

**MINUTES OF THE TWENTY-FIRST SC-223 PLENARY
MEETING**

“Internet Protocol Suite (IPS) and AeroMACS”

DATE: February 28 – March 2, 2017
TIME: 9 a.m. – 5 p.m. Tuesday - Wednesday
9 a.m. – 12 p.m. Thursday

PLACE: RTCA, Inc.
1150 18th Street NW Ste 910 Washington, DC 20036

CONTACT: Rebecca Morrison, Program Director
(202) 330-0654 or rmorrison@rtca.org

Attendees:

Name	Role	Affiliation	Note
Aloke Roy	Chairman	Honeywell International, Inc.	
Brent Phillips	DFO	Federal Aviation Administration	
Rebecca Morrison	Program Director	RTCA, Inc.	
Dongsong Zeng	Secretary	The MITRE Corporation	
Rafael Apaza	Member	NASA	
Nima PourNejatian	Member	WiMAX Forum	Via WebEx
Dee Mukherjee	Guest	Not Given (Attorney)	
Paul Mettus	Member	LS Technology LLC	
Madhu Niraula	Member	Rockwell Collins, Inc.	
Eric Nixon	Member	Engility Corporation	Via WebEx
Bill Holtzman	Member	MOSAIC ATM	
Antonio Correias	Member	Skymantics	
David Robinson	Member	Federal Aviation Administration	
Chris Wargo	Member	Mosaic ATM, Inc.	Via WebEx

In accordance with the Federal Advisory Committee Act, Brent Phillips, Federal Aviation Administration (FAA), was the Designated Federal Official for this meeting.

AGENDA

1. Welcome, Introductions, Administrative Remarks
2. Review of previous meeting notes and action items
3. Review of Current State of Industry Standards
 - a. ICAO WG-I
 - b. AEEC IPS Sub Committee
 - c. SC-214 TOR update
 - d. ISRA with SC-228 UAS
4. Current State of Industry Activities
 - a. SESAR Programs
 - b. ESA IRIS Precursor
 - c. Any Other Activities
5. IPS Technical Discussions
 - a. Review of IPS high level profiles
 - b. Review of IPS RFC detail Profiles
 - c. Prioritization of additional IETF RFCs for Profiling
6. Any Other Topics of Interest
7. Plans for Next Meetings
8. Review of Action Items and Meeting Summary
9. Adjourn

Agenda Items 1. Welcome, Introductions, Administrative Remarks

Aloke Roy, Honeywell, welcomed the participants and reviewed the agenda.

In accordance with RTCA policy, Brent Phillips, the designated FAA representative, opened the meeting by reading the following text: “In accordance with the Federal Advisory Committee Act, this Advisory Committee meeting is OPEN TO THE PUBLIC. Notice of the meeting was published in the Federal Register on January 23, 2017. Attendance is open to the interested public. With the approval of the Chairman, members of public may present oral or written statements at the meeting. Persons wishing to present or obtain information should coordinate with RTCA Program Director – Rebecca Morrison and the Chair – Aloke Roy”

Rebecca Morrison announced the RTCA Proprietary References Policy and Membership Policy.

Agenda Item 2. Review of previous meeting notes and action items

The working group reviewed and approved the of SC-223 P20 meeting minutes, and updated the status of previous action items.

Agenda Item 3. Review of Current State of Industry Standards

3a. ICAO WG-I

ICAO WG-I has been approved to update ICAO SARPS and IPS Tech Manual to provide guidance on IPS architecture, addressing, naming conventions, mobility, security, etc. The next ICAO WG-I/23 (May 10-12) and Security sub-group meeting (May 8-10) will be held at ICAO headquarter, in Montreal, Canada.

3b. AEEC IPS Sub Committee

The AEEC IPS Sub Committee plans to complete IPS standards in the following two steps:

Step 1: 18-month planning activity with five 2-day meetings, potentially involving ICAO, RTCA, EUROCAE, etc. (2015 to 2017); and

Step 2: Standards writing step (2017 to 2019).

A Strawman ARINC Project Paper 658: Internet Protocol Suite (IPS) for Aeronautical Safety Services – Roadmap Document has been circulated in the AEEC IPS subcommittee for review and comments. It is planned that the final ARINC 658 will be submitted to AEEC general session for approval in May 2017. Step 2 is expected to be started soon after that.

