



EUR 108-21 / WG72-151
RTCA Paper No. 090-21/SC216-119.

Saint Denis, 19 March 2021
Washington, 19 March 2021

**EUROCAE WG-72 Plenary Meeting #61 / RTCA SC-216 Plenary Meeting #52
“Aeronautical Systems Security”**

Date	19 March 2021 9:30am – 3:30pm Eastern 1430-2030 Central Europe
Place	Virtual Meeting-Webex instead of EUROCAE
Venue	
Hosted by	EUROCAE

Attendance:

	Contact	Organisation	19th Dec
	Adrian Waller	Thales	x
AC	Alain Combes	Airbus	x
	Andrew Drake	NetJets	x
AB	Andy Boff	Egis Aviation	x
AG	Anna Guegan	EUROCAE	x
	Armelle Gauthé	Airbus	x
	Caroline Prado	The Boeing Company	x
	Casey Thiesen	United Airlines	x
	Charlie Morris	New Zealand Aviation Authority	x
	Christian Hauray	SAFRAN	x
CG	Clive Goodchild	BAE Systems	x
CR	Cyrille Rosay	EASA	x
DP	David Pierce	GE	x
	Dongsong Zeng	MITRE	x
	Ed Hahn	ALPA	x
	Felix Meier-Hedde	Airbus	X
FD	Frederique Dauvillaire	Thales Group	X
	Hannes Alparslan	EDA	x
	Jacob Kunat	Helios	x
JPM	Jean Paul Moreaux	EASA	x
JH	Jerry Hancock	Inmarsat	x
	John Flores	FAA	x
KH	Karan Hoffman	RTCA	x
	Kevin Myer	Textron	x

KL	Kristof Lamont	EuroControl	x
	Laurent Leonardon	Collins Aerospace	x
	M Waheed	Aviage Systems	x
	Manon Gaudet	IATA	x
	Mariusz Pyzynski	IATA	x
	Mark Kelley	AVISTA	x
	Mark Perini	Honeywell International	x
	Martin Call	Boeing	x
	Mitch Trope	Garmin	x
	Osamu Kanmoto	IHA Japan	x
	Pascal Chamma	NAV CANADA	x
	Peter Tsagaris	TCCA	x
PM	Philippe Marquis	Dassault Aviation	x
	Phillip Watson	Panasonic Avionics	x
	Richard Nyugen	Boeing	x
	Rosemberg Silva	ANAC Brazil	x
SM	Sam Masri	Honeywell International	x
	Seth Stewart	ENSCO	x
SN	Siobvan Nyikos	Boeing	X
SS	Stefan Schwindt	GE Aviation	x
	Ted Kalthoff	National Institute for Aviation Research	x
	Ted Patmore	Delta Airlines	x
VK	Varun Khanna	FAA	x
	Will Gonzales	FAA	x

Introductions

- CR was not able to chair the initial part of the meeting so CG took the role of chair for WG-72 until CR can attend. Sam Masri took the role of SC-216 chair in Dave Pierce absence. AB to take over secretarial role. Agreement to delay meeting start until 13:40 GMT (14:40 European time).
- A roll call was then conducted of the meeting attendees
- CG presented the agenda and requested revisions or additions and introduced the WG-72 and SC-216 Structures

EUROCAE / RTCA Meeting Guidelines and Comments – A. Guegan / K. Hofmann

- AG presented the standard RTCA and EUROCAE Anti-Trust and Participation Policy slides.

Acceptance of Minutes of December Plenary – C. Rosay

- CG requested input for any objections to the minutes. None were raised and the previous meeting minutes accepted.

Update on the aviation cybersecurity environment – C. Rosay / V. Khanna

- This was deferred until CR could be present at the meeting

Consensus Process Discussion – C. Rosay / D. Pierce

- CG introduced. The Consensus process which covers the use of Non-Concur. Which should only be used in exceptional circumstances and requires a working meeting to address. All interested parties can raise their arguments, and the resolution will be based on consensus (based on arguments).
- SS – the question is “if you can live with it” then you should support consensus.
- If the document cannot reach consensus, it goes to PMC.
- CG asked whether there were any questions on the consensus process & non-concurs? None were raised.

