



RTCA Paper No. 057-22/SC222-100
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Washington, 25 February 2022
 St Denis, 25 February 2022

**Minutes of EUROCAE
 WORKING GROUP 82 (WG-82) (Meeting #55) and RTCA SPECIAL COMMITTEE 222
 (SC-222) (Meeting #46)
 “New Air-Ground Data Link Technologies”
 related to SATCOM**

Date	8-9 February 2022
Place	Virtual Meeting
Venue	EUROCAE – Webex
Hosted by	EUROCAE

Participants:

NAME	COMPANY	8th (Plenary)	9th (Plenary)
Adam Sarhage	GARMIN	X	X
Ajay Parikh	LIGADO	X	X
Alan Schuster Bruce (co-chair SC-222)	INMARSAT	X	X
Andy Morin	IRIDIUM		
Angela Knudson	Rockwell Collins		
Anna Guégan	EUROCAE	X	X
Armin Schlereth (chair WG-82)	DFS	X	X
Antonio Correias	EUROCONTROL	X	
Darrell Andregg	Rockwell Collins	X	X
Davide Tomassini	ESA	X	
Gary Colledge	INMARSAT	X	X
Gonzalo Prieto	ESSP		
Guillaume De Bony De Lavergne	Airbus	X	X
Hans TRAUTENBERG	EASA		
Hiroshi OKOCHI JRANSA	JRANSA	X	X
Jeff Knickelbein	COBHAM	X	X
Karan Hofmann	RTCA	X	X

Martina Angelone	ESA	X	X
Michael Gertsman	Squarepeg		
Michael Hooper (co-chair SC-222)	IRIDIUM	X	X
Nick Green	INMARSAT		
Nkululeko Ntombela	ATNS		
Radek Zaruba	Honeywell	X	X
Ravi Jain	FAA	X	X
Richard Tapp	HONEYWELL	X	X
Ryan Mustoe	Boeing	X	X
Sachin Chhibber	Ligado		
Sam Weich	Ligado	X	X
Thomas Richter	Rohde & Schwarz	X	X
Luke Sienkiewicz	IRIDIUM		
Stephen Van Trees	FAA		

DOCUMENTS

Agenda Item	Title	File name
1	Calling Notice and Agenda	222WP330_SC-222 (45) and WG-82 (55) Calling Notice Meeting.pdf
2	Meeting Minutes of last Meeting	222_44_WG-82_Meeting_52_Final minutes
	SC-222 TORS	

PRESENTATIONS

Agenda Item	Title	File name
5a	SESAR PJ.14-W2-107: SATCOM evolution towards IPS based FCI	S2020 PJ.14-W2-107 SATCOM_EUROCAE-WG82_8-9 Feb2022_draft1.pptx
6, 7	AGENDA ITEM 6 & 7 DEVELOPING WORKPLAN FOR NEXT 2 YEARS	222WP336 Workplan for Next 2 Years&C2 Link 8 Feb 2022_b.pptx
7	MOPS IPS update kick-off	222WP337 MOPS (and MASPS) IPS updates Radek 8 Feb 2022.pptx

1) Welcome, Introductions, Administrative Remarks by Special Committee Leadership

Armin Schlereth (chair WG-82) welcomed the group and the new co-chairs of the SC-222, Alan Schuster Bruce and Michael Hopper. He led through the whole meeting.

Karan Hofmann and Anna Guégan informed about the anti-trust policy, IPR policy, and call and participation membership policies for RTCA Special Committees (SC) and EUROCAE Working Groups.

2) APPROVAL OF THE AGENDA

After a round table, Armin Schlereth introduced the proposed agenda of the RTCA SC-222/ EUROCAE WG-82 Plenary meeting. The final agreed agenda looks as follows:

AGENDA

8-9 February 2022 (9:00 am – 12:00 pm EDT) – (15:00 – 18:00 CEST)

Welcome, Introductions, Administrative Remarks by Special Committee Leadership

- Government Authorized Representative (GAR): Ravi Jain
- Co-Chair RTCA SC-222: Michael Hooper, Iridium
- Co-Chair RTCA SC-222: Alan Schuster Bruce, Inmarsat
- Chair EUROCAE WG-82: Dr. Armin Schlereth, DFS

1. RTCA/EUROCAE Opening Material
2. Review Agenda
3. Status of TOR Approval
4. Review Minutes from previous meeting and Actions
5. Reports from other organizations
6. Discussion on MASPS (DO-343E/ED-242D) including developing workplan for next 2 years
7. Discussion on MOPS (DO-262G/ED-243D) including developing workplan for next 2 years
8. SC-228 ISRA Discussion
9. Any Other Business
10. Review Action
11. Set Future Meetings
12. Adjourn

3) Status of the TORs Approval

Alan Schuster Bruce presented the approved SC-222 TORs.

