Minutes of Meeting

EUROCAE WG-96 RTCA SC-236 24th Joint Meeting

Standards for Wireless Avionics Intra-Communication System (WAIC) within 4200-4400 MHz

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Date	*Tuesday May 3 and Thursday May 5, 2022* *15h – 17h CET (9am – 11am EDT)*
Hosted by	*EUROCAE*
Place	*9 Rue Paul Lafargue, 93210 Saint-Denis, France* *And Webex*
Contact Person	EUROCAE WG-96: Anna Guégan anna.Guégan@eurocae.net Phone: + 33 1 49 46 19 67	RTCA SC-236: Rebecca Morrison rmorrison@rtca.org +1 202-330-0654

AGENDA

Tuesday May 3, 2022, starting at 15h CEST/9am EDT

1. Welcome/Administrative Duties/EUROCAE and RTCA Policy Statements
2. IPR / Membership Call-Out and Introductions
3. Approved minutes from December 2021
4. Review of final MASPS revision comments and consider a motion to send the document to the Council and PMC for publication.
5. Review of status WAIC MOPS.
6. Review updates to ToR required to relaunch WAIC activity.
7. Review minimum MOPS requirements necessary assuming interoperability in ARINC CSMIM standard
8. Review MOPS schedule and deliverables in relation to ARINC standard (CSMIM)
9. Review working Group tasks and deliverables for working sessions

Thursday May 5, 2022, starting at 15h CEST/9am EDT

10. Working Group Reports from working sessions
11. Review plan for accomplishment in line with MOPS schedule
12. New Business
13. Review Plan for Next Meeting
14. Review Action Items
15. Adjourn Plenary

Tuesday 3 May 2022

SC-236 Chair Steve Rines started the meeting at 15h03 CEST / 9:03 AM EDT and welcomed the attendees.

Agenda Item 1: Welcome/Administrative Duties/EUROCAE and RTCA Policy Statements

Rebecca Morrison introduced herself and read the RTCA policy statements.

Rebecca Morrison also read the EUROCAE policy statements on behalf of Anna Guégan.

She noted that materials discussed in working group sessions can be shared if approved by EUROCAE and RTCA, which requires at least three weeks lead time to get permission to share the information.

Agenda Item 3: Approved minutes from December 2021

Dave Redman reviewed the minutes from the December 2021 meeting. No additions or corrections were noted. Steve moved to accept the minutes as written. Dave seconded. All agreed and the minutes from the 23rd Joint Meeting held 8 December 2021 were approved.

Agenda Item 2: IPR/Membership Call-Out and Introductions

The group went through introductions. Attendance is captured in Attachment B. The group welcome new member John Fifield to the group.

Agenda Item 4: Review of final MASPS revision comments and consider a motion to send the document to the Council and PMC for publication

Uwe Schwark provided an update on the status of the MASPS (DO-378A/ED-260A) final review and comment. He noted that there was one outstanding non-concur that still needs to be resolved, and that it was expected that this will be resolved by the change in total emitted power. Thus, resolution of this outstanding item is anticipated to be readily achievable.

ACTION [COMPLETE]: Uwe will provide a clean copy of the final document and Rebecca will post it to AerOpus for committee review prior to the final plenary session on Thursday 5 May 2022. Committee members were requested to review the document prior to that session.

Agenda Item 5: Review of status of WAIC MOPS

Steve gave a short update of the status of the MOPS, noting that work on the MOPS had been delayed by the pending resolution of the WAIC Standard and Recommended Practices (SARPs) in the International Civil Aviation Organization (ICAO) Frequency Spectrum Management Panel (FSMP). The current state of content is relatively immature, and the committee focus has shifted to identifying the *minimum* performance

characteristics for both the radio and systems components to support flexible implementation of WAIC on board aircraft.

Steve summarized the work on security requirements that occurred prior to the pause in MOPS development. Significant progress had been made including a formal System-Theoretic Process Analysis (STPA) to identify security concerns unique to a wireless network. This work is being extended in a related ARINC committee that is defining a Cabin Secure Media Independent Messaging (CSMIM) standard, which has necessitated a review of previously generated MOPS content. Steve reviewed the specific work that SG2,3,4 will need to do to complete this review and reorganize the content.

Steve next described the proposed approach of defining a WAIC Secure Communications Architecture that provides building blocks (i.e., minimum requirements) that enable secure data exchange over the WAIC network. He provided an example of the secure flow of information from a sensor in a seat system into the aircraft cabin network.