Status of SG-3 and ED-201A Consensus for FRAC/OC – S. Schwindt

- ED201A working group was looking for consensus for whether the plenary would approve taking the document forward to FRAC and open consultation.
- SS stated that ED-201A has gone through a range of review cycles and that the comments raised have been addressed. The document is considered to meet the targets of Part IS.
- SS proposed to recommend a vote for Open Consultation.
- A question was raised on whether RTYCA needed time to make the announcement in the federal register. KH we don't list in the federal register any more, but we need 30 days' notice
- The group discussed the appropriate timescales for OC/FRAC. In order to allow for approval at 7th June plenary, the document needs to enter OC on 12th April. Which means that all final updates must be provided to CG by the morning of the 5th April.
- This timing is a challenged, because there are a few topics where there are a small number of inputs that need to be received
- Placeholders have been put in the document such as Assurance in Airport & MRO. Whilst the Inputs have been requested if nothing is received then the sections get deleted.
- SS we also need to discuss in the plenary is that the risk matrices are intended to provide a translation between standards, not an indication of acceptability. Acceptability is down to circumstance and need. This needs clarification and assignment in ED-205A to support this.
- JH raised the question whether this should go into 201 or 205?

- SS 205 needs to explain what's behind the levels. If 201 does not know what the principles are about the levels are, then it can't provide a mapping. I
- If it's not ready by 5th April, then we need to find some text saying it'll be defined in the future, or delay publication.
- SS there are also some editorial issues on Chapter 3.1-3.3. These will be fixed by 5th April and JH is waiting on minutes from the 201A meeting (distributed post meeting)
- PM asked whether is the 205 risk matrix ready? JH yes, it's in version 4. Should be no change there. Waiting on Minutes from ED-201A.
- AG if the document is received at the beginning of the 8th April, and can send it to KH. This means OC/FRAC will start 12th April. This will slightly truncate the comment resolution period. CG acknowledged.
- SS given the material is mostly finished, is there anything the can be used to reduce the lead time by sharing a mature draft. KH no, it needs to be the finished document.
- CG need all inputs **early on the morning of the 5th April.**
- AG if you can make sure the references are correct and Eurocae and RTCA are correctly mentioned.
- CG raised the vote to proceed to OC/FRAC starting 12th April.
- No objections were recorded and it was agreed to proceed to UC/FRAC
 - **DECISION: ED201A to be published for OC/FRAC on the 12th April.**
- SS raised that the group would like to launch another validation activity and needs to find a suitable timeslot. Any findings from the exercise will be submitted as comments to the OC.
- It would be good if EASA could take the coordination role and will need CR input to discuss that. US participation would also be helpful
- VK said yes, if adequate notice is made.
- SS raised that there is a need someone to sort out the meeting (webex, etc.) EASA could potentially do this, and also make announcement to ask for volunteers. FAA will reach out to there industry contacts.
- VK asks for a paragraph for what will be done and expected outcomes.
 - **Action SS to put this paragraph together.**
- PM raised a concern over the Information Protection section which has been removed from ED-201A for ED-ISEM and raised that there is no mechanism for protecting security risk assessments.
- SS stated we can't specify an approach which limits commercial aspects. Writing specifics into the document will also not be able to keep pace with the development of technology. AC agreed with PM – if there is any guidance, it should be in ED-201A. SS happy for a general statement to be included how to protect what information is provided. Anything more specific should be in ED-ISEM.
- The external Agreement Table B-1 has clause for "Rules for the governance of disclosure of information and intellectual property" - currently does not discuss protection of it, just the rules. It can be fleshed out to include that parties agree on technical or other means for protecting the data

SG-3 EDISEM Consensus for FRAC/OC – A. Combes/F Dauvillaire

- AC stated that the document was proceeding, but facing the usual challenges on time.
- The FAA/EASA have shared their position on the ToR regarding the support expected from the document. Not supposed to be AMC or AC.
- The document v6 was issued last week. Individual chapter maturity is being developed, with OC/FRAC being planned and aligned with ED-201A and ED-205A.
- FD presented the survey results. The survey covered expectations of the document and there is now a better idea of the direction of travel and expectations, and the scope and specific areas requiring covering.
- A common security incident risk level matrix based on safety classification will be used. The technical basis for what will be used is yet to be confirmed.