The group went through the SC-222 TORs; approval of new MASPS and MOPS shall target March 2024 for Inmarsat SB-S and Iridium Certus and then an additional update in 2026 for IRIDIUM Certus MASPS and possible MOPS (if required). New TORS will cover in the future work:

- potential future satcom system improvements
- Include ATN-IPS technical material
- Consider UAS C2 link impact on SATCOM

4) Review Minutes and Actions

The minutes of the last meeting have been reviewed and approved. The action item list has been reviewed focusing on the open actions and their status has been updated. The updated action item list is outlined at the end of the present minutes.

5) Reports from other organizations

SESAR/EUROCONTROL

Antonio Correias from EUROCONTROL presented an update on the SESAR 2020 PJ 14 W2-Solution 107 and in particular on Satcom evolution towards IPS based FCI.

The slides provided a presentation of the solution scope, maturity and validation exercises and in particular:

- EXE-1 IPS over Inmarsat SATCOM
- EXE-2 IPS-OSI interoperability over Inmarsat SATCOM

WG 78 update:

Armin provided an update from WG78. RCTP130 and RSTP160 discussion restarted on the DO350/ED228 document. Different subgroups have been established with one dealing with safety services and their performance. At the last WG78 meeting, Andrew Ives presented a joint paper between Inmarsat and Iridium, providing material for proposing re-assigning elements of the end-to-end link, without changing the overall requirement, making it feasible to measure ATSU/CSPs latency for satcom system. A small team will be set up before end of February to work on a final recommendation for the WG-78 Plenary end of February; this work impacts the ICAO PT-SAT SARPS (target to have SARPS ready by May) and shall be concluded in March 2022 according to actual time planning of WG-78.

ESA: Martina Angelone reminded to the group that a series of Webinars on SATCOM for aviation has been organized in cooperation with EUROCONTROL, SJU and SDM; the first webinar covering generic SATCOM for aviation aspects was held on 25 of January and will be soon available offline; the next two webinars will cover more in detail Iris system technological aspects (16th of February) and maturity and deployment aspects (14th of March)

Armin provided feedback on behalf of DFS on the end-to-end tests including the DFS ATM system (DL-FEP, FDPS, CWP, which have been conducted with Honeywell test aircraft in November 2021. The same tests were conducted with the new avionics from Airbus lab setup. Both test sessions were successful and went very smooth without any negative aspects from the SATCOM installation. It is planned to have test flights in March again with Airbus.

6) Discussion on MASPS (DO-343E/ED-242D) including developing workplan for the next 2 years

and

7) Discussion on MOPS (DO-262G/ED-243D) including developing workplan for the next 2 years

Alan Schuster Bruce presented the new material on potential satcom system improvements with impact on SATCOM MASPS/MOPS.

Inmarsat, may add some material on I6. Other topics, initially covered within the framework of the Iris IOC project, could be Honeywell LREF header compression, IP header compression and New bearers types (even though in a very early stage).

Some IRIDIUM material will be provided, especially covering ERRATA corrigendum in MOPS, ATN/OSI and single stage dialing.

Radek then presented the material for starting the discussion on how IPS may have an impact on ERUOCAE/RTCA MASPS and MOPS

Impacts on MOPS

The group discussed various topics covering the provided services, the priority among ACARS and IPS messages; satellite subnetwork and User Data interface join/leave mechanisms; equipment performance verification procedures.

Discussion on the ARINC 771 and 781 required updates: AEEC standards will be re-opened to accommodate IPS, and the group discussed which approach to take with respect to the AEEC group (e.g. launching an APIM).

An informal call will be set up with Radek, Johan, Alan, Richard and Mike to discuss how to proceed.

Radek got an action to present, which items for the MOPS to be covered for the next meeting

UAS C2 link

Alan displays the system updates involving DO 377A MASPS for C2 link systems for UAS, explaining the main elements; the aircraft will be using a number of different radio links (A/G and G/G) scope of DO377A is to cover the SATCOM link including the Airborne satcom, SSP network and CSP network;

A discussion took place on how to include C2-link material into MASPS and MOPS. A dedicated MASPS/MOPS referring to the AMSRS ones is one identified approach, alternatively, having the C2 link as a separate appendix to the MASPS;

An action was identified for Alan to identify which new material could be relevant for MASPS related to L-band Satcom C2 link in such a new appendix.

