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EUR 260-19/WG108-20

Washington D.C. & Saint Denis, 14 October 2019

**MINUTES OF RTCA SC-223 (PLENARY #34) / EUROCAE  
WG-108 (MEETING #11) / JOINT MEETING #6**  
**“Internet Protocol Suite (IPS) and AeroMACS”**

<b>Date</b>	<b>September 30 – October 4, 2019</b>
<b>Time</b>	<b>9:00am – 5:00pm, Monday – Thursday 9:00am – 12:00pm, Friday</b>
<b>Hosted by</b>	<b>The Boeing Company</b>
<b>Venue</b>	<b>Boeing Flight Services Training Center</b> Longacres 25-01 Building Conf Room 11C9/757 1301 SW 16th Street Renton, Washington 98055 Lobby: 1-206 662 3422
<b>Contact</b>	<b>Michael Vanguardia – Boeing</b> Office: 1-425-237-6517, Mobile: 1-719-649-0199 <a href="mailto:michael.r.vanguardia@boeing.com">michael.r.vanguardia@boeing.com</a>  <b>Rebecca Morrison, Program Director, RTCA</b> (202) 330-0654 or <a href="mailto:rmorrison@rtca.org">rmorrison@rtca.org</a>  <b>Adrian Cioranu, Technical Program Director, EUROCAE</b> +33 1 49 46 19 72 or <a href="mailto:adrian.cioranu@eurocae.net">adrian.cioranu@eurocae.net</a>

Attendees:

<b>Name</b>	<b>Role</b>	<b>Affiliation</b>	<b>Note</b>
d'Humières, François	Member	FREQUENTIS A.G.	
Dlouhy, Ron	Member	Collins Aerospace	
Drásil, Pavel	Member	Honeywell International, Inc.	

Dlouhy, Ron	Member	Collins Aerospace	
Graefe, Jonathan	Member	Collins Aerospace	
Vaughn, Maiolla	Member	International Civil Aviation Organization	WebEx
Morrison, Rebecca	Manager	RTCA, Inc.	
Niraula, Madhu	Member	Collins Aerospace	
Nisbet, David	Member	Thales Group	
Nguyen, Lee	Member	Federal Aviation Administration (FAA)	WebEx
Pelleschi, Stephane	WG-108 Chair	Collins Aerospace	
Phillips, Brent	Government Authorized Representative	Federal Aviation Administration (FAA)	
Popescu, Liviu	Member	EUROCONTROL	
Rossi, Nicolas	Thales	Guest	
Roy, Aloke	SC-223 Chair	Honeywell International, Inc.	
Segers, Robert	Member	Federal Aviation Administration (FAA)	WebEx
Solery, Michel	Member	DSHA-DTI	
Tamalet, stéphane	Member	Airbus	
Vanguardia, Michael	Member	The Boeing Company	
Xu, Xiangyu	Member	Thales Group	
Zeng, Dongsong	SC-223 Secretary	The MITRE Corporation	

## AGENDA

1. Welcome, Introductions, EUROCAE and RTCA Policy Statements, Administrative Remarks
2. Review and approve the Agenda
3. Review of previous meeting notes and action items
4. Review of Current State of Industry Standards
  - a. ICAO WG-I
  - b. AEEC IPS Sub Committee
  - c. Alignment of ICAO, RTCA/EUROCAE, & AEEC timelines and dependencies
5. Current State of Activities
  - a. SESAR Presentation
  - b. ESA IRIS
  - c. ICAO TFSG update
  - d. Any Other Activities
6. Aviation IPv6 Address Framework and Extended Port Number Reservation
7. IPS MASPS Development
  - a. Scope and Methodology of MASPS

- b. Security Requirements traceability
  - c. CONOPS and Use Cases
  - d. OSED
  - e. Safety, Security and Performance Requirements
  - f. Requirements Verification
  - g. Guidance and transition strategy
8. Any Other Topics of Interest
  9. Plans for Next Meetings
  10. Review of Action Items and Meeting Summary
  11. Adjourn when plenary business is complete

**Agenda Items 1. Welcome, Introductions, EUROCAE and RTCA Policy Statements, Administrative Remarks**

Aloke Roy, Chair of SC-223, and Stephane Pelleschi, Chair of WG-108, welcomed the participants. Rebecca Morrison, Program Director, RTCA, presented the RTCA/EUROCAE policy statements.

**Agenda Item 2. Review and approve the Agenda**

The group reviewed and approved the meeting agenda.

**Agenda Item 3. Review of previous meeting notes and action items**

The group approved the SC-223 P32 meeting minutes and updated the status of action items.