- 294 comments have been resolved in v6 of total of 473. Mostly on chapters 3-5.
- However, still half of the comments require to be triaged. The main topic to resolved concerns the scoring of incidents/vulnerability management.
- Scoring of incidents was considered to be resolved after the trade off on matrix for security incident risk level selection.
- The vulnerability scoring and management is on hold until the white paper on use of CVSS is received.
- A matrix for the scoring/acceptability of risk has been decided (see slides).
- The objective was initially a have a final draft for March 2021. The current version needs an iteration for cleanup and consistency. Chapters 3-5 are in progress. 1,2,6,7 are considered mature.
- A check needs to be made on the alignment between ED-201A and ED-205A and ED-ISEM. There was a concern expressed that that the 3 documents cross-reference each other and this will be difficult to maintain in the future. The question was raised on who is the ultimate authority for the documents what is the plan to resolve this?
- SS asked the question on what specifically is the issue as each document has had its scope clarified to be supporting each other, but not overlap.
- FD said she needed visibility of where cross references are, so the links don't get broken when documents are updated.
- SS stated this has been covered for 3 plenaries and addressed.
- VK suggests a matrix of what is shared. FD agreed.
- FD requests CG for a decision to expedite a study, as it may block OC/FRAC.
- CG clarified that this would be a blocker on any OC/FRAC until the cross referencing is completed (including ED-201A which was already agreed). This would also need to cover all the other DO/ED-20x documents.
- FD is concerned there could be a document referencing another document for a topic which doesn't actually end up covered.
- SS stated that all the documents have had comments about where information should sit, and this has been coordinated between documents. There has already been review of coverage/allocation between the documents and asked for specific examples.
- FD raised the example of the security level which is in in all 3 documents.
- CR replied that that the 201A matrix is not a defining matrix, it is referencing other documents in the series and propose deferring this activity to the ECSCG to look for overlaps.
- AC replied that on the positive we can say that we have reviewed the three documents at the same time but there is no formal traceability of cross referencing but common coverage.
- CG raised that if there is a mismatch with ED-201A vs 205A and ISEM, then it should be raised in OC/FRAC. AC duty of each document leader to check.
- KL stated that the referencing is coordinated and the target audience is not the same in all documents. Some redundancy of topics might even be good unless we want people to switch between documents.
- SS was still not convinced there is an example.
- CG replied that if there is an issue identified it should be addressed through the FRAC.
- CR lets go with Clive's proposal and identify through OC. CR stated that the ECSCG also manages topics across standards.
- FD agrees.
- FD presented some updates provided to ER-13 (see slide)
- The roadmap to OC/FRAC has a target starting in the June plenary
- SS stated that the actual ToR states publication Q4, so June plenary would be a vote to OC/FRAC.
- FD replied that for ED-204A we agreed that the summer was not a good time to review, so either bring forward to publish in Q3 or delay to publish in Q1 2022.
- CR said it was his first time hearing this.
- CR requesting 6 more months should be no problem, which was noted
- DP stated we also have other options. We can still hold a plenary with 30 days' notice and is not keen on delaying by 3 months (or more).

- KH confirm the minimum length for consultation is 45 days but this can be longer. RTCA ToR grace period is now 6 mths, AG stated for EUROCAE this would normally would be 3 months grace, but can be 6 months top end.
- Discussion about the trade-off between publishing in Q3 vs addressing all comments were conducted. There needs to have a balance between the 2 and have the minimum right content published in a suitable timescale. Not all the comments need to be addressed. The document doesn't need to be perfect for FRAC, but it does needs to be suitable for passing FRAC.
- VK raises a Non-Scoring method proposed by Felix, which may be worth waiting for.
- CR for this plenary we do not go to FRAC for ED-ISEM. Maybe next plenary.
- AC sated there is a backlog of comments and consistency work to resolve and also the vulnerability scoring white paper and the non-scoring approach from Felix. We can go to OC in June, but there is a risk.

