EUR 158-21 / WG110-19

RTCA Paper No. 129-21/SC237-016

Summary of the

EUROCAE Working Group 110/ RTCA SC 237 (Meeting 10)

Helicopter Terrain Awareness Warning Systems (HTAWS) for Offshore Operations

DATE: 7th and 10th May 2021

PLACE: Webex

CONTACT:

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ATTENDEES:
The following people attended all or part of the webex:

Organisation	First name	Last name	Email address
Airbus Helicopters Deutschland GmbH	Dietmar	Kleinitz (DK)	dietmar.kleinitz@airbus.com
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UK CAA EUROCAE Secretary	Mark	Prior (MP)	mark@mpriorconsulting.com

*Day 1 only

1 Introductions

Mike Deer(MD) welcomed everyone to the meeting.

2 IPR/Membership Callouts and Introductions.

Rebecca Morrison(RM) showed the mandatory slides which explain the obligations of members and covered administrative aspects of the meeting. Sebastian Reschenhofer (SR) noted the additional requirements of EUROCAE.

3 Previous Meeting Minutes

Actions arising from the previous meetings were discussed and it was confirmed that all actions were now closed. The Minutes from Meeting 9 were accepted.

Action Reference	Action	By Whom	By Date
9.1	Provide draft text noting that it is undesirable to use torque as the sole criterion for identifying autorotation.	UK CAA (DH)	Closed
9.2	Confirm if Sikorsky intends to leave Mode 1 Active during autorotation.	Sikorsky (RE)	Closed
9.3	Email EUROCAE and RTCA to downgrade Comment #12 from non-concur to high.	EASA(XA)	Closed
9.4	Review Chapter 6 and identify if the Installation Manual Requirements were sufficient.	Co-Chair (YI)	Closed
9.5	Provide a black and white version of Fig B-1: Typical Mode 7A Curve.	Sikorsky (RE)	Closed
9.6	Provide a black and white version of Fig C-1: Determining Mode 7B Alerting Envelope.	Bell(EO)	Closed

9.7	Review Chapters 3 and 4 for completeness and clarity.	All	Closed
9.8	In response to comments #22 and #23, review the Modes 3A and 3B text.	Garmin(MA)	Closed
9.9	Review editorial comments and incorporate in MOPS where applicable.	Co-Chair (MD)	Closed
9.10	Update the EUROCAE WG 110 Task Sheet to include developing MOPS for Onshore HTAWS.	UK CAA (DH, YI, MP)	Closed
9.11	Provide an updated copy of the MOPS to the Group for review.	Co-Chairs (MD, YI)	Closed
9.12	Send the MOPS to Council/PMC for publication .	Co-Chairs (MD, YI)	Closed

Yasuo Ishihara (YI) noted that the Working Group/Committee has submitted the MOPS to Council/PMC on time despite the Covid 19 Pandemic.

Secretary Note: The following minutes group the discussions by topic rather than chronologically, as some items were discussed during more than 1 session.

4 Terms of Reference

MD stated that the task was now to move onto Onshore HTAWS. Draft Terms of Reference (TORs) has been circulated in April but no feedback had been received.

4.1 DO-309 MOPS

A discussion then took place on what, if any, reference should be made to the DO-309 MOPS, which addresses helicopter Forward Looking Terrain Avoidance (FLTA). Charisse

Green (CG) and Andy Shaw (AS) outlined the FAA's position from a certification and operations standpoint. The FAA stated their preference was to update DO-309 to have all HTAWS requirements in one MOPS. Reasons for a separate MOPS for Onshore HTAWS was discussed and the general consensus was that DO-309 should remain unmodified, with the Onshore HTAWS resulting in a stand-alone MOPS covering Classic Modes. FAA stated they would not object to a new MOPS based now having a better understanding of the scope of this activity.

Opinions varied on whether the Onshore HTAWS MOPS should include FLTA, or be restricted to Classic Modes, as was applied to Offshore HTAWS. MD and AS noted that including DO-309 requirements in a new MOPS could cause confusion where current FLTA equipment is mandated. It was agreed that the new MOPS would only address Classic Modes. However, the TORs would permit improvements to the FLTA functionality in DO-309 to be investigated and upgrades recommended. Raffaele Di Caprio (RDC) noted that there was no EUROCAE equivalent to DO-309.

It was also agreed that the Offshore HTAWS MOPS in ED-285/DO-376 should remain unmodified.

The following text was agreed and inserted into the TORs:

"*The objective will be to generate new MOPS for Onshore HTAWS; the existing MOPS published in DO-309/ETSO-C194 and ED-285/DO-376 are to remain unmodified. The MOPS are to normatively reference DO-309/ETSO-C194 and ED-285/DO-376. The following additional inputs are to be considered:*

1. *Any customisation of the ED-285/DO-376 "classic modes" required to adapt them for onshore operations.*
2. *Other improvements, supported by adequate evidence, that may be proposed by members of WG-110/SC-237.*

Another objective is to recommend possible improvements to the DO-309/ETSO-C194 FLTA modes, including the possible addition of a minimum standard or specification for the terrain and obstacle data bases."

4.2 Update on Aviation Authorities HTAWS Related Work

Eric Bennet (EB) gave an update on the EASA RMT.0708 covering HTAWS. An issue identified for attention by the RMT was the accuracy and integrity of terrain databases.