More details of the outcome of the planning session can be found in the updated slide presentation from Alan and Radek, which are uploaded to the RTCA SC-222 and EUROCAE WG-82 repository. The group concluded that there is little supporting material to add to AMSRS MASPS/MOPS;

It is proposed to meet every second Wednesday afternoons of the month in order to produce timely material for FRAC in Q1 2024 with the MASPS and MOPS update.

First session will be however on the 16th March to avoid overlap with the DPMG.

8) Industry presentations

There were no additional presentations

9) SC-228 ISRA Discussion

Ravi will send an invite on behalf SC-228 for having a discussion on the ISRA topic.

10) Any Other Business

6) Review actions

An action items list related to the meeting have been send out for comment just after the meeting and are enclosed as well.

7) Set Future Meetings

RTCA SC-222 and EUROCAE WG-82 have agreed on the following next meetings:

WEBEX's:

- **16.03.2022 WG-82/RTCA SC-222: Working Session from 3pm to 6pm CET** (WEBEX will be organized by RTCA) (Note: this will be a monthly meeting through 31.07.2022)
- **14.09.2022 and 15.09.2022 WG-82/RTCA SC-222: Plenary Meeting from 3pm to 6pm CET** (WEBEX will be organized by EUROCAE)

Physical Meetings:

- **No physical meeting(s) are planned.**

8) Adjourn – Plenary meeting

Armin thanked the group for the efficient discussion.

Action items

RTCA-SC222 / EUROCAE WG-82 30th meeting: 6.02.2018 and 7.02.2018

Action#	Content	Responsible	Deadline	Status
A30-09	<p>Review of SC-228 slides and material (ITU M.2127) to provide feedback on the following items:</p> <ol style="list-style-type: none"> 1) Support of 2000 UA 2) 10 – 100 kbps per UA (Peak!) 3) Voice latency of 390 millisecond maximum 4) Use of protected spectrum (L-Band) <p>Discussion at WG-82/#31: Chuck LaBerge will provide a response on it asap.</p> <p>Discussion at WG-82/#32: Values might change in the MASPS for UAS. MASPS are available end of the year. So no activities required by WG-82/SC-222 until availability of MASPS.</p> <p>Discussion at WG-82/#33: MASPS on C2 link support by SATCOM expected Q1/2019.</p> <p>Discussion at WG-82/#34: Status unchanged.</p> <p>Discussion at Plenary June 2019: Status unchanged.</p> <p>Discussion at Plenary July 2019: Current priority on MASPS and MOPS actual documents. Status unchanged.</p> <p>Status Plenary Sept 2019: Status unchanged. Current publication schedule has higher approval.</p> <p>Status Plenary Nov 2019/Jan 2020: Status unchanged. Current publication schedule has higher approval</p> <p>Discussion at Plenary June 2020: Status unchanged.</p> <p>Discussion at Plenary Nov 2020: Early 2021 SC-228 finishing RPAS MASPS. Restart coordination then.</p> <p>Discussion at Plenary Jan 2021: Early 2021 SC-228 finishing RPAS MASPS. Restart coordination then.</p> <p>Discussion at Plenary Feb 2021: Early 2021 SC-228 finishing RPAS MASPS. Restart coordination then.</p> <p>Discussion at Plenary March 2021: Report expected to be available in May 2021.</p> <p>Discussion at Plenary July 2021: Analysis presented. Further work on details required before sent out paper material to the groups. See further Action Items below.</p> <p>Discussion at Plenary September 2021: First wait for discussion on Paper on Alex Miu investigations.</p>	Chuck LaBerge	asap	Closed

