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**EUROCAE WG-119 Plenary Meeting #14 “Radar Altimeter” /
RTCA SC-239 Plenary Meeting #14 “Low Range Radar Altimeter”**

DATE: 08 Feb 2024

TIME: 9 – 11 AM EDT (USA)

PLACE: Hybrid (EASA- Cologne, Germany / Online)

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AGENDA

1. Welcome and Introductions
2. EUROCAE/RTCA presentations (Administrative Reminders)
3. Validation of the previous Plenary MoM
4. Working Group Reports
5. Review of Schedule and Scope for MOPS Development
6. Discussion of Future Meetings
7. Other Business
8. Review of Action Items
9. Adjourn

PARTICIPANTS –

Name	Organization
David Leblanc	TCCA
Timo Warns	Airbus
Josep Giné	ATR
Ed Hahn	ALPA
Kim Kolb	Boeing
Janet Young	FCC
Richard Amy	DGAC FR
James Gilb	GA-ASI
Kambiz Rahnavardy	FCC
Rebecca Morrison	RTCA
Seth Frick	Honeywell
Luis Alves	Embraer
Nic Shrout	ASRI
Donny Morrow	ALPA
Ted Peterson	Collins Aerospace
Helmut Brutscher	AIRBUS helicopters
Barbara Clark	FAA
Matt Harris	Boeing
David Redman	AVSI
Italo Aguiar	Embraer
Kyle Tank	USDOT VOLPE
Jean-Luc Robin	Airbus
Janet Young	FCC
Behlul Poonawalla	FreeFlight systems
Eddie Straub	Garmin
PAGLIARINI Mauro	EASA
Hussain Al-Sadi	Boeing
Wes Googe	American Airlines
Adam Claassen	Garmin
Sai Kalyanaraman	Collins Aerospace
Kim Kolb	Boeing

Agenda Item 1: Welcome, Introductions and Administrative Remarks

Seth welcomes the group and the group did a round of introductions.

Agenda Item 2. EUROCAE/RTCA presentations (Administrative Reminders)

Rebecca and Mark Watson provided the RTCA and Eurocae policies and administrative reminders.

Agenda Item 3. Validation of the previous Plenary MoMs

Sai presented minutes for the previous plenaries and obtained approval from the group. One minor update to the Sep 2023 minutes was requested by Mauro Pagliarini (to agenda item 2) and that was accepted and approved).

Agenda Item 9: Review of Action Items:

The group reviewed the action items from the previous plenary (13th plenary). Actions 13-1, 13-2 are kept open as planned while Action item 13-3 was closed.

Seth and Jean Luc provided an overview of the RAC process. Dave Redman asked if we had a document editor to which Seth replied that we don't have one yet and that SG leads are working the document on their respective ends. Seth indicated his openness to help co-ordinate the document compilation with Rebecca once the subsections come in.

Agenda Item 5: Review of MOPS Schedule and Status

An overall view of the MOPS schedule and status was provided. Actions were laid out for SG leads towards preparation for RAC, schedule definition and execution of the defined RAC process. Committee chairs were assigned the action to coordinate with SG leads to define overall updated MOPS development schedule and propose an updated ToR for approval in the next plenary. These were recorded in the Action Item register.

Agenda item 4 : Working Group Reports

Jean Luc went through the list of SG's with updates to share at this plenary and handed it over to Kim Kolb who leads SG2.

Kim Kolb provided an SG2 status update and shared the envelope of the global emissions mask which was based on the identified RF environment. SG2 continues to trace and identify the global RF environment (more countries in South America, Africa, and Asia have started to identify C-Band IMT frequencies) on either side of the rad alt band and provide additional descriptions and information on the evolving list of 5G C Band plans. Kim indicated that the power levels for the low power systems had gone up by a bit but are reflected in the overall mask that has been presented. He identified the WRC-27 Agenda item (AI) for IMT in 4400-4800 MHz and also the WRC-31 AI to allow aeronautical use in 3400-3700 MHz.