**Action Item P34-1:** Rebecca Morrison to provide an initial MASPS authors list based on SC-223 roster and the group will review and determine the final authors list at the completion of the MASP development.

**Action Item P34-2:** Rebecca Morrison to provide instructions of change proposals on the Profile standard.

**Agenda Item 4. Review of Current State of Industry Standards**

**4a. ICAO WG-I**

Liviu Popescu, EUROCONTROL, updated the group on ICAO WG-I activities (see DCIWG WG-I Internetworking overview v0.2.pptx for more details).

- WG-I activities are supporting the work areas defined by CP/DCIWG
  - Job Card CP-DCIWG.006.02 - Provisions on the exchange of information using the aeronautical telecommunication network over the internet protocol suite
  - Job Card CP-DCIWG.007.03 - SARPS and guidance on Air Navigation (Cyber) Security.
- Main Deliverables:

- Annex 10 / IPS SARPS
  - ICAO DOC 9896 - Manual on the Aeronautical Telecommunication Network (ATN) using Internet Protocol Suite (IPS) Standards and Protocol, edition 3
  - ICAO DOC 10090: Manual of Security Services for Aeronautical Communications
  - ICAO DOC 10094: Manual of the Aeronautical Telecommunication Network (ATN) Secure Dialogue Service (SDS)
  - ICAO DOC 10095: Manual of Public Key Infrastructure (PKI) Policy for Aeronautical Communication
- Under consideration for DCIWG-3 (October 2019) meeting approval
    - Security Risk Assessment for Aeronautical Communications
  - WG-I identified as priorities for the development of ATN/IPS, the ATN/IPS Security and the ATN/IPS Mobility including the support of Multilink operations.
  - To better focus on its priorities, WG-I set-up two subgroups:
    - WGI IPS Security Subgroup lead by FAA
    - WGI IPS Mobility Subgroup lead by INMARSAT

WG-I plans to complete all IPS standards development work by the end of 2020 and publish the standards by the end of 2022.

#### **4b. AEEC IPS Sub Committee**

Stephane Pelleschi, Collins Aerospace, provided an update on AEEC IPS subcommittee. AEEC IPS is now progressing on the development of ARINC 858 document. AEEC IPS plans to collaborate with ICAO, RTCA and EUROCAE to figure out how to organize different IPS topics into different standard documents.

#### **4c. Alignment of ICAO, RTCA/EUROCAE, & AEEC timelines and dependencies**

To better facilitate the coordination between ICAO, RTCA/EUROCAE and AEEC, joint meetings are planned for late 2019 and early 2020.

David Robinson, Inmarsat, asked the group what are the security requirements that satellite subnetworks should meet in order to support IPS.

**Action Item P34-3:** Alope Roy and David Robinson to initiate ISRA between SC-222 and SC-223.

The group discussed the AEEC “A658-Section5\_IPS Roadmap,” provided by Rebecca Morrison. Stephane Pelleschi, Collins Aerospace, brought to the group’s attention that the schedule of VDL2 standards update for IPS support may slip to 2023. The group believes that the VDL2 IPS support standardization should be completed by 2022 in order to support IPS deployment schedule.

**Action Item P34-4:** Alope Roy to coordinate with SC-214 on ISRA between SC-214 and SC-223.

### **Agenda Item 5. Current State of Activities**

#### **5a. SESAR FCI update**

François d’Humières, Frequentis, presented an update on SESAR 2020 PJ14-02-04 FCI technical validation (See SESAR2020\_PJ14.02.04\_FCI\_validation results\_v2.pdf for more details).

The key objectives of FCI validation include:

- Evolution of the SESAR1 concept of operations to support future service concepts such as multilink, ATN/IPS, mobility and trajectory-based operations with sector-less voice communications,
- Create technical architecture, FCI requirements, and data link gateway interface documents,
- Development and verification of prototypes,
- Address transversal topics including security, safety, and civil-military interoperability, and
- Support to standardization activities.

The validation is planned to be carried out in two waves: Wave 1 from Q2 2018 to Q3 2019, and Wave 2, from Q4 2019 to Q4 2022. By the end of Wave 1, the technology readiness is expected to be TRL4. Figure 1 shows an overview of the validation plan.

