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Saint Denis, 30Jan2025
Washington, 30Jan2025

**EUROCAE WG-119 Plenary Meeting #17 “Radar Altimeter” /
RTCA SC-239 Plenary Meeting #17 “Low Range Radar Altimeter”**

DATE: 30 Jan 2025

TIME: 9 – 11 AM EDT (USA)

PLACE: Hybrid (Brussels / Online)

CONTACTS:

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AGENDA

1. Welcome and Introductions.
2. EUROCAE/RTCA presentations (Administrative Reminders – Rebecca/Mark).
5. Discussion of information received from members of the public.
3. Validation of the previous Plenary MoM (14thplenary) (Sai).
6. Review of Schedule and Scope for MOPS development
7. Review and approve Terms of Reference Change for SC-239.
4. Working Group Reports (Timo, Dave, Eddie, Kim, Miles, Sophia).
8. Discussion of Future Meetings.
9. Review of Action Items.
10. Other Business.
11. Adjourn.

PARTICIPANTS –

<u>Name</u>	<u>Organization</u>
Andrew Roy	ASRI
Baron Chan	FCC Wireless Bureau
Behlul Poonawalla	FreeFlight Systems
David Redman	AVSI
Donny Morrow	ALPA
Doug Hyslop	CTIA
Eddie Straub	Garmin
Grégoire Jacotot	Thales
Hussain Al-Sadi	Boeing
Italo Aguiar	Embraer
James Gilb	GA-ASI
Janet Young	FCC
Jean-Luc Robin	Airbus
Jerry Golden	UAL
Kambiz Rahnvardy	FCC
Kim Kolb	Boeing
Marie Hogestad	FAA
Mark Watson	EUROCAE
Matt Harris	Boeing
Nic Shrout	ASRI
PAGLIARINI Mauro	EASA
Paul Powell	FCC
Rebecca Morrison	RTCA
Sai Kalyanaraman	Collins Aerospace
Seth Frick	Honeywell
Shunichi Futatsumori	ENRI
Sophia THIZON	Thales SIX
Stephane TALLET	Thales
Susan Mort	
Ted Peterson	Collins
Timo Warns	Airbus
Torben	GSMA
Tuck Poon	Nokia
Victor Jara	Honeywell
Wes Googe AAL	American Airlines

Agenda Item 1: Welcome, Introductions and Administrative Remarks

Jean-Luc Robin and Seth Frick welcomed 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 5: Discussion of Information received from members of the public

No new information received.

Agenda Item 3. Validation of the previous Plenary MoMs

Sai presented minutes from the previous plenary and obtained approval from the group on the same (pending some typographic updates).

Agenda Item 6: Review of Schedule and scope for MOPS development

Seth provided an update on the MOPS schedule. The goal was to go into FRAC / OC by Sep 2026 with a view of sending the document to the PMC in Jan of 2027 and obtaining a final published document by Mar 2027.

Agenda Item 7: Review and approve ToR change for SC-239

Proposed ToR changes were presented. A motion to approve was sought. Donny Morrow moved for the motion and John Micallef seconded it. Motion to change ToR was approved.

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 indicated that SG2 was mostly dormant and reminded that spectrum is always dynamic and changing. He highlighted the two WRC AI's of interest (identifying 4400-4800 MHz band – WRC-27 and opening up 3400 – 3700 MHz for aeronautical mobile applications - WRC 31) to this group and added that this was being tracked by aviation stakeholders. He added that countries are continuing to deploy in the bands around the altimeter but these are in line with previous data.

Miles Bellman was unable to attend and Seth presented the SG3 update in lieu of Miles. All performance and test requirements have been written and proposed test procedures developed. SG3 decided that test procedures would be high-level and reference ITU-R or ANSI/IEEE guidance documents that provide detail on conducting the tests for both FMCW and pulsed RA designs. Next steps included finalizing environmental test conditions/requirements (only a few remaining DO-160()/ED-14() sections to be discussed), developing analysis procedures for test requirements related to multiplex installations and final formatting and cleanup for RAC.

Eddie Straub, chair of SG4 presented an update on his SG activities. SG4 continued to have regular meetings with, at least, a biweekly cadence since the last plenary. They also held an in person multi day session at Boeing in Seattle, WA. Key progress items include continued toward activity towards completion of full MOPS draft for SG4's scope with the team being fully focused on completion of above scope in line with the expected MOPS schedule. He also noted that we have a substantive fraction of the MOPS scope under the cognizance of SG4 and indicated that they had a large amount of requirements and test procedures that would need to be compiled and then validated for all RA classes. With a view to getting ready for RAC, he identified that SG4's focus was the completion of the baseline (full) MOPS draft.