Miles Bellman, chair of SG3 presented the next update. He mentioned that SG3 was on hiatus earlier in the year due to resource constraints and that biweekly meetings picked back up from 11 Oct 23. SG3 had seven meetings since restarting its work. SG3 also completed its compatibility study with Fixed Satellite Service (FSS) receivers in 4.0-4.2 GHz and this resulted in no change to the proposed RA transmitter ITU-R derived emissions mask. SG3 has been working on validation of RA Tx requirements. Draft test procedures have been proposed and SG3 was reviewing the same.

Eddie Straub presented an update on SG4 activities. He indicated that the scope of SG4 was to help develop all performance requirements and test procedures with the exception of those that are specific to the Transmitter (SG3), RF Interference (SG5), Data Security (SG6) and antenna requirements (SG7). He added that the technical challenges that lay ahead include the definition of new MOPS classes and subclasses; Development, evaluation, & validation of new, higher-fidelity RF loop-loss model, Completion of remaining requirements/test procedures, flight test procedures and definition of environmental requirements. He also added that risks to the current set of activities were a combination of technical, schedule and resource driven factors. He provided the plenary a high-level brief on the SG4 activities since the previous plenary.

Dave Redman provided the SG5 update. SG 5 meetings have focused on reviewing proposals for ITM values, the structure of the requirements, and appropriate test procedures. The group made significant progress at an in-person meeting in November 2023. SG5 has draft language for the requirements and test procedures text but is still waiting for all input necessary to determine the consensus ITM values. As of this meeting, SG5 had 2 independent proposals applicable to Class Alpha altimeters and 3 applicable to Classes Beta and Gamma. SG5 anticipated having RAC-reviewable input based on 3 independent proposals for all classes. He indicated that the SG5 ITM will be a system level requirement. The ITM will be determined by the best ITM achievable by at least 2 RA manufacturers. SG5 Next steps were to complete draft text, incorporate all outstanding ITM proposals and submit document for RAC.

Timo Warns (chair of SG6) presented an SG6 overview. He indicated that SG6 was having bi-weekly meetings with focused discussions towards finalizing security requirements and developing test procedures. The summary of the overall status indicated that the security performance requirements were revised and a first draft of test procedures were available with further revisions needed. Next steps include maintaining requirements and ensure alignment with SG4/SG5 and converge on test procedures in alignment with SG5.

Behlul and Sophia presented the SG7 update and addressed scope and schedule in the same. The scope included identification, definition, and clarification of impacts on the performances of future RA antennas with improved out of band rejection. SG7 has received initial antenna simulation proposals from three RA Antenna manufacturers. They indicated that their planned activity included assessment of ground plane size impacts on antenna radiation pattern and performance with respect to ITM; address antenna group delay and its variation related concerns and also assess impacts of environmental requirements on overall antenna performance (e.g. gain out of band, icing etc.)

Agenda Item 6: Future Meetings

1. In-person meeting in Kansas: SG4 – week of 15th April 2024.
2. In-person meeting and plenary at Hamburg: 11-14 June 2024.
 - a. Anticipate plenary session on 6/13/24 starting at 14:00 hrs local time. Finalized agenda will provide updated details.

Agenda item 8: Other Business

RTCA received technical input from a member of the public dated October 30th, 2023. This technical input is available to members of SC-239/WG-119 in the meeting folder on AerOpus: <https://aeropus.i3cloudservices.com/Document/ViewDocument?docVersionId=62675>

RTCA delivered the technical input to the committee leadership immediately and per our process, written submissions will continue to be accepted at any time and noted in the following plenary. Committee leadership has reviewed the material and determined that there is no direct action required for the MOPS development outside of the current plan.

Agenda item 9: Action Items:

The following new actions are captured in the action item register:

Actions:

- 1) **Action Item 14-1:** Each SG lead to prepare for RAC and define their schedule needs in order to complete the process and communicate this to the committee chairs by March 8th.
- 2) **Action Item 14-2:** Each SG lead to execute the defined RAC process according to the finalized schedule.
- 3) **Action Item 14-3:** Jean-Luc and Seth to coordinate with SG leads to define overall updated MOPS development schedule and propose an updated ToR for approval in the next plenary.

Agenda item 10: Adjourn.

The meeting was adjourned (at 10:19 AM US ET).