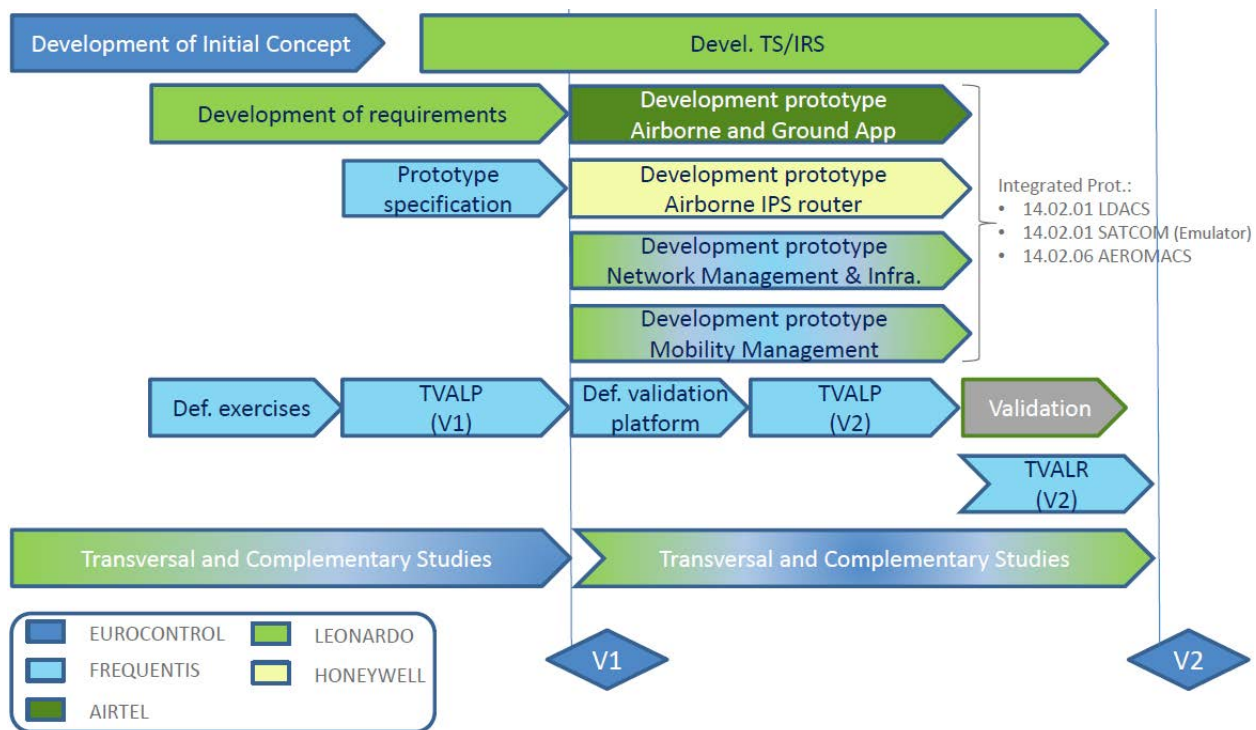


Figure 1. SESEAR FCI Validation Plan Overview

PJ14-02-04 will reach TRL4 for the main enabler CTE-C04 FCI - ATN/IPS and Multilink by end of 2019. The solution validated the integration of other related system enablers (SWIM and ATN B1 applications). And it fulfils the essential operational Use Cases of the FRD – including backward compatibility with OSI. PJ14-W2-77 will aim to achieve TRL6 by further validating performance aspects and testing the solution in a larger and more realistic environment.

## 5b. ESA IRIS

No update was reported on ESA IRIS.

### **5c. ICAO TFSG update**

ICAO Air Navigation Commission formed a Trust Framework Study Group (TFSG) to develop a globally harmonized aviation trust framework of a resilient aviation network. TFSG has three working groups: global resilient aviation interoperable network (GRAIN), current and future operational needs (CAFON) and digital identity working group (DIWG).

### **5d. Any Other Activities**

No other activities were reported.

### **Agenda Item 6. Aviation IPv6 Address Framework and Extended Port Number Reservation**

Aloke Roy, Honeywell, presented his aviation IPv6 address framework information paper (IPS-Addressing-Framework-ARoy-080119.docx) and port number reservation information paper (IPS-Port-Number-Reservation-ARoy-072319.docx). The group reviewed both papers and made a couple of suggestions for improvement.

**Action Item P34-5:** Rebecca Morrison and Aloke Roy to coordinate with RTCA WAIC on aviation IPv6 address framework.

**Action Item P34-6:** Aloke Roy to update IPv6 address format paper, changing platform type to type, changing type bits from 2 to 4, changing subnet ID to 10 bits.

**Action Item P34-7:** Aloke Roy to work with Liviu Popescu to identify the process of administration and maintenance of IPv6 addresses.