The Plenary reviewed the text proposed by AEEC for inclusion in Project Paper 658 regarding SC-223 plans. The Plenary updated the proposed text and provided feedback to the AEEC editor.

3c. SC-214 TOR update

On February 27, 2017, SC-214 had the 26th Plenary meeting through WebEx to review and approve its TOR Revision 8. It is planned that the SC-214 chair will present the revised TOR to PMC on March 21, 2017. In SC-214 TOR Revision 8, SC-214 plans to complete VDL2 MOPS and MASPS updates for connectionless VDLM2 by April 2019. Connectionless VDLM2 is envisioned to be able to support IPS implementation.

3d. ISRA from SC-228 UAS

David Robinson presented the draft Inter-Special Committee Requirements Agreement (ISRA) from SC-228 to SC-223, which requests SC-223 help developing the MASPS of UAS Command and Control (C2) Data Link. The working group discussed the draft ISRA, and decided to work through RTCA to get the final ISRA and PMC directions.

Agenda Item 4. Current State of Industry Activities

4a. SESAR Programs

The group talked about IPS related work in SESAR2020 multi-annual work program, which includes LDACS (PJ.14-02-01), future SATCOM (PJ.14-02-02), IPS including multilink & VoIP (PJ.14-02-04), and AeroMACS (PJ.14-02-06). The Clean Sky project, funded by European Commission, has a task to prototyping IPS airborne router. French DSN might be doing IPS development work as well.

4b. ESA IRIS Precursor

As no Inmarsat representative attended the meeting, there was no update on ESA IRIS Precursor project.

4c. Any Other Activities

PARC CWG is evaluating the performance of FANS over SwiftBroadband (SBB). SBB is expected to have similar performance as VDLM2.

Agenda Item 5. IPS Technical Discussions

5a. Review of IPS high level profile

The group reviewed the draft high level IPv6 profile and high level non-IPv6 profile for IPS. As ICAO WG-I is working on the security and mobility, the group agreed to review the security and mobility high level profile again when WG-I completes its security and mobility work.

Decision 1: Reviewed and approved tiger team high level functional RFC profiles except security and mobility functions.

Action Item P21-1: Dongsong Zeng to add RFC 7296, 7427, 7670 1034, 1035, 1123, 2181 to high level profile.

Action Item P21-9: Dongsong Zeng to merge the two high level profiles and draft the working paper for next WG-I meeting

5b. Review of IPS RFC detail Profiles

The group reviewed the detail profiles of RFC 2474, 2464, and 5175.

During the detail RFC profile discussion, the working group noticed that an IPS system overview and use cases will be helpful in determining the detail RFC profiles.

Action Item P21-8: Alope Roy, Rafael Apaza, Antonio Correas and Dongsong Zeng to initiate the IPS system overview and use cases

5c. Prioritization of additional IETF RFCs for Profiling

Action Item P21-2: Paul Mettus to draft detail profiles for RFC 2460, 5795, 6846, 5225, 3095, and 4815.

Action Item P21-3: Madhu Niraula to draft detail profiles for RFC 4443, and 4861.

Action Item P21-4: Alope Roy to draft detail profiles for RFC 4862, 4429, 4291, 2474, 2475, 2597, and 3246.

Action Item P21-5: Dongsong Zeng to refine detail profiles for RFC 2464, 5175, and 768.

Action Item P21-6: RFC 3411, 3412, 3413 (SNMP low priority) to be assigned.

Action Item P21-7: Antonio Correas to draft detail profiles for RFC 1151 (RDP), and 7542 (NAI).

Action Item P21-10: Dongsong Zeng and Antonio Correas to investigate the tradeoffs of SCTP, RDP, UDP and TCP.

Action Item P21-11: Rafael Apaza to identify DNS related RFCs and develop use cases.

Agenda Item 6. Any Other Topics of Interest

No other topics of interest were brought up.

Agenda Item 7. Plans for Next Meetings

Decision 2: Reviewed and approved detail RFC profiles for RFC 2474, 2464, and 5175.

Decision 3: SC-223 P22 meeting is from May 2 - 4, 2017, at RTCA.

Decision 4: SC-223 P23 meeting is from August 15 - 17, 2017, at RTCA.

Decision 5: Next telecon is on March 15, 2017, from 10 – 11 AM EST, to review RFC 768 and 4443 profiles.