RTCA-SC222 / EUROCAE WG-82 31st meeting: 26.06.2018 and 28.06.2018

Action#	Content	Responsible	Deadline	Status
A31-03	<p>Contact EUROCAE WG-105 (RPAS) to ask for requirements on SATCOM Performance Class A</p> <p>Discussion at WG-82/#34: Still open. Armin Schlereth to take care of it soon.</p> <p>Discussion at WG-82/#35: Still open.</p> <p>Discussion at Plenary June 2019: Status unchanged.</p> <p>Discussion at Plenary July 2019: Current priority on MASPS and MOPS actual documents. Status unchanged.</p> <p>Status Plenary Sept 2019: Status unchanged.</p> <p>Status Plenary Sept 2019/Jan 2020: Status unchanged. Current publication schedule has higher approval.</p> <p>Discussion at Plenary June 2020: Status unchanged.</p> <p>Discussion at Plenary Nov 2020: Early 2021 SC-228 finishing RPAS MASPS. Restart coordination then.</p> <p>Discussion at Plenary Feb 2021: Early 2021 SC-228 finishing RPAS MASPS. Restart coordination then.</p> <p>Discussion at Plenary March 2021: Report expected to be available in May 2021.</p> <p>Discussion at Plenary July 2021: Analysis presented. Further work on details required before sent out paper material to the groups. See further Action Items below.</p> <p>Discussion at Plenary September 2021: First wait for discussion on Paper on Alex Miu investigations.</p>	Armin Schlereth	asap	Closed

RTCA SC-222/EUROCAE WG-82 50th meeting: 13.07.2021

Action#	Content	Responsible	Deadline	Status
A50-01	Richard, Darrel and Johan will provide comments to the text inconsistency between the DO 262E text and the table in the FAA TSO. September meeting: Errata has been published	Richard, Daniel, Johan		Closed
A50-02	Report the outcome of the errata correction to the PMC at the next meeting	Committee		Closed
A50-03	Distribute material (slide presentation and paper on L-Band SATCOM for UAS C2-Link investigations to Iridium (Mike Hopper) and Ravi Jain and Armin Schlereth. September meeting: Chuck sent the presentation just before the meeting. Paper planned for end of September distribution.	Chuck La Berge	ASAP	Closed
A50-04	After feedback from Iridium distribute material (slide presentation and paper) on L-Band SATCOM for UAS C2-link investigations to SC-222 and WG-82 members September Meeting: Important to wait for Iridium feedback and coordination with Chuck La Berge and Alex Miu before publication. Discussion at Plenary February 2022: IRIDIUM proposes not to publish it and work further to get more details.	Chairs/Co-chairs of SC-222 and WG-82	After completion of A50-03	Closed

RTCA SC-222/EUROCAE WG-82 52th meeting: 28.09.2021

Action#	Content	Responsible	Deadline	Status
A52-01	Michael Hooper to provide his feedback to Chuck La Berge and Alex Miu and initiate discussion if needed on possible rewording before paper on UAS C2-link can be published Discussion at Plenary February 2022: IRIDIUM proposes not to publish it and work further to get more details.	Michael Hooper	End October 2021	Closed
A52-02	Inmarsat to provide a presentation on the possible interest in covering UAS C2-link at the next meeting.	Alan Schuster Bruce	Next WG meeting	Open
A52-03	Guillaume De Bony De Lavergne (Airbus) to prepare a presentation on the possible impact on MASPS and MOPS of the automated data download for TRFD. Discussion at Plenary February 2022: AIRBUS will inform about internal discussion on strategy results when available.	Guillaume De Bony De Lavergne	Next WG meeting	Open

A52-04	To provide a feedback on the possible timeline for the IPS standardization maturity that would allow to start the discussion on the MASPS/MOPS impact	Inmarsat (Alan Schuster Bruce)	End October 2021	Closed
A52-05	Update task sheet and circulate to the main stakeholders	Armin Schlereth	End October 2021	Closed
A52-06	ACTION Alan and Mike to incorporate the proposed changes in the SC-222 TORs to be presented in December. Specifically consider IRIDIUM CERTUS items.	SC-222 co-chairs	End October 2021	Closed
A52-07	Initiate call for interest process for LDACS.	Armin Schlereth together with support of Anna Guegan	End October 2021	Closed

RTCA SC-222/EUROCAE WG-82 55th meeting: 8.02 -09.02.2022

Action#	Content	Responsible	Deadline	Status
A55-01	Present material on MOPS core part items to be updated	Honeywell (Radek Zaruba)	At the next meeting in March 2022	Open
A55-02	Present details about 3 main items on Inmarsat MOPS (slide 4 on Radek's slide presentation); modifications will be captured in spread sheet for the discussion.	Honeywell (Radek Zaruba)	At next meeting in March 2022	Open
A55-03	To identify which new material could be relevant for MASPS related to L-band Satcom C2 link.	Alan Schuster Bruce	At Next Meeting in March 2022	Open
A55-04	Ravi to send an invite on behalf sc-228 for having a discussion on the ISRA topic	Ravi	End of February	Open
A55-05	To present material on CERTUS MOPS update	Michael Hooper	At the next Meeting in March 2022	Open