
  - Rev A – FRAC in Aug/Sept 2019
    - Class D-g, Transit through B-g
    - Terminal Area Operations – Straight in precision approaches / departures in Class C-g
    - Ground based surveillance
      - 3D radars
  - Rev B – FRAC in Aug/Sept 2020
    - DO-365B MOPS
      - ACAS X (SC 147)
      - Optional automatic maneuvering
      - Low SWAP for non-Cooperative Well Clear and Alerting
      - Enable low-SWAP ATAR
    - DO-366A Air to Air Radar (ATAR)
      - New low SWAP class
  - DO-TBD Airborne EO/IR Sensor MOPS

  - Question from Bruce – GBRS is a network of radar – where is the ground based DAA equipment?
    - ANS: Class 7 equipment is ground only (same processing on air and ground) covered in Rev A
  - Question from Don N – is there any impact on the C2 datalink in the Rev A?
    - ANS: Current working with the uplink; the ground system prioritizes the tracks and transmits via the C2 link (few targets uplinked at 1Hz)
    - Don’s request – clarify any changes if required to the C2 link
  - Comment from Michael – need to verify that the uplink requirements as they stand today are acceptable for an uplink of DAA intruder tracks
  - Comment from Jim – proposal to include the changes in the Rev A of DO-362 for changes required by an uplink of DAA intruder tracks
  - Comment from John – identify the change in volume/scope impact (3% vs 20%) for the service classes of data. Concur to add in DO-362A.
  - Question – Does the info on data need to go in Rev A of the MASPS, or in DO-362A? WG2 to decide
  - Comment from Bruce – Unsure if the NASA work done in this area was ever wrapped into the requirements in MASPS or the Rev A of the MOPS

- ACTION – Discussion item in the next joint meeting (April F2F)
  - One of the conops for the Rev A MASPS will use ground based radar
  - Note- HAPS may need to include the ground based

- DAA Phase 2 Rev A
  - GBRS MOPS – RAC complete, incorporating comments
  - DO-365A MOPS
    - Appendix A OSED RAC
    - DO-365A RAC in progress (comments due 7-Feb)
  - FRAC for both in August 2019
    - All at risk due to the US government shutdown

- Upcoming Meetings
7 Working Group 2 Status Report (Jim Williams)
   - Delivery Dates for 4 more documents remaining
     o MASPS – Jan 2019
     o MASPS Rev A – Jan 2020
     o MASPS SATCOM – April 2020
     o MOPS Rev A – July 2020
   - DO-362A – Tyler Barney
     o Issues with the near/far problem – limitations in proximity to the ground transmitter and range overall
     o C-band satcom coexistence analysis completed (looked at C-band satcom and C-band terrestrial in the same area using the same TDD structure)
       ▪ Noise floor, NOT a frequency issue
       ▪ C-band was allocated to BOTH satcom and terrestrial – need to ensure compatibility
     o Need support for HAPS – need volunteers
     o Overview of the coming months
     o Request for volunteers – contact Tyler Barney tyler.barney@collins.com
     o Meeting occurring after the Plenary session
   - MASPS Satcom – Amelia Wilson
     o Provided overview of topics discussed between Sept F2F and January 2019
     o Overview of the 1st half of 2019
   - Status of Revision of C2 Link Systems MASPS (Rev A)
     o Plan for FRAC in December 2019, to Plenary in January 2020
       ▪ RAC in October to support ICAO
       ▪ June 2019 – CONOPS 3 and 4 Complete
     o Status
       ▪ Extended Aerial Operations CONOPS scenarios in work; initial drafts completed
       ▪ Leaders coming up to speed on Cargo Delivery (UPS) and HAPS (Lockheed Martin)
         o Looking for additional support for OSA and OPA
     o Also need more controller input for remote and oceanic operations

8 New Business (John Moore)
   o 8a – EuroCAE Working Group 105 Status Report (Al Secen); SC 228 is not a joint committee with EuroCAE (one of the few)
   o This briefing was delivered to us by EUROCAE
   o Plenary #5 (November 2018) – Started in 2016 – UAS Operations in EASA
     ▪ Subgroups
       ▪ DAA
       ▪ (C3S) Command, Control, Communications and Security
       ▪ UTM
       ▪ (D&AW) Design and Airworthiness
Enhanced RPAS Automation
(SORA) Specific Operations Risk Assessment
- Plenary in Brussels in June 6th 2019
- List of documents produced
  - Most of this information is guidance material – smaller documents
  - Action – Ask questions about LinQuest – have they looked at the C-band work for BLOS completed by WG-105?
- Review of DAA and C3S Documents in Work
  - WG2 can review the ‘open consultation’ version of the C3S document (their version of FRAC)
  - Question from Bruce – Is there an expectation that RTCA develop comments from EUROCAE? No
    - Question from John - Why not? We could support it
    - Issue with the C-band near far – could be an issue with the TDD frames
  - Action for all who want to review and comment– need to register on EUROCAE to get the document
  - Action for SC 228 WG 2 – work to facilitate the collection of comments
- Review of other focus team work – entire slide deck is in the presentations tab
- Action for Al S./RTCA – will post on the workspace the dates for open consultation
- Action for Al S./ RTCA – Will ship off the information to WG-105 at their next plenary

- 8b – Future Plenary Updates
  - TOR delivery dates
  - 8 additional documents to be FRAC’d
  - Review of the schedule for 2019 and 2020
    - Final artifact in TOR shows the committee standing down in October 2020
  - 19-Apr-19
    - Working status
  - 25-Jul-19
    - DAA MOPS Rev A Enter FRAC
    - Ground Radar MOPS Enter FRAC
  - 24-25-Oct-19 (Two day plenary) – Action – Leadership meeting to verify need for 2 day meeting
    - DAA MOPS Rev A Exit FRAC
    - Ground Radar MOPS Exit FRAC
    - C2 Links MASPS Rev A Enter FRAC

9 Adjourn (John Moore)
- Motion to adjourn by Mark Reed, seconded by Jim