RDC stated that EASA was preparing an ETSO adopting ED-285. EASA SPA.HOFO.130 will be updated to reference the ETSO as an Acceptable Means of Compliance.

CG stated the FAA has not decided if a TSO for DO-376 would be created and agreed to follow-up on whether the FAA would create a TSO adopting DO-376.

Dave Howson (DH) stated that the UK CAA will be reviewing the current SPA.HOFO.130 HTAWS mandate as part of its 2022 rule making programme. This will consider retrospective implementation of the CAP 1519 alert envelopes in existing HTAWS-equipped helicopters and mandate of the ED-285 MOPS going forward.

4.3 Liaison with WG 44/SC217

Database integrity and accuracy was discussed. DH noted that this issue had been highlighted for attention by the March 2017 SAR accident in Ireland where the terrain that the helicopter collided with had not been in the HTAWS terrain data base. Additionally, Mikaela Lokatt (ML) questioned if aircraft position accuracy should also be addressed. RM stated that the work of WG 44/SC217 covered these aspects of aeronautical databases. It was agreed that the TORs should include a requirement to co-ordinate with WG 44/SC217 to ensure that the HTAWS database requirements are addressed.

4.4 DO-309

As per the TORs it was agreed to review DO-309 for possible improvements. It was noted that DO-309 Section 2.2.3 discusses position source related to the position source accuracy question in Point 4.3.

Action 10.1

The Group to review DO-309 in preparation for discussion about potential improvements..

Date – By next meeting

4.5 Finalising TORs

The TORs were finalised and agreed by the Group. RM confirmed that the Group could continue its work whilst EUROACE and RTCA processed the updated TORs. The following actions need to take place:

RTCA TORs to be presented to the Program Management Committee (PMC) 17th June 2021.

EUROCAE TORs to be presented at the Technical Advisory Committee (TAC) 6th/7th July 2021.

Secretary Note: Post meeting SR also developed a TAC Discussion Paper to support the revised TORs.

5 Composition of WG 110/SC 237

When the Offshore HTAWS MOPS were drafted, the Group received guidance from experienced offshore operators. The current civil onshore operational experience of the Group is lacking, and so it was felt that additional members with relevant Onshore experience in HEMS and corporate operations would enhance the Group.

Action 10.2

Sikorsky (Steve Schellberg) and HeliOffshore (Steve O'Collard) would contact HAI and EHA to request support.

Date – By next meeting

6 Re-use Text and Intellectual Property Issues

RM stated that the RTCA had changed policy on the re-use of text from previous MOPS to safeguard their IPR. SR stated that EUROCAE would respect this policy and so the Group must make a request to both organisations to re-use any MOPS text.

MD identified that ED-285/DO-376 would be the starting point for the Onshore Modes and therefore access to the text the Group had previously drafted was essential. YI submitted a request to use the ED-285/DO-376 document as a starting template to EUROCAE/RTCA and received the approval on May 10.

7 Working Methodology

7.1 Accident Data

During the drafting of the ED-285/DO-376 MOPS, Flight Data Monitoring (FDM) and accident data had been used to develop the Modes. As onshore helicopters are less likely to be part of a FDM programme, relevant accident and incident data could be used as case studies when developing the Onshore Modes.

Action 10.3

UK CAA (Mark Prior) to identify relevant onshore accident and incident data and share with the Group.

Date: By next meeting

7.2 FAA Special Airworthiness Information Bulletin (SAIB)

AS explained the background to SAIB SW-11-24 dated March 18 2011 related to TAWS fitment on rotorcraft and provided a copy. Nuisance alerts were a concern, as they had been with the Offshore MOPS and will need consideration for the Onshore HTAWS.

7.3 Available Flight Data

During Offshore MOPS development, a portion of the data discussed was related to Onshore flight segments. Sikorsky agreed to review data to determine whether there was relevant Onshore flight data available.

Action 10.4

Sikorsky (Robert Endrizzi) to review flight data to determine if there is relevant Onshore data that can be useful.

Date: By next meeting

7.4 Additional Considerations

In addition to nuisance alerts, the discussions identified a number of issues which needed to be addressed by the Group:

- identify which operational regulations require the fitting of a radalt, as these can exploit Classic Modes;
- applicability of Onshore HTWAS based on aircraft size and complexity;
- typical flight profiles which need to be considered when developing Onshore MOPS;
- review of fixed wing TAWS/EGPWS issues in rotorcraft applications;
- relevant output from EASA RMT.0708.

8 Completion Dates

It was agreed that the MOPS would be completed by June 2023, aiming at a publication date of September 2023.

9 Future Meeting

Due to uncertainty over the Pandemic, it was agreed that the next meeting would be held virtually. The agreed dates were 28th-30th September.

A meeting invitation was issued by RM

10 Any Other Business

Nil

11 Close

The meeting closed on the 10th May 2021.

12 Decisions and Actions

The following actions were raised during the meeting:

Action Reference	Action	By Whom	By Date
10.1	The Group to review DO-309 Section 2.2.3 to confirm it is appropriate.	Group	By next meeting
10.2	Contact HAI and EHA to request operation support/guidance.	Sikorsky (SS) HeliOffshore (SOC)	By next meeting
10.3	Identify relevant onshore accident and incident data and share with the Group.	UK CAA (MP)	By next meeting
10.4	Review flight data for Onshore applicability	Sikorsky (RE)	By next meeting

Mark Prior

Secretary, SC 237/WG-110