



EUR 374-20 / WG110-18
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Summary of the
EUROCAE Working Group 110/ RTCA SC 237 (Meeting 9)
Helicopter Terrain Awareness Warning Systems (HTAWS) for
Offshore Operations

DATE: 15th -17th December 2020

PLACE: Webex

CONTACT:
Rebecca Morrison RMorrison@rtca.org

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
Airbus Helicopter USA	Paul	Dunlap(PD)	paul.dunlap@airbus.com
Bell RTCA Chair	Michael	Deer (MD)	mdeer@bellflight.com
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FAA	Charisse	Green (CG)	charisse.green@faa.gov
Garmin	Michael	Albert (MA)	michael.albert@garmin.com
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HeliOffshore	Steve	O'Collard (SOC)	Steve.OCollard@chcheli.com >
Honeywell	Gary	Ostrom (GO)	gary.ostrom@honeywell.com francesco.ricciardi@leonardocompany.com
Leonardo	Francesco	Ricciardi (FR)	
RTCA	Rebecca	Morrison (RM)	RMorrison@rtca.org
Saab	Mikaela	Lokatt (ML)	mikaela.lokatt@saabgroup.com
Sikorsky	Robert	Endrizzi (RE)	robert.j.endrizzi.jr@lmco.com
Transport Canada Civil Aviation	Travis	Brooks (TB)	travis.brooks@tc.gc.ca
UK CAA	Dave	Howson (DH)	dave.howson@caa.co.uk
UK CAA EUROCAE Secretary	Mark	Prior (MP)	mark@mpriorconsulting.com
UK CAA EUROCAE Chair	Yasuo	Ishihara (YI)	y.ishihara.sea@gmail.com

*Day 2 only

1 Introductions

Mike Deer(MD) welcomed everyone to the meeting.

2 IPR/Membership Call-Outs and Introductions.

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

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

The FRAC-OC WG-110 ED-285 Consolidated Comment Form contains the complete record of the changes made to the MOPS during the review process; these minutes provide an overview of the discussions.

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 8 were accepted.

Action Reference	Action	By Whom	By Date
8.1	Provide revised text which explains the requirement for a unique tone for HTAWS alerts.	UK CAA (DH)	Closed
8.2	Clean up and verify the draft MOPS	Co-Chairs (MD&YI)	Closed
8.3	Verify the test cases in Chapter 5 against the requirements in Chapter 3	Co-Chairs (MD&YI)	Closed
8.4	Provide slides on RMT 0708	EASA(EB)	Closed

4 HTAWS Alerts Inhibited by Low Torque/Autorotation

DH had contacted the Group prior to the meeting with incident data on 1 offshore and 2 onshore approaches where the new envelopes would have provided an increased warning

time. However, one of the issues these examples raised was that if torque is the sole criterion for determining autorotation, there are cases where a steep low powered approach could result in no alerts being displayed to the crew despite the aircraft entering the Mode 1 Must Alert Envelope. The 2 onshore examples related to the S76, but the concern raised was generic to all helicopter types. The Group discussed the need for autorotation to be detected by HTAWS based on more than 1 parameter, but felt it was not appropriate to specify exactly how it should be done. DH accepted an action to draft text explaining the issue. RE noted that Sikorsky might wish to keep Mode 1 Active during autorotation to enhance situational awareness but would confirm this intent.

Action 9.1 UK CAA (DH) to provide draft text noting that it is undesirable to use torque as the sole criterion for identify autorotation. By end of meeting.

The following text was provided and added as a design note to Chapter 1.5.1.

“Using only torque to detect the autorotation state could result in valid alerts being undesirably inhibited during a low power condition. Alternative or additional parameters (e.g. N1) should be considered.”

Action 9.1 - Closed

Action 9.2 Sikorsky (RE) to confirm if Sikorsky intends to leave Mode 1 Active during autorotation. By end of meeting.

RE confirmed that Sikorsky did not intend to leave any of Modes 1-5 Active during autorotation.

Action 9.2 - Closed

5 Final Review and Comment (FRAC)

One hundred and thirty-one comments had been received during the open consultation process. To this number, a further comment was added to cover the autorotation detection issue raised during the meeting, making 132 in total.

5.1 Non-Concur Action

EASA had raised a non-concur regarding the environmental testing requirements for HTAWS (Comment #12). The non-concur was discussed with the EASA author, XA. The discussion identified that HTAWS might not be implemented in dedicated hardware and could be embedded software in another system, or a number of separate systems. Furthermore, environmental testing is addressed at the TSO/ETSO level as well as under Part 27/29.1309. The non-concur was resolved by adding the following text to Chapter 4, which specifically addressed the environmental testing required for a dedicated unit:

“When the Offshore HTAWS function is implemented in dedicated hardware, it shall meet the environmental performance as per the environmental test conditions set forth in EUROCAE ED-14() / RTCA DO-160(), ENVIRONMENTAL CONDITIONS AND TEST PROCEDURES FOR AIRBORNE EQUIPMENT.”