### **Agenda Item 7. IPS MASPS Development**

**Decision 1:** The group decided to wait for initial ICAO WG-I SRA results until May 2020, and meanwhile the group expects periodic updates by WG-I on the SRA progress.

Stephane Tamalet, Airbus, presented his MASPS development process slides (Thoughts on IPS MASPS development methodology.pptx). Based on this process, Stephane Pelleschi, Collins Aerospace, further assigned each section to certain member(s). The detailed assignments are documented in the spreadsheet "MASPS development progress V2.xlsx".

**Action Item P34-9:** Members to complete the assigned MASPS sections by next meeting, as assigned in the MASPS progress spreadsheet.

The group also discussed the following input papers:

- "Inputs for MASPS.docx," provided by Stephane Pelleschi,
- "15.02.04- D04 - QoS and Classes of Service\_ dissem.pdf," provided by Stephane Tamalet,
- "SESAR2020\_PJ14\_2\_4\_D5\_1\_020\_1\_Initial\_Concept\_Description\_v00 01 02 (1\_0).pdf," provided by Stephane Tamalet,
- "IP02 Security Risk Assessment.doc," provided by Rebecca Morrison,
- "IPS OSED Outline draft3.docx" provided by Dongsong Zeng
- "ISRA Instructions 06-19-2013 - PMC Approved.pdf," provided by Rebecca Morrison.

**Decision 3:** The group agreed to limit plenary discussions to one or two days at the face-to-face meeting and reconvene as working group for the rest of the week. Security risk discussion will be held in working group sessions. Agreed to keep all security related information on a RTCA protected workspace with restricted access to security members only.

**Decision 5:** The group appointed Stephane Pelleschi as the editor of the MASPS document.

**Action Item P34-8:** Alope Roy to work with PMC to create a special workspace for security information papers storage.

**Action Item P34-10:** Alope Roy and Liviu Popescu to bring IPS transition and deployment strategy to ICAO DCIWG and request feedbacks from stakeholders of member states.

The latest MASPS draft by the end of the meeting is saved on the RTCA workspace with file name “WG108 SC223 MASPS\_Oct 3<sup>rd</sup>.docx”.

### **Agenda Item 8. Any Other Topics of Interest**

Rebecca Morrison, RTCA, reported that IEEE P1920 submitted a request to RTCA/EUROCAE of referencing IPS Profile standards (i.e., DO-379/ED-262) in their standard development.

**Decision 2:** The group agreed that we should encourage IEEE P1920 to reference our IPS Profile standards.

Rebecca Morrison, RTCA, presented RTCA sMOPS (scalable MOPS) concept slides, which can make the MOPS structure flexible. In the sMOPS concept, a Special Committee wanting to create a scalable MOPS would be responsible for tailoring the drafting guide. PMC approval would be necessary to proceed with the tailored content. Regulatory Authorities would need to incorporate the tailoring in their plans for TSOs, ACs, or other documentation. Integrators and TC/STC holders would need to be aware of the consequences of the scaling.

**Decision 4:** The group assessed the proposed sMOPS and agreed that IPS standard will remain in the course of MASPS development although the benefits of sMOPS may be realized in other environments. The committee may propose customization to the MASPS outline to the PMC in the future.

### **Agenda Item 9. Plans for Next Meetings**

- Joint SC-223 P35 / WG-108/AEEC meeting, December 9 - 13, 2019, EUROCONTROL, Brussels (Inform Liviu before December 1 if you plan to attend).
- Joint SC-223 P36 / WG-108 / ICAO WG-I / AEEC IPS Subcommittee meeting, March 9-13, 2020, IATA, Montreal.

### **Agenda Item 11. Review of Action Items and Meeting Summary**

Dongsong Zeng, The MITRE Corporation, presented the out-briefing (SC-223 P33\_WG-108 Meeting OutBriefing\_Oct\_2019.pptx) which summarizes the decisions and action items that were made during this meeting. The work group reviewed and agreed on the out-briefing.

### **Agenda Item 12. Adjourn when plenary business is complete**

The meeting adjourned around 12:00 PM, October 4, 2019.

