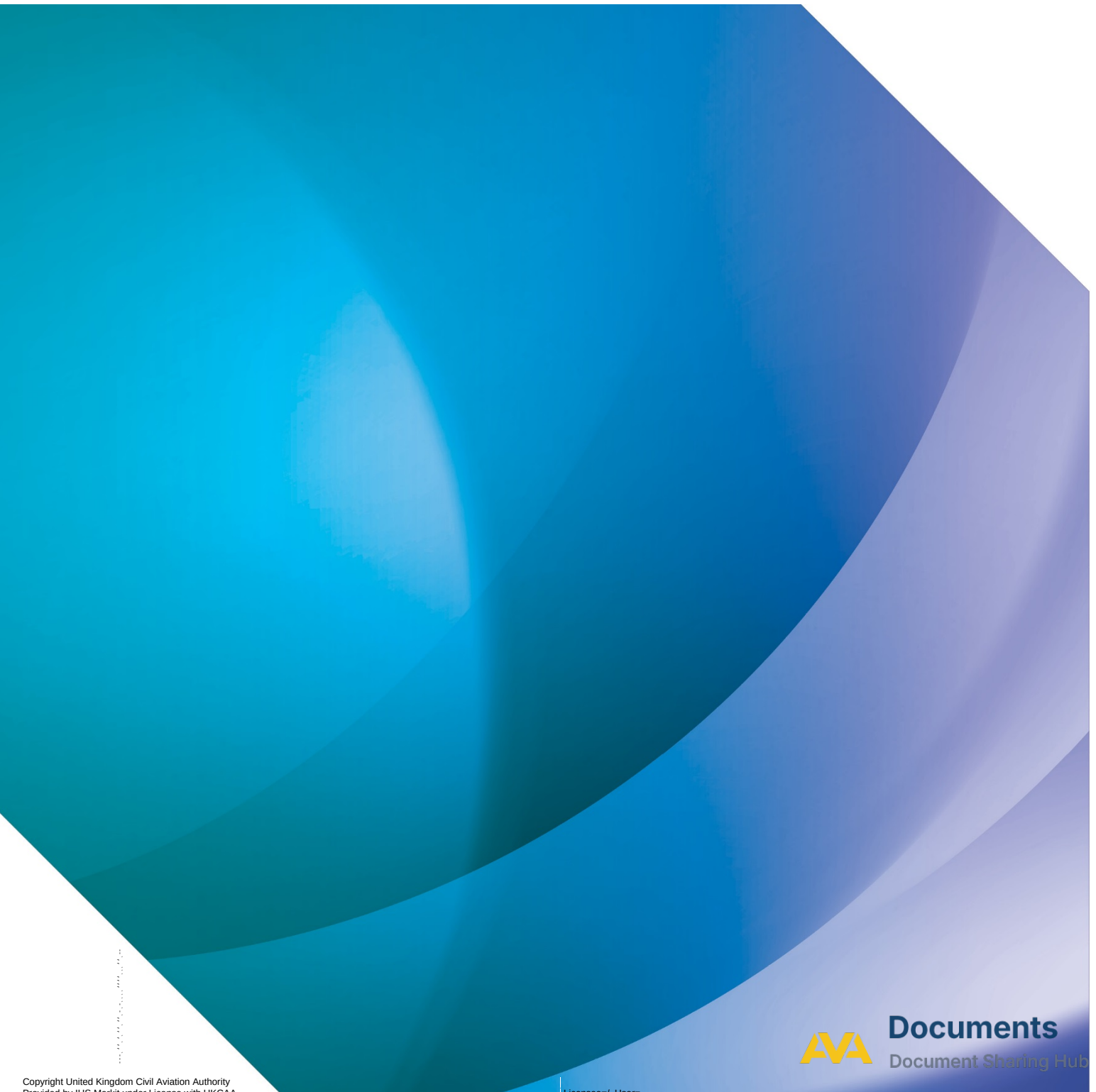


Offshore Helicopter Terrain Awareness Warning System Alert Envelopes

CAP 1519



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Contents

Contents	3
Foreword.....	4
Revision history.....	5
Background.....	6
Purpose	8
Research methodology	9
Alert envelopes	10
Offshore Envelope 1.....	10
Classic Mode 2.....	12
Offshore Envelope 3.....	12
Offshore Envelope 3A loss of height after take-off caution	12
Offshore Envelope 3B loss of airspeed after take-off caution	12
Offshore Envelope 4.....	13
Offshore Envelope 4A too low gear/terrain caution	13
Offshore Envelope 4B too low terrain caution	13
Classic Mode 5.....	14
Classic Mode 6.....	15
Offshore Envelope 7.....	15
Offshore Mode Selection	17
Appendix A	18
CAT.IDE.H.145 and supporting guidance.....	18
CAT.IDE.H.145 Radio Altimeters.....	18
AMC1 CAT.IDE.H.145 Radio Altimeters.....	18
GM1 CAT.IDE.H.145 Radio Altimeters	18
GM2 CAT.IDE.H.145 Radio Altimeters	20