Agenda Item 8. Review of Action Items and Meeting Summary

Dongsong Zeng, MITRE, presented the out-briefing (SC-223 IPS Meeting OutBriefing_3_2017.pptx) which summarizes all the decisions and action items that were made in this meeting. The work group reviewed and agreed on all the decisions and action items recorded in the out-briefing.

Agenda Item 9. Adjourn

The meeting adjourned at noon, Thursday, March 2, 2017.

List of Action Items

Action Item #	Action Content	Responsible	Due Date	Status
P18-1	Add ARINC658, DO-350a, DO-351a, DO-352a, and DO-353a to the initial documents in TOR	Aloke Roy	August 17, 2016	Closed - 11/2016 8/2016 - Draft done, need to present to next PMC
P18-2	Inform us about SESAR IPS related projects	Antonio Correias	August 17, 2016	Closed - 11/2016
P18-3	Check with FAA about GA participation in IPS data communication and FAA data communication safety and security assessment and requirements	Brent Phillips	August 17, 2016	Open 8/2016 - AeroMACS security was just completed, IPS security will leverage that later. 2/2017 – Keep open
P18-4	Provide communication related system level safety analyses	Bruce Eckstein	August 17, 2016	Closed 8/2016 - Reference to DO-350a for operational safety analysis will satisfy the intent of this action item
P18-5	Conduct the safety analysis (IPS use for safety and regularity of flight domain) for IPS and provide the Design Assurance Level (DAL) for IPS	David Robinson, Brent Phillips, FAA	August 17, 2016	Open 8/2016 - Start with safety assessment, then decide DAL. 2/2017 – Open.

P18-6	Inform ICAO WG-I about ICAO Doc9896 Section 2.2 Link Layer Requirements, in which interface requirements should not be local issues	Aloke Roy	Next WG-I meeting in May 2016	Open 8/2016 - Will be presented at December meeting 2/2017 - Closed
P18-7	Generate a work sheet of RFC list	Dongsong Zeng	August 17, 2016	Closed - 8/2016
P18-8	Check with SC-206 for the needs of IP services like FTP, Telnet, SNMP, etc.	Aloke Roy	August 17, 2016	Open 8/2016 - Will start a new ISRA with SC-206 2/2017 – the formal ISRA should be developed by SC-206 if this is needed.
P18-9	Check whether RFC 2488 Enhancing TCP over Satellite Channels is needed by IPS	Danny Bharj and David Robinson	August 17, 2016	Open 2/2017 - Inmarsat is looking at the draft from David. Boeing is proposing an updated UDP to ICAO WG-I.
P18-10	Continue coordinating with EUROCAE about global harmonization and EUROCAE participation in IPS standardization	Aloke Roy and Brent Phillips	August 17, 2016	Open 8/2016 - On going 11/2016 - On going 2/2017 – EUROCAE is waiting for AEEC IPS roadmap completed. Closed.
P18-11	Bring the TOR schedule modification request to next PMC for approval	Aloke Roy	Next PMC meeting in June 2016	Closed – 11/2016 8/2016 – Will present to September meeting
P18-12	Reach out to NIST for the latest version of USGv6 on the profile for IPv6 in US Government	Brent Phillips	August 17, 2016	Open 8/2016 - On going 2/2017 – Closed.
P18-13	Identify any other profiles that can be shared in the group	All SC-223 members	August 17, 2016	Open 11/2016 - On going 2/2017 – Closed. Company