**List of Action Items**

<b>Action Item #</b>	<b>Action Content</b>	<b>Responsible</b>	<b>Due Date</b>	<b>Status</b>
P23-7	Investigate the CRCs of ROHC at system level.	Aloke Roy	October 23, 2017	10/23/2017 – In progress 12/4/17 – Keep open 3/5/18 – keep open 6/4/18 – keep open 8/13/18 – keep open. 9/24/18 – keep open. 12/10/2018 – postponed to MASP discussion 3/25/2019 – keep it open 6/17/2019 – keep open 9/30/2019 – keep open
P29-2	Reach out to SC-228 to verify whether IPS will be used by C2 link	Aloke Roy	Dec. 3, 2018	12/10/2018 – done. The dependency is still to be defined. 3/25/2019 – keep it open. 6/17/2019 – keep open 9/30/2019 – Closed. Yes. IPS is recommended by SC-228 for C2 Link BLOS use cases. Any potential extensions by WG-105 will be on case on case basis.
P32-1	Update the Profile to include all FRAC/OC resolutions and Rebecca to distribute the file to the group	Dongsong Zeng	April 8, 2019	4/24/2019 – Done and closed
P32-2	Work out a consented resolution on row reduction in Appendix B-6 RFC 2597 detailed profile	Aloke Roy and Stephane Tamalet	April 1, 2019	4/24/2019 – Done and closed
P32-3	Review the updated Profile to make sure all FRAC/OC resolutions are correctly executed	All members	April 1, 2019	4/24/2019 – Done and closed
P32-4	Update the MASPS schedule and draft corresponding TOR revision	Stephane Pelleschi and Aloke Roy	June 17, 2019	6/17/2019 – keep open 9/30/2019 – Done. The TOR has been approved by PMC and TAC.
P32-5	Put SC-223/WG-108 TOR approval on the agenda of next meeting	Dongsong Zeng	June 17, 2019	6/17/2019 – Done and closed.
P32-6	Resolve Alistair’s comment	Aloke Roy	April 1, 2019	4/24/2019 – Done and closed
P32-7	Members who were assigned to work on specific MASPS sessions will start to develop the corresponding MASPS annexes	Assigned Members	June 17, 2019	6/17/2019 – keep open
P33-1	Update IPS MASPS development schedule.	Dongsong Zeng	Sept. 30, 2019	7/17/2019 – Done.
P33-2	Schedule a telecon to advance IPS security risk assessment.	Madhu Niraula	Sept. 30, 2019	9/30/2019 – Closed. Vic Patel will lead this activity. A telecon with ICAO WG-I SSG is planned on Nov 8, 10AM EST.
P33-3	Coordinate with EASA for participation in SC-223/WG-108 P39 December 2020 meeting for FRAC/OC resolution.	Stephane Pelleschi and Adrian Cioranu	Sept. 30, 2019	9/30/2019 – keep open.



P33-4	Present DNS concept to ICAO WG-I.	Madhu Niraula	Sept. 30, 2019	9/30/2019 – keep open. In progress.
P33-5	Consolidate inputs to the MASPS moving work-in-progress materials into annexes	Stephane Pelleschi	Sept. 30, 2019	9/30/2019 – Done.
P33-6	Present Collins’ multilink concept to the next ICAO WG-I in September 2019.	Madhu Niraula	Sept. 30, 2019	9/30/2019 – keep open.
P34-1	Provide an initial MASPS authors list based on SC-223 roster and the group will review and determine the final authors list at the end of the work.	Rebecca Morrison	Dec. 9, 2019	
P34-2	Provide instructions of change proposals on the Profile standard.	Rebecca Morrison	Dec. 9, 2019	
P34-3	Initiate ISRA between SC-222 and SC-223.	Aloke Roy and David Robinson	Dec. 9, 2019	
P34-4	Coordinate with SC-214 on ISRA between SC-214 and SC-223.	Aloke Roy	Dec. 9, 2019	
P34-5	Coordinate with RTCA WAIC on aviation IPv6 address.	Rebecca Morrison and Aloke Roy	Dec. 9, 2019	
P34-6	Update IPv6 address format paper, changing platform type to type, changing type bits from 2 to 4, changing subnet ID to 10 bits.	Aloke Roy	Dec. 9, 2019	
P34-7	Identify the process of administration and maintenance of IPv6 addresses.	Aloke Roy	Dec. 9, 2019	
P34-8	Work with PMC to create a special workspace for security information papers storage.	Aloke Roy	Dec. 9, 2019	
P34-9	Complete the assigned MASPS sections by next meeting, as assigned in the MASPS progress spreadsheet.	All members	Dec. 9, 2019	
P34-10	Bring IPS transition and deployment strategy to ICAO DCIWG and request feedbacks from stakeholders of member states.	Aloke Roy and Liviu Popescu	Dec. 9, 2019	

-S-  
Dongsong Zeng  
Secretary

**CERTIFIED** as a true and accurate summary of the meeting.

- S-  
Aloke Roy  
SC-223 Chairman

- S-  
Stephane Pelleschi

WG-108 Chairman