

Special Committee 147

**MINIMUM OPERATIONAL PERFORMANCE STANDARDS FOR TRAFFIC ALERT AND
COLLISION AVOIDANCE SYSTEMS AIRBORNE EQUIPMENT**

The 93rd meeting of RTCA SC-147 and 62nd meeting of EUROCAE WG-75 was held on 8 August 2019 via WebEx.

The following Leadership was present:

J. Stuart Searight	Co-Chairman, Federal Aviation Administration
Sheila Mariano	Government Authorized Representative
Donna Froehlich	Secretary
Alexander Engel	Director EUROCAE, also representing Bill Booth, Chair of WG-75, and Al Secen (director RTCA)

Agenda Thursday, 8 August

1. Chairmen's Opening Remarks / Introductions
2. Anti-Trust Statement & RTCA/EUROCAE Policies
3. Approval Of Minutes: 92nd Meeting of RTCA SC-147/61st Meeting of EUROCAE WG-75 | 13 June 2019
4. Approval of Agenda: 93rd Meeting of RTCA SC-147/62nd Meeting of EUROCAE WG-75 | 13 June 2019
5. Future Meeting Scheduling
6. Review Of FRAC/OC Process For DO-385/ED-256 Change 1 Document
 - a. Summary of Comment Adjudication & Committee Considerations from Week of June 10
 - b. Review of Comments Submitted Not Yet Considered by Full Joint Committee
7. Approval Of DO-385/ED-256 Change 1 Document
8. Action Items Summary

Note: All presentations from the agenda items summarized below can be found on the RTCA Workspace (<http://workspace.rtca.org/kws>) in the SC-147 Traffic Alert & Collision Avoidance System area.

Agenda Item 1-5. – Opening Plenary Session

1. Chairmen’s Opening Remarks / Introductions
Mr. Stu Searight opened the meeting, thanking all attendees.
2. Anti-Trust Statement & RTCA/EUROCAE Policies
Mr. Alex Engle (EUROCAE) stood in for Al Secen (RTCA) and presented both RTCA the Anti-Trust Statement and EUROCAE Policies that govern our MOPS development and technical exchanges.
3. Approval of Minutes From 92nd (13 June 2019) Meeting of SC-147
Ms. Donna Froehlich apologized for late availability of the minutes and requested participants review the posted version and provide her with comments. Approval will be deferred to the next Plenary, 19 September 2019.
4. Approval of Agenda for 8 August 2019
Approved with two adjustments:
 - a. SWG requested time at end of Plenary to discuss proposal for ACAS Xa TSO include an Appendix to address possible duplicate 24 bit IDs: ICAO and non-ICAO.
 - b. Future meetings to be discussed at end of the day’s business (remains item 5 on agenda)
5. Future meetings, as discussed at the end of the Plenary ([see SC-147 Work Plan – from June Plenary](#))

Year	Dates	City	Venue	Host Organization	Focus
2019	September 17-20*	Washington, DC	RTCA Headquarters (WGs w Plenary)	RTCA	ACAS Xu Technical Requirements in MOPS. FRAC Comment Resolution and approval of Interoperability MASPS DO-376/ED-264 *Small UAS ACAS Presentations post-Plenary
2019	December 3-5	Washington, DC	RTCA Headquarters (WGs w Plenary)	RTCA	ACAS Xu Pre-FRAC
2020	March 10-12	Washington, DC	RTCA Headquarters (WGs w Plenary)	RTCA	Review Progress on ACAS Xu; Present Approach to FRAC/OC
2020	June 1-4	Washington, DC	RTCA Headquarters (WGs w Plenary)		Refine Approach to FRAC/OC
2020	Aug (TBD)	N/A	e-Plenary	RTCA	Confirm ACAS Xu FRAC/OC

6. Change Document (Searight/Froehlich)

To review the FRAC/OC Timeline:

- ✓ 18 June: (re-)Open FRAC/OC Process
- ✓ 18 June -2 Aug (COB/EOD): 45 Day Comment Period
- ✓ 5 August: Review Comments; ID SMEs; Comment Resolution
- 8 August: Joint Plenary-Approve Change 1 PMC Submission
- 12 August: Submit to RTCA PMC for Review and Approval
- 13 September: Request Approval at PMC Meeting

The primary purpose of this virtual Plenary is to review the comments to the DO-385/ED-256 Change 1 document released 18 June (“Change 1 Updated”) and ensure that resolutions/edits are acceptable to the commenter and SC-147/WG-75.

Ms. Froehlich presented the [comments spreadsheet](#) with approach & resolutions recorded.

Each comment was presented and the affected text in the Change 1 Updated document was presented to ensure that the update was placed correctly and that no additional edits were needed now that the resolution is in place.

Action Items for Ms. Froehlich:

- Coordinate with Ms. Drumm to ensure that “Note 2” placement is adjusted correctly. - Comment #37274 (formerly #37227)
- Update tables for Executive Summary and adjust Scope and Approach text accordingly – Comment #37253
- Send Word (.docx) and Adobe (.pdf) copies of Change 1 to our RTCA and EUROCAE Directors (Al Secen and Alex Engel) after updates and SME final review is complete

Mr. Stuart Searight indicated the truly technical aspects of the DO-385/ED-256 changes are captured in Change 1 Updated, and that there are only a few items to complete. Considering we agree on the approach, Mr. Searight proposed that we accept the Change 1 Updated and approve it for submittal to PMC/Council review. Mr. Wes Olson seconded the motion. There were no comments or objections. The motion stands and the document is approved.

7. TSO Appendix – non-ICAO Coordination Issue (Mariano/Jessen)

Ms. Sheila Mariano provided some background on this topic. She began by stating that about a week ago the Xu HAZOP team had identified a potential hazard which they are

mitigating for ACAS Xu. However, this specific coordination hazard also exists for ACAS Xa/Xo and should be addressed.