Foreword

Controlled Flight Into Terrain (CFIT) has been identified as a major cause of helicopter accidents world-wide, predominantly at night or during flight under degraded visual conditions. Helicopter Terrain Awareness & Warning Systems (HTAWS) are employed to warn flight crews of terrain, obstacles or descent rates which may be hazardous and thereby assist in preventing CFIT.

Over land, the “look-ahead” or Enhanced Mode is generally considered to provide satisfactory alerts utilising GPS position and a terrain database. However, operational experience from offshore Commercial Air Transport (CAT) in support of oil and gas exploitation has shown that current HTAWS are not optimised for those operations. Some current HTAWS are unable to display fixed obstacles such as large oil platforms with sufficient accuracy. Even if the accuracy is sufficient, keeping the obstacle database sufficiently up to date is impractical due to the large number of mobile obstacles.

Addressing the issues associated with the Enhanced Mode would be difficult and probably impractical, however there is scope for improving the Classic Modes which utilise aircraft flight parameters such as height and rate of descent. This has been achieved using flight data extracted from helicopter operators’ Flight Data Monitoring programmes to develop alert envelopes which would warn crews of hazardous flight profiles while constraining the alert rate to an acceptable level.

Revision history

Version 1.3

September 2018

In this edition CAP 1519 Version 1.2 has been updated to:

- clarify on page 10 that only offshore oil and gas installations should be removed from the offshore obstacle database;
- increase the allowed height loss for Mode 3A from 10% to 20% on page 12 following test experience reported by Honeywell/Sikorsky; and
- add a sentence to Mode 7 on page 15 to explicitly allow Mode 7 to be disabled during OEI operations.

The amended text has been underlined in red.

This Revision history page has also been added.

Version 1.2

November 2017

Updated to allow the possibility that some of the functionality specified can be implemented in aircraft systems outside of HTAWS.

Version 1.1

July 2017

First published.

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Background

HTAWS was introduced on 3rd generation offshore helicopters with the intent of replicating the improvement in safety performance realised when TAWS was mandated for aeroplanes (FAA final rule issued March 2000¹). Experience has shown, however, that HTAWS has not provided the safety improvements expected in offshore operations.

RTCA Minimum Operating Standards (MOPS) for HTAWS exist in DO 309, dated 13th March 2008. The DO 309 HTAWS does not have a radio altimeter input and therefore does not provide Classic Modes or the height alerting functionality required by the offshore helicopter operating rules noted below. Such HTAWS are analogous to aeroplane Class B TAWS. TSO C194 and ETSO C194 address the Technical Requirements for HTAWS but, again, do not contain any requirements for the Classic Modes. Therefore, there are no standards or certification requirements directly relating to the Classic Mode alert envelopes for helicopters, i.e. the equivalent of aeroplane Class A TAWS.

The operational regulations requiring a radio altimeter with a voice warning were embodied in Europe under JAR OPS 3.660 and then adopted in EASA CAT.IDE.H.145 (see appendix). Class A HTAWS is mandated by EASA for helicopters first issued with an individual C of A after 31st December 2018 under SPA.HOFO.160(c)², although there is currently no formal definition for Class A HTAWS. Helicopter CAT operations under 14 CFR Part 135 do not have a requirement for a low height alert device as 135.154 only refers to “airplanes”. 14 CFR 135.160 “Radio Altimeters for rotorcraft operations” requires RADALT for rotorcraft after 24th April 2017. 14 CFR 135.605 requires helicopter air ambulance, a subset of Commercial Air Transport, to have HTAWS that meets TSO-C194 after 24th April 2017.

¹ Part 121.354 Amdt. 121-273; Eff. 3/29/2001

² Commission Regulation (EU) 2016/1199 of 22 July 2016 amending Regulation (EU) No. 965/2012