XA accepted that the inserted text, along with the original text, resolved his concern. XA undertook to contact EUROCAE and RTCA by email to downgrade his comment from non-concur to high.

Action 9.3 EASA (XA) to email EUROCAE and RTCA to downgrade Comment 12 from non-concur to high. By January 8th 2021.

5.2 Wording of Requirements and Recommendations

HeliOffshore comment #88 raised the possibility that readers could become confused over what is actually part of a Requirement and what is part of the associated Notes and Recommendations in Chapter 3. To improve clarity, the following reformatting to Chapter 3 was agreed, and the following explanation inserted in Chapter 1.3:

*“Requirements are identified with **OHTAWS_REQXX** and bullets directly below the requirements, if applicable, provide conditions to be met.*

*Additional information related to requirements are contained in **NOTES**.*

*Recommendations are identified as **RECOMMENDATION**.”*

5.3 Review of FRAC Document

The comments recorded in the FRAC document were reviewed. During the reviewing process the following actions were raised:

Action 9.4 Co-Chair (YI) review Chapter 6 and identify if the Installation Manual Requirements were sufficient. By December 17th 2020.

No additional text required.

Action 9.4 – Closed

Action 9.5 Sikorsky (RE) to provide a black and white version of Fig B-1: Typical Mode 7A Curve.

Diagram provided.

Action 9.5 – Closed

Action 9.6 Bell (EO) to provide a black and white version of Fig C-1: Determining Mode 7B Alerting Envelope.

Diagram provided

Action 9.6 – Closed

Action 9.7 All to review changes to Chapters 3 and 4 for completeness and clarity.

Chapters 3 and 4 reviewed during plenary session day 3.

Action 9.7 – Closed

Action 9.8 Garmin (MA) in response to comments #22 and #23, review the Modes 3A and 3B text.

Revised text reviewed on day 3 and the MOPS modified, where agreed.

Action 9.8 – Closed

Action 9.9 Co-Chair (MD) review editorial comments and incorporate in MOPS where applicable.

Relevant comments incorporated

Action 9.9 - Closed

6 Update on EASA Rule Making Task (RMT) and Proposal for Onshore MOPS

The proposal to extend the current WG/SC to develop HTAWS MOPS for onshore operations was discussed. It was agreed that a number of issues had to be resolved, which included identifying the scope of the future work and whether the Onshore HTAWS MOPS would have implications for the DO 309 MOPS. RM informed the Group that the RTCA would require updated TORs to extend the work to cover Onshore HTAWS MOPS; SC 237 could remain in Active Monitor Mode until revised TORs had been agreed at PMC. As a first step, it was agreed to update the EUROCAE Task Sheet to include Onshore HTAWS.

Action 9.10 UK CAA (DH, YI, MP) to update the EUROCAE WG 110 Task Sheet to include developing MOPS for Onshore HTAWS. By February 12th 2021

7 Additional Actions

It was confirmed that the changes agreed during the meeting would be implemented in the MOPS and then a final copy sent to each member for a final review.

Action 9.11 Co-Chairs (MD, YI) to provide an updated copy of the MOPS to the Group for review. By December 31st 2020.

Updated MOPS posted on the EUROCAE/RTCA sites on the 22nd December 2020.

Action 9.11 - Closed

8 Motion to Send the MOPS to Council/PMC for Publication

A motion was proposed to send the MOPS to Council/PMC for publication, via the Secretariats, subject to there being no substantial comments from the WG review of the final MOPS. The motion was agreed unanimously.

Action 9.12 Co-Chairs (MD, YI) to send the MOPS to Secretariats for publication by January 15th 2021

9 Future Meeting

The next meeting will be to discuss future plans regarding the development of Onshore HTAWS MOPS and the revised EUROCAE Task Sheet. An invitation was sent for the meeting to start at 10.00 EST on March 23rd 2021.

10 Any Other Business

The Co-Chairs were thanked for their hard work in updating the MOPS after each day's meeting, which assisted the overall process.

11 Close

The meeting was closed on the 17th December.

12 Decisions and Actions

The following actions were raised during the meeting:

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 identify 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)	8 Jan 2021
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)	Feb 15 2021
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 Secretariats for publication	Co-Chairs (MD, YI)	15 Jan 2021

Mark Prior

Secretary, SC 237/WG-110