



EUR 262-16 / WG82-50  
RTCA Paper No. 278-16/SC222-049

Malakoff, 27 January 2017  
Washington, 27 January 2017

**Minutes of  
Plenary Meeting of RTCA SC-222 (Meeting #24) and EUROCAE WORKING GROUP 82 (Meeting #26)  
“New Air-Ground Data Link Technologies”  
related to  
SATCOM**

<b>Date</b>	<i>Wednesday 5<sup>th</sup> to Thursday 6<sup>th</sup> October 2016</i>
<b>Place</b>	<i>Washington DC (USA)</i>
<b>Venue</b>	<i>1150 18th NW, Suite 910, Washington, DC 20036</i>
<b>Hosted by</b>	<b>RTCA</b>

**WG-82 Participants:**

Name	Company	Day 5 <sup>th</sup>	Day 6 <sup>th</sup>
Radek Zaruba	Honeywell	X	X
Alan Schuster Bruce (via WEBEX)	INMARSAT	X	X
Nikos Fistas	EUROCONTROL	X	X
Armin Schlereth	DFS (Chair WG-82)	X	X
Johan Gericke	COBHAM SATCOM	X	X
Dave Robinson	FAA (SC-222 DFO)	X	X
Gary Colledge (via WEBEX)	INMARSAT	X	X
Roberto Ortiz	INMARSAT	X	X
Ayaz Nemat (via WEBEX)	L3	X	X
Ofma von Stein	L3	X	X
Antonio Correias	Airtel ATN	X	X
Paul Rowlands	THALES UK	X	X
Juan-Carlos Caceres Casanova (via WEBEX)	SAFRAN Engineering	X	X

**RTCA Participants at the joint RTCA/EUROCAE sessions:**

Name	Company	Day 5 <sup>th</sup>	Day 6 <sup>th</sup>
Chuck LaBerge	LaBerge Engineering (Chair RTCA SC-222)	X	X

Victor Gheorgian (via WEBEX)	BOMBARDIER	X	X
Rainer Koll (via WEBEX)	Stellar – Solutions (on behalf of FAA)	X	X
Ann Heinke	Stellar Solutions (on behalf of FAA)	X	X
Michael Hooper	IRIDIUM	X	X
Darrell Andregg	Rockwell Collins	X	X
Glenn Torgerson	Boeing	X	X
Jun Han (via WEBEX)	Rockwell Collins	X	X
Sachin Chibber (via WEBEX)	Ligado	X	X
Sean McGinnis	ComDev	X	X
Jose Godoy	ARINC	X	X
Nathaniel Dorr	UMBC - Guest		X
Maqbool Aliani (via WEBEX)	ARINC, UMBC, Ligado	X	X
Karan Hofmann	RTCA	X	X

#### DOCUMENTS

Agenda Item	Title	File name
1	Agendas	22agenda_Oct5-6_WashingtonDC_final.docs and 222agn23-Web.pdf
2	Minutes of last meetings	WG-82_Meeting_25_minutes_final.doc and Report of 23 <sup>rd</sup> Meeting June 2016
4	SATCOM MOPS	SATCOM MOPS Comment table – all (2016-10-14 FRAC).xls
5	SATCOM MASPS	Comment table Draft ED-242_consolidated.xls

#### PRESENTATIONS

Agenda Item	Title	File name
6	SATCOM Performance classes	WG82_SATCOM Performance Classes_v10.docx

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

Chuck Laberge welcomed the group. After that IPR and participation statement from RTCA and EUROCAE side were given.

**2 APPROVAL OF THE AGENDA**

Chuck presented the agenda. The final agenda of the meeting after several re-arrangements looked as follows:

**Wednesday, Oct. 5th, 2016**

Wednesday Morning – Plenary:

Welcome, Introductions, Administrative Remarks by  
Special Committee Leadership

- Designated Federal Official (DFO): Mr. David Robinson
- Chair RTCA-SC222: Dr. Chuck LaBerge, LaBerge Engineering
- Chair EUROCAE WG-82: Dr. Armin Schlereth, DFS

1. Agenda Overview
2. Review/Approve prior Plenary Meeting Summary – (action item status)
3. Brief Status of Related Efforts

Wednesday morning through Thursday 5PM

4. Detailed MOPS OC/Frac Review HONEYWELL
5. Detailed MASPS OC/Frac Review INMARSAT
6. IRIDIUM documentation items IRIDIUM
7. Items of general interest
8. Establish Agenda, Date and Place for next plenary meetings (as needed)
9. Review of Meeting summary report
10. Adjourn – Plenary meeting

12:00 Lunch

*All times are EST (Eastern Standard Time), or GMT-5.*

**3 Minutes of last meeting**

The minutes of last meeting were approved after taking into account comments from the group. The action item list has been reviewed. The updated action item list is outlined at the end of the present minutes.