The Committee suspending discussion at this point. Additional discussion will take place in working group sessions and this Agenda will resume at the next session of this plenary.

This session was adjourned at 17h03 CEST / 11:03 AM ET.

Agenda Item 6: Review updates to ToR required to relaunch WAIC activity.

The EUROCAE Technical Advisory Committee (TAC) and RTCA Program Management Committee (PMC) approved the updated Terms of Reference (ToR), dated 16 December 2021, as written.

Agenda Item 7: Review minimum MOPS requirements necessary assuming interoperability in ARINC CSMIM standard

This was addressed under in working sessions and Agenda Items 8 and 10.

Agenda Item 9: Review Working Group tasks and deliverables for working sessions

The meeting did not identify any specific tasks and deliverables but recognized that the Working Groups planned to continue the work started earlier in the day in additional working sessions on Wednesday and Thursday.

Plenary meeting was then adjourned until Thursday 5 May 2022 at 15h CEST/9am EDT.

Thursday 5 May 2022

The Plenary meeting reconvened at 15h03 CEST / 9:03 AM EDT.

New attendees introduced themselves and Steve gave a brief introduction including a review of the previous plenary session and the remaining agenda items to be discussed during this session.

Agenda Item 10: Working Group Reports from working sessions

Uwe presented a summary of the SWG-1 discussions on minimum RF requirements that need to be incorporated in the MOPS. The adopted approach is to look at the high-level objectives for the MOPS as defined in the Committee ToR:

1. Protection of Onboard Radio Altimeters,

2. Enabling sharing of the WAIC band among different WAIC networks so that all networks can fulfil their intended functions, and

3. Ensure the WAIC system's ability to meet its intended function in the presence of onboard RAs.

Steve presented notes from the SWG-2,3,4 working sessions. He noted that their discussions identified several action items. The group further identified that security architecture-related requirements are only necessary when WAIC provides a shared network medium, otherwise it is up to the developer/integrator of the subsystem that incorporates an internal WAIC link.

He commented that a review of the previously completed STPA revealed that the appendix is less complete than the report that was produced on the same topic and does not reach a conclusion. This will be addressed by SWG-2,3,4.

Discussions also suggested that incorporating the full description of the security architecture would push related verification activities into the MOPS. The scope of the WAIC MOPS should be that minimum that will enable WAIC to be used in such a security architecture and that full description of the security description would possibly move to the CSMIM ARINC standard.

[Revisited] Agenda Item 4: Review of final MASPS revision comments and consider a motion to send the document to the Council and PMC for publication

Rebecca circulated a clean copy of the document following the Tuesday session. The Committee discussed submitting this version to the PMC/TAC for approval. Dave asked to do a quick walkthrough of the document for the benefit of the meeting.

Uwe supported the walkthrough and noted that the tracked changes are those that addressed the specific comments raised in FRAC/OC. Uwe recommended that the text addressing Mitigation Means be removed since they were obviated by the reduction in total output power. He further noted that most initially unresolved comments were adequately addressed by the reduction in the allowed total radiated power. Rebecca pointed out that references to the ICAO SARPs must consider that the SARPs will not be formally published prior to submission of the MASPS, so references should include language that this document was forthcoming. Uwe made these strictly editorial changes to the document during the meeting. No further comments were raised, and the Committee agreed that the content was ready to submit to the TAC/PMC.

ACTION: Uwe will send the red-lined version of the MASPS agreed by the meeting along with a clean version with all changes accepted to Rebecca and Anna.

The PMC meets on 23 June 2022 and the intent is to present this update for approval at that meeting. Steve will present the document. This is dependent on written

confirmation of acceptance of the proposed resolution by the lone outstanding commentor.

Dave Redman moved to submit the document as updated by the meeting to the Council/PMC for approval.

Steve Rines seconded the motion.

No objections or abstentions were voiced, so the motion carried.

Agenda Item 8: Review MOPS schedule and deliverables in relation to ARINC standard (CSMIM)

Steve noted that the completion schedule for the ARINC CSMIM standard is consistent with the schedule for completion of WAIC MOPS. The ARINC standard will be released in 4 sections that address different aspects. Section 4 will contain the description of the security architecture that will include results derived from the STPA work done in this Committee.

Agenda Item 13: Review Plan for Next Meeting

Steve recommended that the next plenary meeting occur 20-22 September 2022 at the RTCA offices in Washington DC. No objections were voiced by the meeting.

ACTION: Rebecca will arrange to host the next Plenary meeting at the RTCA offices in Washington DC on 20-22 September 2022 and send out a calendar invitation.