Status of SG-4 and ED205A Consensus for FRAC/OC – K. Lamont

- KL stated that the risk acceptance matrix are now frozen. V0.4 has the final version of matrices. A 5x5 matrix for safety systems and a 3x3 for non-safety systems.
- The next version will be to remove the duplicate information and reference ED-201A (e.g. 201A B.3).
- A maturity matrix has also been developed and is in Appendix C.
- The change from version 0.4 to 0.5 will involve updating the flow diagrams and addressing specific comments and updating the assurance objectives. The objectives will be broken in to "Guidance" and "Informational" categories.
- It is recognised that there is a need for coordination to avoid overlap with ED-ISEM.
- The current comment period will end at the end of March. A decision will be made at the end of May for whether the document is mature enough to go for FRAC. The publishing date target is Q3 2020.
- CG commented that most of the people participating and commenting on ED-205A are from the air domain. KL agree, would like to have more involvement from ATM/ANS world.
- CR checked if EASA is represented and KL replied yes.
- It was suggested a newsletter or outreach should be conducted to the ANSPs. CR could possibly reach out via CANSO.
- Action CR to do some publicity.
- CG the same has been experienced on ED-201A, hence the gaps mentioned earlier.

ICAO Update – J Paul-Moreaux

- There are two main ICAO cyber activities – TFSG (more technical) and SSGC (more political level).
- TFSG – Digital identity, trust reciprocity, resilient interoperable (but where does this begin/end?)
- Moving the "analogue" trust model (since 1944) into a modern "digital" trust model. Hence digitisation.
- Trust framework is multi-stakeholder, including a single TF Entity, SSGC defining policy, Panels/WGs/Task Forces, etc. The TF Entity is the most contentious.
- The scope discusses "trusted exchange of information", which can be interpreted as a network, or not.
- CR do we think "Industry Standards" with respect to the Trust Framework, will have an impact on WG-72?
- JPM it's already there. This needs to be considered as a template. The scope is what is important, and "performance" is only a contributing part.
- KL it is about adapting the standards to the context.
- The SSGC should serve as the focal point, with a transversal nature. It has 1 research sub-group (RSGLEG most dangerous sub-group). 3x working groups.
- The RSGLEG want to re-interpret existing terrorist clauses to include cyber – e.g. cyber is a weapon, so reinterpret any previous mention of weapons. This makes life easier, but lacks

- comprehensiveness. Covers legal aspects. Beijing convention.
- HA asked so does this align with the Tallinn Manual?
 - First thing that has happened is the Cybersecurity Strategy. Which was endorsed in 2019 by the council and is heavily influenced by the ESCP strategy.
 - Next was the Cybersecurity Implementation plan which was endorsed in 2020. No timescales currently for it being put into motion.
 - The gap analysis has been restricted to SARPs and Manuals. No known progress to date.
 - In the last council session, 2 questions were presented to the council. For both, the secretariat wanted guidance or decision. A decision was taken with respect to the SSGC. Diverging interests means has become difficult to work in the context and so a new cybersecurity committee of the council is being formed. The SSGC is now reporting to Unlawful Interference Committee, coordinating with cybersecurity committee.
 - Either there will be a new Cybersecurity panel (which many object to as panels are slow), or a Cybersecurity Working Group replacing the SSGC under the AVSEC Panel – in line with the legal subgroup of the SSGC.
 - Endorsement will not happen until the in fall of 2023.
 - No questions or comments raised from the attendees.
 - CR asked who in WG-72 is also part of the ICAO groups.
 - SS confirms JH.
 - For ECTL it's Patrick Mana. Rob Segers (ED-205).
 - AG represents Eurocae. J
 - PM confirms industry is represented, especially from the US side.

Update on the aviation cybersecurity environment – C. Rosay / V. Khanna

- CG raised whether EASA or FAA would like to provide a regulatory update.
- CR On the EASA side not much. ED 2020/006/R regulation on cybersecurity aspects of airworthiness for products is applicable since Jan 1st, 2021. For organisations not much of an update other than the current text is frozen. There is ongoing internal consultation. Intend to have ready for end of 22 June.
- FAA side, VK progress has been slow but steady about AC and rulemaking effort. Organisation there has more traction in parts of agency getting involved and has identified personnel.
- CR had pointed out an ATM website – under the responsibility of Cesar's group. VK has requested that group present to WG-72/SC-216 and the response was positive. A 10-15 min slot should be reserved at June plenary. Need more info about what we'd like to see. VK still needs to respond back. Other than that, steady, nothing out of the ordinary.