**4 Brief Status of Related Efforts**

**ICAO**

At CP/1 the work program has been updated to cover also SATCOM and in particular the update of the current SATCOM SARPs and Manuals with more stringent performance requirements targeting a first deliverable of standards in 2018.

CP/2 will take place from 10.10. to 14.10.2016 just after the present meeting. The meeting was informed for a planned paper covering the proposed way ahead in ICAO for the updates of the SATCOM docs. The paper proposes the update the PBCS Manual by end of 2017 to include performance requirement for ATN Baseline 2 as standards and for ATN Baseline 3 as recommendations. Then the paper proposes the updated of the SATCOM SARPS to include references to the PBCS Manual for the new performance class (B and A).

The draft CP/2 paper is uploaded in the WG82 workspace.

## **AEEC:**

Michael Hooper from IRIDIUM pointed out that a Master/Slave type arrangement is foreseen within ARINC 771 when 2 SATCOM systems are installed. In addition, new antenna classes definition are planned to be finished within next 2 weeks. Johan Gericke outlined that it has been agreed for ARINC 771 to expand on security. ATN/OSI (APIM by INMARSAT) was not approved due to opposition from some members. The definition of VPN's are currently only foreseen for ACARS (ARINC 781).

## **SESAR 2020:**

Following the SESAR1 SATCOM activities, a new project in the context of SESAR2020 (PJ14-2-2) is expected to start in November 2016. The new project will run to 2019 and will cover both SATCOM Performance Class A and B systems.

## **5 SATCOM MOPS development**

Radek Zaruba (HONEYWELL) went through the comments received for the INMARSAT SBB specific issues during the FRAC/OC process. The according Excel file with comments summary and conclusions has been uploaded on the EUROCAE Website workspace for WG-82.

One major open point identified was related to the references to INMARSAT MTR and SDM documentation. For these 2 documents an update is required. This is a pre-requisite for final publication of the document. The group agreed to finalize document so far and be prepared for the upcoming PMC to explain that publication shall be withheld until final references for SDM and MTR are available (see also action items A26-03 and A26-04).

Meanwhile Armin Schlereth discussed the item with the EUROCAE secretary and March 2017 PMC meeting seems more appropriate in order to be really sure to be able to provide the correct references shortly after the PMC meeting. The issue is that EUROCAE has no control on the internal INMARSAT process regarding availability and publication of such material.

## **6 SATCOM MASPS development**

Alan Schuster Bruce (INMARSAT) went through the comments received for the INMARSAT SBB specific issues during the FRAC/OC process. Only a few comments have been received which are mainly of editorial nature and are dealing with the interference scenario appendix. The according Excel file with comments summary and conclusions has been uploaded on the EUROCAE Website workspace for WG-82.

## **7 IRIDIUM documentation items**

The meeting discussed about the changes related to IRIDIUM Change 1 . The new Iridium material makes some quantitative changes to Change 1, but enjoys widespread support among Iridium manufacturers and Value-Added partners. The proposed changes affect Iridium Block 1 equipment only. It is planned to have all the changes completed by the end of October 2016. This material will then be included in DO-262C.

## **8 Items of general interest**

There was one item presented, which deals with the SATCOM Performance classes terminology. Nikos Fistas provided a paper discussing this subject. The paper has been updated according to the discussion within the group and can be found on the EUROCAE Website workspace. Finally, the agreement was to no longer speak about SATCOM Class A, B, C but rather use the terminology SATCOM **Performance** Class A, B, C to avoid confusion with airspace classes in the future.