The topic was introduced and discussed at this week's SWG, 6 August 2019; the concern and mitigation was deemed significant enough that SWG wished to continue the discussion at the committee level to allow the wider audience the opportunity to respond to the mitigation approach and to get concurrent on their proposal to address the mitigation in an Appendix to the TSO.

At this point, Ms Mariano asked Mr. Ian Jessen to present the discussion slides he presented to the SWG on the 6th. Mr. Jessen explained that it is possible for a non-ICAO ADS-R aircraft and an equipped Mode S aircraft could be broadcasting with the same 24 bit addresses. The hazard scenario would progress something like this:

- non-ICAO ADS-R aircraft and an equipped Mode S aircraft could be broadcasting with the same 24 bit addresses
 - Disparate Track files initially correlated due to duplicate address
 - Spatial decorrelation splits into separate targets
 - ADS-R target must be retrieved before the original target when iterating over all targets in the database (implementation detail)
- ADS-R and Mode S track files remain decorrelated
- VRC is received from Mode S intruder
- STM will associated VRC with non-ICAO ADS-R target i.e., and NOT apply the VRC to the Mode S target.

The HAZOP and ADD teams are working together on a solution for ACAS Xu, but we need an immediate non-algorithmic solution for ACAS Xa/Xo. SWG, CERT and HAZOP teams wish to publish a mitigation as soon as possible.

Mr. Jessen indicated that one solution for this hazard is to require an indicator (bit) that identifies non-ICAO target data messages and allow STM to sort this out. This is a long term solution for ACAS Xa/Xo since the Work Plan doesn't include a Rev A at this time.

A more expedient solution would be to suppress sending those non-ICAO ADS-R messages to ACAS Xa/Xo and eliminate the processing conflict; instructions for this can be included as an appendix to the TSO. The surveillance processing SMEs and our CERT representative agreed that an Appendix to the TSO can be used to cover the non-ICAO address hazard and would be an efficient means to incorporate the necessary guidance and drafted a TSO appendix. The [draft TSO Appendix](#) was shared with SWG on 6 August and has been posted to the committee workspace. (Mr. Jessen indicated that it still needs some rework to meet the formatting needs for TSO, but that is in process.)

Ms. Mariano explained that the (draft) ACAS Xa/Xo TSO begins the FAA internal approval cycle after 9 August 2019, hence the push to document a mitigation in TSO Appendix. She added that there is an opportunity during the public comment period to offer a better resolution. - If we determine there is one. Ms. Mariano clarified that the public comment period will be for 30 days and start in the October/November timeframe.

Discussion points

- Ms. Mariano clarified that the public comment period will be for 30 days and start in the October/November timeframe
- When the topic of other non-ICAO devices was raised, Mr. Jessen indicated this was a possibility and needed some additional consideration.
- When the question of whether the traffic would be displayed even if there were no alerts, Mr. Jessen indicated that a DO-317 compliant CDTI integrated with an ACAS Xa/Xo unit would still display the non-ICAO traffic, as it would still receive the target from surveillance, just wouldn't receive target information from the ACAS.
- Discussion about other devices that might use a non-ICAO 24 bit address.- Mr. Wes Olson added that in the US, military aircraft can get a (different 24 bit) temporary assignment or have an address that corresponds with the N-number, but that isn't necessarily the case in other countries.
- Discussion about an alternative, more targeted, resolution that would prohibit the passing of non-ICAO surveillance to ACAS X if and only if a target already exists with the same 24 bit ICAO address. This would allow us to maintain surveillance on non-ICAO targets most of the time, but there would still be potential for coordination issue for very short gaps of time (2-3 seconds) in rare situations (corner cases). This alternative requires additional discussion in SWG but could be proposed during public comment period.

Ms. Sheila Mariano asked if anyone wanted to look through the draft TSO Appendix during the meeting – or whether there were any questions about the approach that might hinder our consensus/approval

Summarized the current approach:

- Use TSO Appendix to document a policy to disable (alerting of) non-ICAO targets
- Continue to consider alternatives, which could be provided during the TSO public comment period – If a viable alternative is identified, SWG to request/schedule a meeting to come to consensus (possibly an e-Plenary)

Mr. Searight indicated we have a plan forward. Then he confirmed that Ms. Mariano has the information she needs to go forward, and that the plan is acceptable to her needs and schedule. There were no further discussion nor objections to this plan.

TSO (Appendix) Action Items

- Ms. Mariano – continue to work with Mr. Jessen, Mr. Winkel, and Mr. Rowlan to address the current comments/concerns with the draft TSO Appendix
- Ms. Mariano – coordinate this late-breaking item with Mr. Keven Hallworth for coordination with ETO actions
- Ms. Mariano – forward the Federal Register announcement for the TSO public comment period to the SC-147 membership
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8. Conclusion/Closing

At this point, Mr. Searight reviewed the schedule for upcoming Plenary meetings. He highlighted that after the Plenary on the morning of Thursday September 19th, the Face-to-Face (F2F) would continue with sXu presentations on Thursday afternoon and Friday. Mr. Searight hopes everyone can arrange their travel plans to attend. Looking ahead to 2020, Mr. Searight indicated the Match 2019 F2F/Plenary is scheduled for Washington DC (like the other meetings). However, there is a possibility that the March 2020 F2F might have an alternate venue and to keep tuned to see if arrangements can be made to hold the meeting(s) in Phoenix.

After reviewing the Action Items above (3 for Ms. Froehlich, 3 for Ms. Mariano) Mr. Searight checked for any other announcements (there were none) and adjourned the Plenary.

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