



RTCA Paper No. 279-20/SC223-096

EUR 286-20 / WG108-028

Washington D.C. & Saint Denis, 9 October 2020

**MINUTES OF JOINT RTCA SC-223 (PLENARY #38) /**  
**EUROCAE WG-108 (MEETING #15) / JOINT MEETING #9**  
**“Internet Protocol Suite (IPS) and AeroMACS”**

<b>Date</b>	<b>September 28 - October 1, 2020</b>
<b>Time</b>	<b>10am – 3pm EDT</b> <b>Monday – Thursday</b>
<b>Hosted by</b>	<b>Virtual Meeting</b>
<b>Venue</b>	For Webex, Contact Rebecca or Anna
<b>Contact</b>	<p><b>Rebecca Morrison</b>, Program Director, RTCA  (202) 330-0654 or <a href="mailto:rmorrison@rtca.org">rmorrison@rtca.org</a></p> <p><b>Anna von Groote</b>, Director, Technical Programme, EUROCAE  +33 1 49 46 19 71 or <a href="mailto:anna.vongroote@eurocae.net">anna.vongroote@eurocae.net</a></p>

Attendees:

Name	Role	Affiliation
d'Humieres, Francois	Member	FREQUENTIS A.G.
Dlouhy, Ron	Member	COLLINS AEROSPACE
Drasil, Pavel	Member	HONEYWELL INTERNATIONAL, INC.
Emberger, Luc	Member	AIRBUS

Graefe, Jonathan	Member	COLLINS AEROSPACE
Haindl, Bernhard	Member	FREQUENTIS A.G.
Jain, Rovi	Member	FEDERAL AVIATION ADMINISTRATION (FAA)
Leonardon, Laurent	Guest	COLLINS AEROSPACE
Maiolla, Vaughn	Member	ICAO
Morrison, Rebecca	Manager	RTCA, INC.
Niraula, Madhu	Member	COLLINS AEROSPACE
Nisbet, David	Member	THALES GROUP
Olive, Mike	Member	HONEYWELL
Pelleschi, Stephane	Member	COLLINS AEROSPACE
Phillips, Brent	Government Authorized Representative	FEDERAL AVIATION ADMINISTRATION (FAA)
Popescu, Liviu	Member	EUROCONTROL
Roy, Alope	SC-223 Chair	HONEYWELL INTERNATIONAL, INC.
Saccone, Greg	Member	THE BOEING COMPANY
Skorepa, Michal	Guest	HONEYWELL
Soléry, Michel	Member	DSNA
Tamalet, Stephane	Member	AIRBUS
Vanguardia, Michael	Member	THE BOEING COMPANY
Von Groote, Anna	Director	EUROCAE
Zeng, Dongsong	SC-223 Secretary	THE MITRE CORPORATION

## AGENDA

1. Welcome address. Meeting Organizational Issues
2. Approval of the Agenda
3. Administrative Remarks
4. Review and Approval of Previous Meeting Notes
5. Current State of Standards
  - a. ICAO WG-I (ICAO Annex 10, DOC 9896 ed 3, DOC 10090, DOC 10094, DOC 10095, DOC 10145)
  - b. AEEC A858
  - c. ICAO TFSG
  - d. Other Relevant Standards
6. Current State of Industry Activities
  - a. SESAR
  - b. ESA IRIS
  - c. Feedback on ICCAIA / Cyber-CAT Risk Assessment

- d. Any Other Relevant Activities
- 7. Review Potential Changes to SC-223/WG-108 Terms of Reference
- 8. IPS MASPS Development
  - a. MASPS Development Progress Overview
  - b. MASPS Discussion
- 9. Future Meetings
- 10. Any Other Business of Interest
  - a. AeroMACS MOPS revision
- 11. Review of Meeting Decisions and Actions
- 12. Adjourn

**Agenda Items 1. Welcome address. Meeting Organizational Issues**

Due to the pandemic situation, the joint meeting was conducted through virtual telecons. Alope Roy, Chair of SC-223, and Stephane Pelleschi, Chair of WG-108, welcomed the participants.

Rebecca Morrison, Program Director, RTCA, presented the RTCA/EUROCAE intellectual property and membership policy statements. All participants agreed on the statements and no issue were raised.

**Agenda Item 2. Approval of the Agenda**

The group reviewed and approved the meeting agenda.

**Agenda Item 3. Administrative Aspects**

Each day the meeting has two sections, one is from 10:00AM to 12:00PM and the other is from 1:00PM to 3:00PM. Between the two sections, there is a one-hour break. The participants are asked to be considerate to all members, mute microphones when not speaking, and avoid talking over each other. If necessary, members should raise hand (i.e., click on the “hand” button in the WebEx application) to ask questions.