Agenda Item 11: Review plan for accomplishment in line with MOPS schedule

This Agenda Item was not discussed due to time constraints.

Agenda Item 12: New Business

The meeting agreed to continue working meetings in the SWG's. SWG-2,3,4 will continue to meet weekly at 9:00 AM ET on Thursdays. Uwe informed the group that he will be absent from the Committee for approximately three months and that Thomas Meyerhoff will assume leadership of SWG-1. The Committee thanked Uwe for his work and looked forward to working with him again on his return.

ACTION: Thomas will arrange SWG-1 meetings with Rebecca and send out the meeting notice.

Agenda Item 14: Review Action Items

The following actions were recorded:

ACTION: Uwe will provide a clean copy of the final document and Rebecca will post it to AerOpus for committee review prior to the final plenary session on Thursday 5 May 2022. Committee members were requested to review the document prior to that session. **[COMPLETE]**

ACTION: Uwe will send the red-lined version of the MASPS agreed by the meeting along with a clean version with all changes accepted to Rebecca and Anna.

ACTION: Rebecca will arrange for the next Plenary meeting at the RTCA offices in Washington DC on 20-22 September 2022 and send out a calendar invitation.

ACTION: Thomas will arrange SWG-1 meetings with Rebecca and send out the meeting notice.

Additional actions were assigned during the AWG-2,3,4 working session and are included as Attachment A.

Agenda Item 15: Adjourn Plenary

The meeting adjourned at 16h50 CEST / 10:50 AM EDT.

Respectfully submitted by David Redman, Secretary SC-236.

Attachment A: SWG-2,3,4 Action Items

ACTION: SHR – Clearly state that WAIC component interaction and security within a dedicated subsystem is the responsibility of the subsystem integrator.

- Only when WAIC is used as a shared network media do the security architecture requirements defined by WG 2,3,4 apply.
- Explain why WAIC RFDs communicating in a subnet are the certification responsibility of the subnet integrator and WAIC as a shared network is the responsibility of the integrator.

ACTION: SHR – Clarify that the security architecture requirements for communications across a shared network are intended to enable secure communications between functions of a DAL/SAL higher than DAL E/SAL x.

- Communications between DAL E functions contribute to the untrusted nature of the shared network.
- DAL E functions may use the security architecture to ensure communications privacy from other untrusted systems.
- As a minimum, the use of local IP addressing and router/firewall Gateway functions are necessary provide system integrators with a common method for statically connecting autonomous systems to shared media networks. (DAL E applications could use dynamic addressing of the remaining address space on a given network.)

ACTION: SHR – Reevaluate the public/private key model slide in the Plenary presentation – Uwe Salomon suggests that they are reversed for encrypt/decrypt and signature, thereby enabling any destination with a public key to be able to decrypt source content which is not very private…

ACTION: SHR – Evaluate how security architecture resolves DR11 – need for delivery acknowledgement.

ACTION: SHR – STPA appendix does not reach a conclusion. The table added by Mark Bobbin at the end only shows that use cases vulnerabilities are "Partially traceable." We need to invert the table logic to show that derived requirements resolve the use case vulnerabilities verifying that the derived requirements are complete.

ACTION: SHR – STPA appendix is much less complete than STPA Report. The draft STPA Report includes many comments. Those comments need to be reviewed to determine if they are still applicable.

ACTION: SHR – Describe the evolution of the STPA which addresses vulnerabilities of wired versus wireless networks to show that those requirements are worst case and therefore describe common requirements for applicability to any shared network medium.

ACTION: SHR – Put a reduced version of the architecture security section in an appendix of the MOPS such that it can be used to justify the certification guidance, but it does not require verification testing. Section 2.2 will be limited to minimum platform requirements necessary to enable the platform to satisfy the security requirements in the appendix.

ACTION: SHR – Put the full architecture security description for shared networks in ARINC CSMIM (replace existing).