## 9 Summary & Next Meeting (Status: October 2016)

Final DO-343A/ED-242 Minimum Aviation System Performance Standard for AMS(R)S Data and Voice Communications Supporting Required Communications Performance (RCP) and Required Surveillance Performance (RSP) in Procedural Airspace FRAC resolution was completed. Consensus was reached. Document was approved releasable to Council and PMC for final approval and publication.

Final Revised DO-262C/ED-243C Minimum Operational Performance Standards for Avionics Supporting Next Generation Satellite Systems (NGSS) FRAC resolution was completed. Consensus was reached. Document was approved releasable to Council and PMC for final approval and publication.

Further tentative planning foresees joined meeting sessions with RTCA SC-222 at the March 2017 meeting of WG-82.

A tentative Pre-FRAC/OC meeting might be held around June 2017 including the updated IRIDIUM material on Certus. Therefore, this material includes also the update of the interference scenario between IRIDIUM and INMARSAT SBB. Further on material on IPS will be included as well. A FRAC/OC meeting might then be held around October 2017.

The following meetings and dates are planned:

- WG-82, RTCA SC-222: Half a day WEBEX on **11.01.2017 from 3pm to 6pm CET**: RTCA SC-228 briefing on UAS, IRIDIUM briefing on Certus.
- **7.03. – 8.03.2017** EUROCAE WG-82 SATCOM Meeting (location: INDRA – Barcelona)

Post meeting note 1: Final DO-343A/ED-242 Minimum Aviation System Performance Standard for AMS(R)S Data and Voice Communications Supporting Required Communications Performance (RCP) and Required Surveillance Performance (RSP) in Procedural Airspace and DO-262C/ED-243C Minimum Operational Performance Standards were re-visited at the virtual plenary meeting held on the 23<sup>rd</sup> of January 2017. This was required due to several significant comments coming up after the October meeting. More details will be outlined in the dedicated minutes of that meeting.

Post meeting note 2: The Barcelona meeting in March has been turned into a virtual meeting held via WEBEX due to lack of material for discussion at a physical 2 days meeting as originally planned. This virtual meeting is scheduled for 7<sup>th</sup> March from 3pm to 5pm CET and might be extended depending on the subjects to be discussed.

### Action items

#### EUROCAE WG-82 23<sup>rd</sup> meeting: 22.09.2015 - 23.09.2015

Action#	Content	Responsible	Deadline	Status
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A23-02	Propose alternative terminology for Class A, B, C SATCOM.  Will present a proposal at the joint meeting with RTCA in June.  WG-82/25: Decided to write an internal paper to make it more clear what is meant also in the TOR of WG-82. → See new action item A25-11. Close this one here.	Nikos / Dave / Armin / Alan / Chuck / Michael	October 2016 meeting	<b>Closed</b>
A23-05	Develop tests cases for INMARSAT SBB MOPS and distribute updated MOPS document including comments resolutions from WG-82/#23 to WG-82 for comments.  WG-82/25: Mainly mentioning MTR, SDM. But this documents are not yet ready. See plans regarding completion below.	Radek Zaruba	8.01.2016	<b>Closed</b>

**EUROCAE WG-82 24<sup>th</sup> meeting: 24.02.2015 - 25.02.2016**

<b>Action#</b>	<b>Content</b>	<b>Responsible</b>	<b>Deadline</b>	<b>Status</b>
A24-02	To coordinate internally in WG-82 (Alan and Johan) on how to mark AES, before sending FAA	Radek	4/03/2016	<b>Closed</b>
A24-06	Contact EASA (Bryan Jolly) to ask for involvement in MOPS development (ETSO).  WG-82/25: Friedhelm Runge to be contacted.	Armin	30/06/2016	<b>Closed</b>

**EUROCAE WG-82 25<sup>th</sup> meeting: 8.06.2015 - 9.06.2016**

<b>Action#</b>	<b>Content</b>	<b>Responsible</b>	<b>Deadline</b>	<b>Status</b>
A25-01	Update Armin's e-mail distribution list according to EUROCAE membership.	Armin	Asap	<b>Closed</b>
A25-02	Put SESAR P 15.2.6 D104 (MRD) on EUROCAE workspace.	Paolo	30.06.2016	<b>Closed</b>
A25-03	Distribute ICAO paper from CP#1 entitled "SATCOM Communications: Developments in Europe, NEXUS output and Way ahead in ICAO"	Armin	10.06.2016	<b>Closed</b>
A25-04	Work out a draft Appendix to MASPS document on interference between IRIDIUM and SBB.	Chuck	1.07.2016	<b>Closed</b>