**Agenda Item 4. Review Previous Meeting Notes**

The group reviewed and approved the previous meeting notes. The action items were reviewed and updated in a separate group telecon before the meeting.

**Agenda Item 5. Current State of Standards**

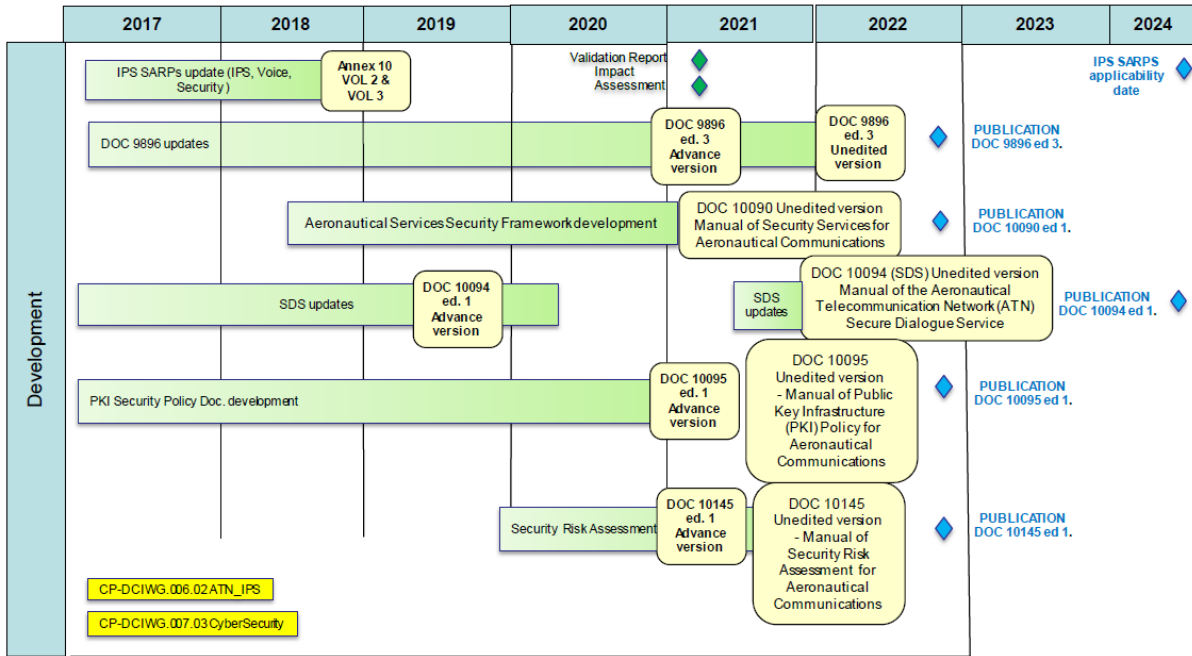
**5a. ICAO WG-I (ICAO Annex 10, DOC 9896 ed 3, DOC 10090, DOC 10094, DOC 10095, DOC 10145)**

Liviu Popescu, EUROCONTROL, briefed the group on the schedule of ICAO IPS standards development, which is shown in Figure 1.



# IPS SARPS and supporting DOCs development Timeline

## All documents combined timeline



Note: Unedited version of a DOC - ICAO DOC publication supported by the Panels and approved, in principle, by the Secretary General, which is rendered available to the public for convenience. The final edited version may still undergo alterations in the process of editing.

Figure 1. ICAO IPS SARPs and Docs Timeline

### 5b. ARINC858

Greg Saccone, The Boeing Company, and Mike Olive, Honeywell, updated the group about AEEC IPS Standards development schedule, which is shown in Figure 2.