Status of ER13A – C Goodchild

- CG ER13 since it was last seen by the working groups it has been updated and rechecked. It now reflects all the published documents in ED-20x/DO series. There is an Issue in some of the documents (e.g. 202A) is other standards are referenced without release numbering, and in some cases the referenced standard has been retired.
- Where this occurs, the reference has been updated to the latest standard, or the definition from the withdrawn standard.
- The question was raised should ER-13 only reference the definitions in the published documents, and how should un-versioned references be handled? E.g. if the reference changes in an update of the referenced standards, do we adopt or ignore the new definition? Or do we reference both.
- It was agreed to ignore the later definitions that are not in the published documents
- KH confirms that when finalised ER-13 is available, RTCA will issue a DO- number and will issue with no charge. As the definitions have already been OC'd, there is no need for further consultation.
- Tentative publication date is as soon as minor updates are made. 1 week lead time for publishing.

SC-236/WG-96 Interaction

- SN still have support on SC-236. They have changed the TOR to eliminate reference to wired connections, and that Wireless is a primary communications method. The group will look to leverage work done elsewhere. With SC-216/WG-72 input, SC-236/WG-96 should be able to further assure that this MOPS won't be used inappropriately by any manufacturers to approve a device outside of the intended scope.
- They couldn't get it into PMC due to technicality. Will be approved out of cycle.
- No questions or comments raised.

AIA Efforts towards Alerting

- AIA ALPA Aviation Cyber Recommendations Paper. The target has slipped, but for good reason and there is increased interest and participation. A draft is available.
- To reach consensus, recommendations are split into near term and long term. E.g. can be solved now, vs needs development, innovation, etc.
- CR asked whether the group are looking for people with experience on human factors? SN yes, currently have 3. More interaction would be welcomed. Intersection for Human Factors and Cyber will be important for the recommendations part of the paper.

SAE G-32 Status

- SS stated that they have 3 documents in work – system, software & hardware. The first document got non-concurs and is being reworked.
- There are process standards for each domain and there is potential overlap with our standards. The target is transportation, so is wider than (but including) aviation.
- Looking at how their documents compare to ours, there would appear to be a lot of redundancy.
- SS wouldn't recommend it as an AMC – doesn't add or do anything differently than ED/DO documents but could provide some additional guidance on top. Activity in ASTM for use with small airplanes and SAE work unlikely to be adopted as ASTM more lightweight. Representation by UAS/UTM in committee, might be suitable in that space.
- No questions or comments.

SAE E-36

- AIR7368 is an information document, not an ARP. Probably not going to be called in AMC but will be used to support Propulsion use of ED/DO documents currently in AMCs
- We don't have an official liaison, but SS has joined the group.
- CR it would be interesting to have a contact chairman to chairman. VK agree.
- The group also has EASA representation now.
- How the AIR document is written could be a template for tailoring for VTOL context use of ED-203.

15 min break

SAE G-34/WG-114

- CG stated the standard is covering AI embedded in aeronautical systems and is primarily restricted around machine learning and safety related.
- Our involvement is to monitor to see if there's anything impacting on the published ED series, and whether anything affects EG-203A.
- It is a very active group, sometimes 3 meetings a week. ~7 WGs, covering a range of topics. CG is primarily monitoring the safety side and then have now created a new group called process considerations, which sounds like safety and security. This may have overlap and need additional tracking.
- CR any specific issues identified? CG the main issue is getting a ML system through the lifecycle using a process model. Various groups haven't agreed the process model and who covers what. Nothing come out specifically, but there's a grey area around training data & assuring training data.

- It is expected the real work to kick in mid 2021.
- They may have their own assurance level, so SAL, DAL, MAL, AIAL...
- No other questions.

ECSCG Update

- CR stated that the gap analysis has been completed and several areas have been identified with missing activities e.g. Supply chain, patch management.
- There is a lot of topics still to be addressed and forensic analysis could be an interesting one.
- No questions raised.
- VK offers a presentation on the FAA's involvement at the next plenary.

AOB

- CG requested any meeting notes get sent to him ASAP!
- CG is intending to retire at the end of 2021. Whilst the attendance/participation of the group schedule to the end of September is not affected, attendance in December is a question mark.
- The group should be looking for a new secretary for WG-72 after September
- No other AOB

Next Meeting

- June 7 – 11 Europe/Virtual
- Sept 13-17 RTCA rooms booked 13-17. Washington DC if possible, webex if not.
- Dec ? Eurocae available 6-10 Dec. 13-17 also an option (need to check venue).
- **Action CG/CR to send a Doodle.**

No remaining business.

Meeting closed 19:15 European time/18:15 UK time.