Attachment B: SC-236 Roster/Attendance

Name	Company	Attended (15)
Richard Adler	Federal Aviation Administration (FAA)	X
Peter Anders	Airbus	
Rafael Apaza	NASA	
Sanjay Bajekal	Collins Aerospace	X
Scott Bauler	Collins Aerospace	
Mark Bobbin	Collins Aerospace	
Joshua Boelman	Collins Aerospace	
Luke Bolton	GE Aviation	
Martin Call	The Boeing Company	
Gregory Cederlind	Crane Aerospace & Electronics	
Zhong Chen	Honeywell International, Inc.	
Joseph Cramer	The Boeing Company	
Massimiliano D'Aurelio Podrini	Leonardo-Finmeccanica (EUROCAE)	
Robert Doyle	Honeywell International, Inc.	
Jay Ely	NASA	
Alexander Engel	EUROCAE	
Jon Fifield	Astronics Corporation	X
Christopher Fitzhugh	United Technologies Corporation	
John Flores	Federal Aviation Administration (FAA)	X
Benjamin Fritz	Collins Aerospace	
Shunichi Futatsumori	Electronic Navigation Research Institute (ENRI)	X
William L Geoghagan	National Air Traffic Controllers Association (NATCA)	
Marshall Gladding	The Boeing Company	
Steve Goode	Collins Aerospace	
Charisse Green	Federal Aviation Administration (FAA)	
Anna Guegan	EUROCAE	X
Shane Happs	Collins Aerospace	
Jamal Haque	Honeywell International, Inc.	
Phillip Harris	United Technologies Corporation	
Omer Hashroni	Elbit Systems	
Sonia Heemstra de Groot	Eindhoven Univ of Tech (EUROCAE)	X
Olivier Holin	ELTA	
Darlene Hughes	Universal Avionics Systems Corp.	
Hideyuki ISHII	Japan Radio Air Navigation Systems Association	
Manabu KAWAMOTO	Civil Aviation Bureau of Japan	
Nazih Khaouly	Federal Aviation Administration (FAA)	
Valentin KRETZSCHMAR	Airbus	
Patrick Krohn	Universal Avionics Systems Corp.	
Jeff Lamping	Crane Aerospace & Electronics	
Kent Lee	GE Aviation	
Richard Leithall	UTC Aerospace Systems	
Zhao Liang	Aviation Data Communication Corporation	
Oliver Luecke	SAFRAN ENGINEERING	
Scott Marston	The Boeing Company	
Ivan MARTIN	Thales Group	
Cedric Mauclair	Airbus	
Steffen Mersch	Lufthansa	
Thomas Meyerhoff	Airbus	X
Rebecca Morrison	RTCA, Inc.	X

Ahmad Muannaki	Lufthansa	
Frank Niss	Lufthansa	
Kees Nuyten	Fokker Elmo (EUROCAE)	
Siobvan Nyikos	The Boeing Company	
Shutai Okamura	Panasonic Avionics Corporation	
Michael Olive	Honeywell International, Inc.	
Jesse Oltrogge	Collins Aerospace	
Jeff Owens	TEA Aviation Services	
Mauro Pagliarini	European Aviation Safety Agency (EASA)	
Vidyut Patel	Federal Aviation Administration (FAA)	
Kelly Peters	Piper Aircraft	
Tom Phan	Federal Aviation Administration (FAA)	
Nayyar Rao	Honeywell International, Inc.	
David Redman	Aerospace Vehicle Systems Institute	X
Kanwalpreet Reen	Collins Aerospace	
Steven Rines	SAFRAN ENGINEERING	X
Ian Roberts	Universal Avionics Systems Corp.	
Eduardo Rojas	Embry-Riddle Aeronautical University	
Andrew Roy	Aviation Spectrum Resources, Inc.	
Shohreh Safarian (Fontaine)	Federal Aviation Administration (FAA)	X
Uwe Schwark	Airbus	X
Nicholas Shrout	Aviation Spectrum Resources, Inc.	
Paul Siegmund	Federal Aviation Administration (FAA)	
Adishesha Sivaramasastry	Collins Aerospace	
Takayuki Sotoyama	Panasonic Avionics Corporation	
Sarah Stern	The Boeing Company	
Kevin Swiatek	United Parcel Service (UPS) (A4A)	
Christophe Trebosc	Safran Electronics & Defense	
Jessie Turner	The Boeing Company	
Michael Vanguardia	The Boeing Company	
Jaco Verpoorte	National Aerospace Laboratory NLR (EUROCAE)	X
Anna von Groote	EUROCAE	
Mohammed Waheed	Aviage Systems	
David Walen	Federal Aviation Administration (FAA)	
Peter Walther	Airbus	X
Guoqing Wang	Honeywell International, Inc.	
Mingwei Wang	COMAC America	
Chris Wargo	Mosaic ATM, Inc.	
Sopheap Ya	The Boeing Company	
Sky Yarbrough	NASA	
Naruto Yonemoto	Electronic Navigation Research Institute (ENRI)	
Radek Zakrzewski	United Technologies Corporation	
Changxiao ZHAO	Civil Aviation University of China	
Yanbo Zhu	Aviation Data Communication Corporation	