**ATN/IPS A/G Standardization Roadmap (rev. 2020-10-01a)**

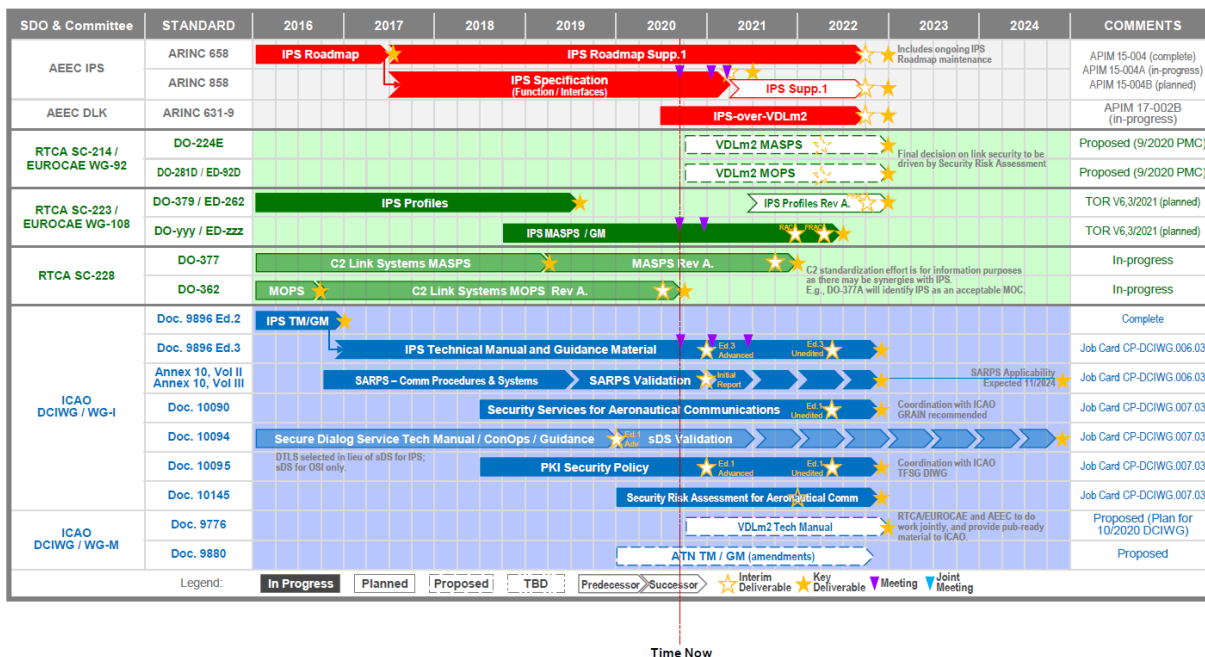


Figure 2. AEEC IPS A/G Standardization Roadmap

**5c. ICAO TFSG**

Jonathan Graefe, Collins Aerospace IMS, updated the group about ICAO TFSG status. ICAO TFSG is progressing apace on governance policies, identity concepts and aviation IPv6 address preservation and management.

**5d. Other Relevant Standards**

Aloke Roy, Honeywell, reported to the group that SC-228 proclaimed in DO-377A Appendices that IPS is an acceptable means of compliance for UAS C2 Link switchover.

Stephane Pelleschi, Collins Aerospace, reported that SC-214/WG-92 has completed the publication of DO-383/ED-276 GUIDANCE ON VDL MODE 2 AIR / GROUND INTEROPERABILITY, and started working on IP-capable VDL2 standards development. The planned completion date of IP-capable VDL2 standards is December 2022.

Dongsong Zeng, The MITRE Corporation, reported that recently Collins Aerospace IMS brought to the attention of SC-214/WG-92 the interference issue from Part 15 devices to VDL2, and proposed to raise VDL2 channel busy/idle threshold to improve VDL2 transmission resilience in terminal areas. SC-214/WG-92 are working with the industry to mitigate this interference issue.

**Agenda Item 6. Current State of Standards**

**6a. SESAR**

Francois d'Humieres, Frequentis, reported that SESAR2020 plans to finish the IPS CONOPs by the end of this year.

**6b. ESA IRIS**

No update on ESA IRIS.

**6c. Feedback on ICCAIA / Cyber-safety CAT Risk Assessment**

As only a few members have access to the CS-CAT interim risk assessment of IPS so far, the CS-CAT and ICAO leaders are working on the process of sharing protected information between the two groups.

**6d. Any Other Relevant Activities**

No other relevant activities were reported.

**Agenda Item 7. Review Potential Changes to SC-223/WG-108 Terms of Reference**

Considering the workload of IPS MASPS development and Profiles update, and the interdependencies among RTCA/EUROCAE, AEEC IPS SC and ICAO WG-I IPS standards schedules, the workgroup tentatively plans to complete IPS MASPS by April 2022 and complete IPS Profiles update by September 2022.