Dave Redman provided the SG5 update. He indicated that regular SG5 meetings have continued with some interruptions to the weekly schedule and added that SG5 and SG7 meetings have been separated into two distinct meetings. As regards key items, he stated that requirements have achieved stasis pending inputs from SG7 and based on proposals from 4/5 RA manufacturers and an initial draft of test procedures have been captured along with initiating activity on the Validation matrix. It was also agreed that all ITM related requirements were identified as complex validation items. The preponderant focus of the SG5 activity included refining test procedures and harmonizing efforts across SG5 and SG6 to include waveform definitions, specifying test subset for environmental and OOB verification test procedures and the need to consolidate the ITM proposals into one single ITM and translate them into effective conducted test levels. The next steps for SG5 (with a view of entering RAC) were to obtain consensus on maturity of TXR and PRO content for incorporation into the RAC document.

Timo Warns (chair of SG6) presented an SG6 overview. Regular biweekly cadence has been observed by SG6. Key items of progress include completion of requirements (some requirements remain to be integrated into master document), identifying a suitable verification approach (for low coherence threats) and work on verification procedure for high coherence threats (two target test) defined. Main items of SG6 activity included discussion on the details of different verification procedures along with discussion on the suitability of tests under appropriate environmental conditions. Next steps (with focus on getting ready for RAC entry) were to increase the frequency of SG6 meetings (at least till March), completion of verification procedures and perform multiple iterations of review and revision until entry into RAC.

Behlul Poonawalla and Sophia Thizon presented the SG7 updates. SG7 meetings were being held weekly and will continue at least until entry into RAC. Key progress items included compilation of all antenna performance requirements (with a majority of them reviewed), simulation inputs around peak-to-peak group delay assessment (provided by 2 RAAM's) and Honeywell's inputs on Radar Altimeter Antenna Passband Group delay Variation and its performance impacts.

Main items of discussion within SG7 included Average Group delay, Group Delay variation with respect to periodicity and its impacts on accuracy requirements. There were ongoing open actions for RAAM's and RAM's to provide data to finalize the group delay requirements. Garmin provided input to determine the impact of ground plane on antenna performance. In addition, DO-160 Test requirements were discussed and a preliminary table with requirements were created.

As regards follow on activity with a view of getting into RAC, a slew of activities were identified and they included obtaining further inputs from RAAM's (simulations, prototype data measurements etc.) , requirements Validation per SC-239 established guidelines, integration of requirements and verification procedures in the master document and review and revision of the same till entry into RAC.

Agenda Item 8: Discussion of Future Meetings

1. SC-239 meeting and plenary – US - Week of May 19th, 2025 at FreeFlight Systems in Dallas, TX. Plenary to be held on Friday morning at 9 AM US CT.

2. Plan for a working meeting in Melbourne, Florida sometime between Feb and April 2025 (hosted by Collins Aerospace).

Agenda item 9: Review of Action Items:

The existing action item register was reviewed for updates and the following new actions are captured and/or tracked in the action item register:

- 1) **Action Item 13-2:** Agenda Item 4 from 13th plenary (consider motion to close DO-399 OC/FRAC) to be tabled and carried as an action that will be captured (by Sai) in Action Item register for regular updates in plenary sessions. **Closed once ToR approved.**
- 2) **Action Item 16-1:** Committee chairs to coordinate development of MOPS schedule (up to OC/FRAC entry) including validation. **Closed – MOPS schedule and ToR has been finalized.**
- 3) **Action Item 17-1:** Committee chairs to define internal committee milestone dates (“not-to-exceed” dates) for 1) RAC entry, and 2) Start of Final Validation in order to support the schedule in the updated ToR (with September 2026 OC/FRAC entry). Committee chairs will coordinate with sub-group leaders and take into consideration the dates of planned in-person committee meetings.

Agenda item 10: Other Business

Rebecca indicated that the results of ad hoc discussions are consensus on ToR . Rebecca has the risk register and Seth and Jean Luc have reviewed risks to schedule. The consensus was that we have a day to day slip due to delay in antenna prototypes. As we ID risks to schedule, this needs to be communicated to Rebecca. The goal of the register is to use ID resources needed to help address the risks and act accordingly.

Agenda item 11: Adjourn.

The meeting was adjourned (at 10:34 AM US ET).