



RTCA Paper No. 185-21/SC222-096
 EUR Reference No EUR 226-21 / WG82-97

Washington, 4 August 2021
 Saint Denis, 4 August 2021

**Minutes of EUROCAE
 WORKING GROUP 82 (WG-82) (Meeting #50) and RTCA SPECIAL COMMITTEE 222
 (SC-222) (Meeting #44)
 “New Air-Ground Data Link Technologies”
 related to SATCOM**

Date	13 July 2021
Place	Virtual Meeting
Venue	EUROCAE – Webex
Hosted by	EUROCAE

Participants:

NAME	COMPANY
Adam Sarhage	GARMIN
Ajay Parikh	LIGADO
Alan Schuster Bruce	INMARSAT
Alex Miu	UMBC
Ann Heinke	Stellar Solutions Inc
Anna Guegan	EUROCAE
Antonio Correas	EUROCONTROL
Armin Schlereth	DFS
Brandon Hinton	FAA
Chuck LaBerge	LaBerge Engineering
Craig Scheffler	Wisk Aero
Darrell Andregg	Rockwell Collins
Gary Colledge	INMARSAT
Hiroshi Okochi	JRANSA
Jeff Knickelbein	COBHAM
Jila Rainer Koll	Stellar Solutions
Joe Darden	IRIDIUM
Johan Gericke	COBHAM
Karan Hofmann	RTCA, Inc
Luke Sienkiewicz	IRIDIUM
Mark Insley	LATITUDE-TECH

Martina Angelone	ESA
Michael Gertsman	Square Peg Communications, Inc.
Michael Hooper	IRIDUM
Nkululeko Thembinkosi Ntombela	ATNS
Radek Zaruba	Honeywell
Ravi Jain	FAA
Richard Tapp	Honeywell
Stephen Van Trees	FAA

DOCUMENTS

Agenda Item	Title	File name
1	Calling Notice and Agenda	222WP330_SC-222 (44) and WG-82 (50) Calling Notice Meeting.pdf
2	Meeting Minutes of last Meeting	222_44_WG-82_Meeting_48_Final minutes

PRESENTATIONS

Agenda Item	Title	File name
5	L-Band SATCOM for UAS C2-link	Presentation from Alex Miu

The presentation and final submitted paper will be available on RTCA AerOpus for SC-222 and EUROCAE Workspace for WG-82.

Welcome, Introductions, Administrative Remarks by Special Committee Leadership

Chuck LaBerge (chair SC-222) welcomed the group. He led through the whole remaining meeting.

1. APPROVAL OF THE AGENDA

After a round table, Chuck LaBerge introduced the proposed agenda of the RTCA SC-222/ EUROCAE WG-82 Plenary meeting. The scope of 30th of April is to perform a sanity check on the MASPS material. The final agreed agenda looks as follows:

AGENDA

13 July 2021 (9:00 am – 5:00 pm EDT) – (15:00 – 23:00 CEST)

Welcome, Introductions, Administrative Remarks by Special Committee Leadership

- Government Authorized Representative (GAR): Ravi Jain
- Chair RTCA SC-222: Dr. Chuck LaBerge, LaBerge Engineering
- Chair EUROCAE WG-82: Dr. Armin Schlereth, DFS

- 1) RTCA/EUROCAE Opening Material
- 2) Review Agenda
- 3) Review Minutes and Actions
- 4) Reports from other organizations
- 5) Preliminary Results of L-Band SATCOM for UAS C2 Link – Alex Miu (UMBC)

- 6) Close out of proposed ISRA to SC-223 on Internet Protocol Suite (IPS) and Next Generation Satellite System (NGSS) from 2019
- 7) Discussion on future work
 - a) Chairman Status
 - b) TOR Discussion
- 8) Review Action
- 9) Set Future Meetings
- 10) Adjourn

1. RTCA/EUROCAE Opening Material

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 (WG).

2. Review Agenda

See above.

3. 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.

4. Reports from other organizations

TSO-C159e on NGSS Equipment

Alan presented the Technical Standard Order TSO-C159e on NGSS Equipment ; it was in fact spotted an inconsistency w.r.t. DO 262E; specifically, on the table specifying the possible combinations of the AES with the diplexer and the transceiver, includes an inconsistency on lines 105 and 110 (AES7, line 105 and line 110 show a valid combination of a DLNA DFL and 6J transceiver) w.r.t. the text description of the DO-262E (section E.2.2.1.1.3).

The agreement of the committee is to have Richard, Darrel and Johan providing comments to the text inconsistency and this will be reflected in the errata, in order to correct these mistakes. These will be reported to the PMC at the next meeting.

5. Preliminary Results of L-Band SATCOM for UAS C2 Link – Alex Miu (UMBC)

Alex Miu gave a slide presentation on his findings related to potential support for UAS C2-link from L-Band SATCOM. Both systems Inmarsat SBB and IRIDIUM Certus have been considered in that context. This work has been done in the context of his master thesis supervised by Chuck LaBerge at UMBC. Mike Hooper from IRIDIUM mentioned that RCP130 and RSP160 as described in EUROCE ED-228A is currently not supported by IRIDIUM Certus, but it is planned for the future. Actually IRIDIUM Certus supports Oceanic environment only.

Before publication within SC-222/WG-82 community it has been agreed that material will be first send to IRIDIUM for feedback with Ravi and Armin as CC. After that material will be distributed to the whole group member list of SC-222 and WG-82.

6. Close out of proposed ISRA to SC-223 on Internet Protocol Suite (IPS) and Next Generation Satellite System (NGSS) from 2019

This has already been discussed within the group quite a while ago and can officially be closed.

7. Discussion on future work

a) Chairman Status

Chuck La Berge has announced that this is going to be his last meeting as Chairman. Proposed co-chairs are Alan Schuster Bruce (Inmarsat) and Michael Hopper (Iridium). The group thanked him for his high quality and precious, tireless work as SC-222 Chairman.

b) TOR Discussion

Discussion on the possible needed updates on the TORs was started with the target to continue in the September meeting.

8. Review Action

See final action item list with general status after the meeting (13th July 2021 – WGW).

9. Set Future Meetings

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

WEBEX's:

- **28.09.2021 WG-82/RTCA SC-222: Plenary WEBEX from 3pm to 5pm CET** (WEBEX will be organized by RTCA)

Note: This WEBEX is intended to discuss on updates related to the TORs of both groups and deal with open items on SATCOM MOPS and MASPS as appropriate. It is only dedicated to SATCOM issues.

Physical Meetings:

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

10. Adjourn – Plenary meeting

Chuck and Armin thanked the group for the lively discussion. The whole group thanked Chuck for his work as SC-222 chairman. As it was Chuck's last meeting Alan Schuster-Bruce had organized an electronic greetings card with inputs from several members of the group. Unfortunately, there was no opportunity to have a common dinner to really provide groups gratitude and to say goodbye with best wishes for all his future plans.

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>	Chuck LaBerge	asap	Open

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>	Armin Schlereth	asap	Open

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.	Richard, Daniel, Johan	asap	Open

A50-02	Report the outcome of the errata correction to the PMC at the next meeting	Committee	asap	Open
A50-03	Distribute material (slide presentation and paper) on L-Band SATCOM for UAS C2-link investigations to IRIDIUM (Mike Hooper) and Ravi Jain and Armin Schlereth.	Chuck LaBerge	asap	Open
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.	Chairs/co-chairs of SC-222 and WG-82	After completion of A50-03	Open