**Work programme**

SC/WG	Document Name and EUROCAE Identifier and Title	EUROCAE Target date for submission to OC	RTCA TOR date FRAC closed and committee approved	EUROCAE Target Publication Date	RTCA Publication Date
SC-223 / WG-108	ED-xxx / DO-xxx	Q4-2020	Dec-2020		March-2021
	Minimum Aviation System Performance Standard (MASPS) for the Internet Protocol Suite used in Aviation A-G Communication System	Q4 2021	April 2022	June 2022	June 2022
SC-223 / WG-108	ED-262A/DO-379A	Q1-2021	March-2021		June-2021
	Aviation Profiles for Internet Protocol Suite	Q2 2022	Sept 2022	Dec 2022	Dec 2022

Figure 3. Tentative SC-223/WG-108 Schedule

[Decision 2](#). Final TOR update is planned for approval by PMC in March 2021.

**Agenda Item 8. IPS MASPS Development**

Stephane Pelleschi, Collins Aerospace, led the group to go through the draft IPS MASPS section by section.

**Decision 1.** Two task groups – one for SPR and the other for Security – to be established. The groups will meet monthly on the same schedule as the SC-223/WG-108 monthly meetings

**Action 1.** Stephane Pelleschi, Collins Aerospace, to maintain a MASPS action item list.

**Action 2.** Stephane Pelleschi, Collins Aerospace, to reach out to Airbus and Alope Roy, Honeywell, to reach out to Boeing for co-task-leads of the security task group.

**Action 3.** Alope Roy, Honeywell, to update the IP address paper according to comments received in this meeting.

### **Agenda Item 9. Future Meetings**

SC-223 P39 / WG-108, December 7-10, 2020, Virtual.

SC-223 P40 / WG-108, March 1-4, 2021, Virtual.

### **Agenda Item 10. Any Other Business**

SC-228 “Minimum Performance Standards for Unmanned Aircraft Systems” requested SC-223 to modify the AeroMACS radio spurious emission mask to reduce its interference to UAS C2 Link frequency band.

SC-223 informed EUROCAE WG-82 about the request and scheduled a virtual task meeting on October 5, 2020 to initiate the collaboration of SC-228, SC-223 and WG-82 to work on the proposed changes.

**Decision 3.** SC-223, WG-82 and SC-228 will meeting to review the AeroMACS MOPS change proposal from SC-228 and act on disposition by the groups.

### **Agenda Item 11. Review of Meeting Decisions and Actions**

The group reviewed the decisions made and actions created during the meeting.

### **Agenda Item 12. Adjourn**

The meeting was adjourned around 3pm EDT, October 1, 2020.

**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 integrity of IPS (w/ or w/o 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 12/9/2019 – Review Pavel’s paper 2/26/2020 – keep open 5/27/2020 – keep open 9/28/2020 – Closed. Use 3-bit CRC for header integrity. Additional CRC doesn’t add much more integrity beyond what is provided by DTLS.
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 12/9/2019 – keep open 2/26/2020 – keep open 5/27/2020 – Closed



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 Anna Von Groote	Sept. 30, 2019	9/30/2019 – keep open. 12/9/2019 – keep open 2/26/2020 – keep open 5/27/2020 – keep open 9/28/2020 – keep open
P33-4	Present DNS concept to ICAO WG-I.	Madhu Niraula	Sept. 30, 2019	9/30/2019 – keep open. In progress. 12/9/2019 – keep open 2/26/2020 – keep open 5/27/2020 – keep open 9/28/2020 – keep open
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 and Dongsong Zeng	Sept. 30, 2019	9/30/2019 – keep open. 12/9/2019 – keep open 2/26/2020 – Closed
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	12/9/2019 – Closed and subject to review.
P34-2	Provide instructions of change proposals on the Profile standard.	Rebecca Morrison	Dec. 9, 2019	12/9/2019 – Closed and subject to review.
P34-3	Initiate ISRA between SC-222 and SC-223.	Aloke Roy and David Robinson	Dec. 9, 2019	12/9/2019 – Closed. ISRA drafted by SC-223, but rejected by SC-222. SC-222 will not be able to do anything until August.
P34-4	Coordinate with SC-214 on ISRA between SC-214 and SC-223.	Aloke Roy	Dec. 9, 2019	12/9/2019 – Closed. SC-214 is working to support IPS and no ISRA is needed right now.
P34-5	Coordinate with RTCA WAIC on aviation IPv6 address.	Rebecca Morrison and Aloke Roy	Dec. 9, 2019	12/9/2019 – keep open. 2/26/2020 – keep open 5/27/2020 – keep open 9/28/2020 – Closed. Coordinated with WAIC chair. They don’t have a need for IPv6 address so far.
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	12/9/2019 – Closed and subject to review.
P34-7	Identify the process of administration and maintenance of IPv6 addresses.	Aloke Roy	Dec. 9, 2019	12/9/2019 – keep open. Also within the purview of ICAO TFSG/GRAIN. 2/26/2020 – keep open 5/27/2020 – keep open 9/28/2020 – keep open