A25-05	Provide actual expected traffic numbers for Europe in 2030	Armin	24.06.2016	<b>Closed</b>
A25-06	SATCOM MASPS: Conduct sensitivity analysis for interference scenario as in A25-04 to find out when traffic numbers are becoming a problem.  Raw material to do the sensitivity analysis with actual MASPS scenario.	Chuck	1.07.2016	<b>Closed</b>
A25-07	SATCOM MASPS: organise WEBEX to discuss material as of A25-04, A25-05 and A25-06 to be prepared for MASPS FRAC/OC.  WEBEX scheduled for 13.07.2016 3pm to 5pm CEST.	Armin	8.07.2016	<b>Closed</b>
A25-08	Develop test case in IRIDIUM MOPS Appendix D to cover actual problem of interference between IRIDIUM and SBB	Victor Gheorghian	1.07.2016	<b>Closed</b>
A25-09	SATCOM MOPS: Send out updated comments resolution list after agreement with Johan Gericke on his comments.	Radek	1.07.2016	<b>Closed</b>
A25-10	SATCOM MOPS: organise WEBEX to discuss material as of A25-08 and A25-09 to be prepared for MOPS FRAC/OC.  WEBEX scheduled for 11.07.2016 3pm to 5pm CEST.	Radek	6.07.2016	<b>Closed</b>
A25-11	Write an internal EUROCAE paper to define SATCOM Class A, B, C in order to better describe what is meant in the actual TOR of the group.	Armin, Nikos, David, Alan	October 2016 meeting	<b>Closed</b>

**RTCA-SC222 / EUROCAE WG-82 26<sup>th</sup> meeting: 5.10.2015 - 6.10.2016**

<b>Action#</b>	<b>Content</b>	<b>Responsible</b>	<b>Deadline</b>	<b>Status</b>
A26-01	MOPS Appendix B (ISO 8208) to be deleted in after next publication.  Chuck and Armin to inform PMC and EUROCAE Council accordingly.	Chuck / Armin	December 2016	<b>Open</b>
A26-02	Further discussion on making Security part of 2017 version of MOPS	Radek / Michael / David	ongoing	<b>Open</b>
A26-03	Recommend EUROCAE / RTCA Secretariat to wait for publication of SATCOM MOPS until final SDM document form INMARSAT is published.	Chuck / Armin	December 2016	<b>Open</b>
A26-04	Recommend EUROCAE / RTCA Secretariat to wait for publication of SATCOM MOPS until final MTR document including G.729 material form INMARSAT is published.	Chuck / Armin	December 2016	<b>Open</b>

A26-05	Provide half a page material as problem statement related to performance measurement and standardization bodies involved for further discussion within the group.  Note: AES versus system considerations.	Ann	ongoing	<b>Open</b>
A26-06	Provide wording for standard and enhanced ACARS if INMARSAT feels necessary.	Alan	21.10.2016	<b>Open</b>
A26-07	MOPS: Support of continental airspace. Chuck to provide text for App E section 1.3.10 Installation Environment from his interference scenario introduction section text as input.  The same holds for section 1 of MASPS.	Chuck	21.10.2016	<b>Open</b>
A26-08	Coordination with RTCA SC-228 on MASPS and MOPS.  Further details about half a day briefing meeting to be defined.	Chuck / Armin	asap	<b>Closed</b>
A26-09	Distribute ISRA from SC-228.	Karan	14.October 2016	<b>Open</b>
A26-10	DO-262C completely integrated required or not (including App D and E). Chuck to clarify with Karan.	Chuck	28.October 2016	<b>Open</b>
A26-11	Harmonise wording of IRIDIUM changes with Victor changes proposed.	Michael / Radek	14.October 2016	<b>Open</b>



## Open Items

Item #	Description
OI - 2	How to handle SECURITY in an ATN/OSI implementation. Also for ATN/IPS IPsec is not yet part of ARINC 664.