				profiles are not releasable.
P18-14	Draft a working paper for ICAO WG-I on the scope and function of IPS based on USGv6_v1 structure	Aloke Roy	August 17, 2016	Open 8/2016 - next WG-I meeting in December 2/2017 – Closed.
P18-15	Coordinate with SC-222 about SATCOM providers' participation	Aloke Roy and David Robinson	August 17, 2016	Closed 8/2016 - Ann Heinke will participate SC-223
P18-16	Members are invited to develop profiles for RFCs that are within the scope and bring to the next meeting as a strawman proposal	All SC-223 members	August 17, 2016	Closed - 8/2016
P18-17	Develop initial draft profile for RFC 768 User Datagram Protocol, August 1980	Dongsong Zeng	August 17, 2016	Closed - 8/2016
P18-18	Develop initial draft profile for RFC 791 Internet Protocol	Paul Mettus and Aloke Roy	August 17, 2016	Closed - 8/2016
P18-19	Develop initial draft profile for RFC 793 Transmission Control Protocol (TCP), September 1981	Bruce Eckstein and Antonio Correias	August 17, 2016	Closed - 8/2016
P19-1	Review the draft RFC profiles and provide comments before next meeting	All members	November 8, 2016	11/2016 - On going 2/2017 – on going
P19-2	Identify IPv6 functions and corresponding RFCs, on the basis of the Appendix C: Requirements Summary Table in the file <code>disr_ipv6_profile_version_6_july_2011.pdf</code> , with consideration of NIST USGv6_v1 document and RFC6434. Task group reports findings from DoD IPv6 Profile at the next telecon.	Paul Mettus, Antonio Correias, Madhu Niraula, and Dongsong Zeng	November 8, 2016	Closed – 11/2016
P19-3	Restructure the workspace to set up working folder and final folder	Dongsong Zeng and Rebecca Morrison	November 8, 2016	Closed – 11/2016
P19-4	Explore FTI documents on IPv6 profiles and test procedures	FAA, David Robinson and Brent Phillips	November 8, 2016	On going 2/2017 – David is working on the NDA with FTI. On going.
P19-5	From SC-223 perspective, there is no need to develop ISRA with SC-222. SC-223 TOR requires definition of the subnet user interface and generic subnetwork performance requirements. It is not the responsibility of SC-223 to allocate RCTP to each specific subnetworks.	Aloke Roy	November 8, 2016	Closed – 11/2016
P20-1	Investigate Cisco RFC implementation for IP over SATCOM	Rafael Apaza and David Robinson	Feb 28, 2017	2/2017 – on going.
P20-2	Check with FAA infrastructure people about how to use A/G capabilities of IPS. Would FAA	Aloke Roy and Brent Phillips	Feb 28, 2017	2/2017 - Open

	use the IPS test cases in the infrastructure procurement?	(Andy Isaksen)		
P20-3	Draft initial high level diagram of a generic network architecture for IPS	Madhu Niraula	Feb 28, 2017	2/2017 – Closed. Feb 28 review, and will be available on the workspace.
P20-4	Add notes to elaborate the required RFCs	Tiger team	Feb 28, 2017	2/2017 – Closed.
P20-5	Expand the high level profile for IPS	Tiger Team	Feb 28, 2017	2/2017 – Closed.
P20-6	Present the updated TOR to PMC	Brent Phillips	Feb 28, 2017	2/2017 – Closed.
P20-7	Present a working paper to WG-I with RFC recommendations and profile for RFC2460 and RFC2474	Aloke Roy and Dongsong Zeng	Feb 28, 2017	2/2017 – Closed.
P20-8	Present Gap analysis comments to AEEC IPS	Brent Phillips and Dongsong Zeng	Feb 28, 2017	2/2017 – Closed.
P20-9	Develop use case based on existing vulnerability analysis for FTI and AeroMACS	David Robinson	Feb 28, 2017	2/2017 – On going.
P21-1	Add RFC 7296, 7427, 7670 1034, 1035, 1123, 2181 to high level profile.	Dongsong Zeng	May 2, 2018	
P21-2	Draft detail profiles for RFC 2460, 5795, 6846, 5225, 3095, and 4815.	Paul Mettus	May 2, 2018	
P21-3	Draft detail profiles for RFC 4443, and 4861.	Mudhu Niraula	May 2, 2018	
P21-4	Draft detail profiles for RFC 4862, 4429, 4291, 2474, 2475, 2597, and 3246.	Aloke Roy	May 2, 2018	
P21-5	Refine detail profiles for RFC 2464, 5175, and 768.	Dongsong Zeng	May 2, 2018	
P21-6	RFC 3411, 3412, 3413 (SNMP low priority) to be assigned.	All members	May 2, 2018	
P21-7	Draft detail profiles for RFC 1151 (RDP), and 7542 (NAI).	Antonio Correas	May 2, 2018	
P21-8	Initiate the IPS system overview and use cases	Aloke Roy, Rafael Apaza, Antonio Correas and Dongsong Zeng	May 2, 2018	
P21-9	Merge the two high level profiles and draft the working paper for next WG-I meeting	Dongsong Zeng	May 2, 2018	
P21-10	Investigate the tradeoffs of SCTP, RDP, UDP and TCP.	Dongsong Zeng and Antonio Correas	May 2, 2018	

P21-11	Identify DNS related RFCs and develop use cases.	Rafael Apaza	May 2, 2018	
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Dongsong Zeng
Secretary

CERTIFIED as a true and accurate summary of the meeting.

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Aloke Roy
Chairman

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