P34-8	Work with PMC to create a special workspace for security information papers storage.	Aloke Roy	Dec. 9, 2019	12/9/2019 – Closed. Security information repository has been decided to move to ICAO.
P34-9	Complete the assigned MASPS sections by next meeting, as assigned in the MASPS progress spreadsheet.	All members	Dec. 9, 2019	12/9/2019 – keep open. 2/26/2020 – keep open 5/27/2020 – keep open 9/28/2020 - keep open
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	12/9/2019 – Closed. Waiting for ICAO action for feedbacks from member states.
P35-1	Talk to Isidore Venetos on IPS SRA by Q2 2020.	Mike Vanguardia	March 9, 2020	2/26/2020 – keep open. Expect an initial draft SRA from Isidore by June 2020 5/27/2020 – keep open 9/28/2020 – Closed. Coordination is going on among CSCAT and other related parties.
P35-2	Present MASPS multilink material to ICAO WG-I MSG in February 2020.	Aloke Roy	March 9, 2020	2/26/2020 – keep open 5/27/2020 – keep open 9/28/2020 – keep open
P35-3	Prepare slides for convergence of diagrams from different standards and present it to ICAO WG-I.	Stephane Pelleschi	March 9, 2020	2/26/2020 – keep open 5/27/2020 – keep open 9/28/2020 – Closed.
P35-4	Prepare a one-page summary of MASPS structure.	Dongsong Zeng	March 9, 2020	2/26/2020 – Closed. Subject to review
P35-5	Present a multilink paper to ICAO WG-I MSG.	Madhu Niraula and Dongsong Zeng	March 9, 2020	2/26/2020 – keep open 5/27/2020 – Closed
P35-6	Present DSCP QoS mapping to ICAO.	Madhu Niraula and Aloke Roy	March 9, 2020	2/26/2020 – keep open 5/27/2020 – keep open 9/28/2020 – Closed
P35-7	Coordinate with Vaughn Maiolla on how ICAO standards should reference AEEC documents.	Liviu Popescu	March 9, 2020	2/26/2020 – keep open 5/27/2020 – Closed
P35-8	Present AEEC A/G management message section to ICAO.	Madhu Niraula	March 9, 2020	2/26/2020 – keep open 5/27/2020 – keep open 9/28/2020 – keep open
P35-9	Provide the group feedbacks to SESAR Wave 2 validation recommending align SESAR performance measurements to the architecture that the standard groups are developing.	Francois d’Humieres	March 9, 2020	2/26/2020 – Closed. Action completed.
P37-1	Present the QoS paper to ICAO WG-I meeting.	Madhu Niraula and Aloke Roy	Sept. 28, 2020	9/28/2020 – Closed
P37-2	Update the verification paper and send it the industry editor for inclusion to the MASPS draft.	Dongsong Zeng	Sept. 28, 2020	9/28/2020 – Closed

P37-1	Present the QoS paper to ICAO WG-I meeting.	Madhu Niraula and Alope Roy	Sept. 28, 2020	9/28/2020 – keep open
P37-2	Update the verification paper and send it the industry editor for inclusion to the MASPS draft.	Dongsong Zeng	Sept. 28, 2020	9/28/2020 - Closed.
P37-3	Estimate of line of code for ROHC	Pavel Drasil	Sept. 28, 2020	9/28/2020 - Closed.
P37-4	Provide details on how the ROHC analysis was done	Pavel Drasil	Sept. 28, 2020	9/28/2020 - Closed.
P37-5	Assess whether ROHC at DAL C is reasonably achievable	Collins Aerospace	Sept. 28, 2020	9/28/2020 – keep open
P37-6	Evaluate the impacts of splitting data flows among multiple links with performance-based multilink on ROHC performance	Collins Aerospace	Sept. 28, 2020	9/28/2020 – keep open
P38-1	Collins Aerospace, to maintain a MASPS action item list.	Stephane Pelleschi	Nov. 16, 2020	
P38-2	Stephane Pelleschi to reach out to Airbus and Alope Roy to reach out to Boeing for co-task-leads of the security task group.	Stephane Pelleschi, Alope Roy	Nov. 16, 2020	
P38-3	Update the IP address paper according to comments received in this meeting	Alope Roy	Nov. 16, 2020	

-S-  
Dongsong Zeng  
Secretary

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

- S-  
Alope Roy  
SC-223 Chairman

- S-  
Stephane Pelleschi  
WG-108 Chairman