

# **GUIDANCE AND INFORMATION ON APPLYING FOR INITIAL & RENEWAL OF ALL WEATHER OPERATIONS APPROVALS**



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## REVISION HISTORY

### **Edition 1    December 2016**

Initial issue.

### **Edition 2    May 2017**

Update to application process for EVS/HUD and AWOPS renewal process.

### **Amendment 1    17<sup>th</sup> May 2017**

2.2.1.1 'Exception to conduct Take-off in 125m RVR'. Adjust policy to permit an operator of a Category D aeroplane to reduce Take-off Minima below 150m.

### **Amendment 2    10<sup>th</sup> November 2017**

Page ii - IOMAR office address updated following relocation.

2.2.2.1 Amended replacing the word 'Aerodrome' with 'Aeroplane'.

2.2.2.2 Abbreviating 'Runway Visual Range' to 'RVR'.

## Chapter 1 INTRODUCTION

Before conducting All Weather Operations (AWOPS), Operators of M-registered aircraft must obtain the appropriate AWOPS approval from the Isle of Man Aircraft Registry (IOMAR).

This Registry Publication (RP) 39 has been produced to assist Operators of Isle of Man registered aircraft with the IOMAR AWOPS operating standards & procedures and the application process.

*Please complete [Form 44](#) if applying to use EVS/HUD to descend below minima.*

### 1.1 Initial AWOPS Applications

#### 1.1.1 Initial Application Form

[Form 39 – All Weather Operations \(AWOPS\) Application Form](#), must be completed by the Operator or Flight Operations Representative (FOR) as recorded on the current Form 20.

#### 1.1.2 Initial Supporting Documentation

The IOMAR requires the following supporting documentation to be submitted together with a completed Application Form: -

- AFM or AFM Supplement showing evidence of CAT II/IIIA/IIIB certification as appropriate.
- Relevant pages of the IOMAR approved MEL with CAT II/IIIA/IIIB minimum operational equipment required highlighted in red.
- Flight Crew Training Completion Certificates:
  - for **LVTO only**, a minimum of 2 crew certificates are required for multi-crew aircraft (for single crew aircraft 1 certificate is acceptable).
  - for **CAT II/IIIA/IIIB & LVTO**, provide evidence for all crew who are currently AWOPS qualified on type and validated on the aircraft.
- All Weather Operations Manual ([1.3 All Weather Operations Manual](#)).

### 1.2 AWOPS Renewal Process

#### 1.2.1 Renewal Application Form

[Form 4a – Renewal Application for Operating Approvals](#), must be completed by the Operator or Flight Operations Representative (FOR) as recorded on the current Form 20 to request AWOPS renewals.

#### 1.2.2 Renewal Supporting Documentation

The supporting documentation required for AWOPS renewals is specified in Section 3 on Form 4a.

### 1.3 All Weather Operations Manual

An All Weather Operations Manual which includes specific AWOPS operating standards and procedures is required as part of the application process.

Operators have 2 options: -

1. Use the IOMAR produced Operating Standards and Procedures Manuals (OSPM) for AWOPS, or
2. Use the Operators own AWOPS Manual.

### 1.3.1 IOMAR Produced AWOPS Manual

For Operators who do not already have an AWOPS Manual, the IOMAR has produced a generic Operating Standards and Procedures Manual (OSPM) for AWOPS which can be tailored to meet the individual needs of the Operator. There are 4 OSPMs which are specific to the type of AWOPS Approval being applied for: -

- RP 54 - Operating Standards and Procedures For Low Visibility Take-Off
- RP 37 - Operating Standards and Procedures For CAT II & Low Visibility Take-Off
- RP 37a - Operating Standards and Procedures For CAT II/IIIA & Low Visibility Take-Off
- RP 37b - Operating Standards and Procedures For CAT II/IIIA/IIIB & Low Visibility Take-Off

To request a copy of a generic OSPM, please email <mailto:flightoperations@gov.im> to request the specific manual you require from the list above.

*Operators who elect to use the IOMAR Produced AWOPS Manual do not need to review the remainder of this publication*

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### 1.3.2 Operators Own AWOPS Manual

As the AWOPS approval is issued by the IOMAR, the Operators' AWOPS Manual must as a minimum meet the standards and requirements set by the IOMAR.

AWOPS Standards and Requirements are included in Chapter 2.

AWOPS Training Requirements are included in Chapter 3.

Form 39 includes a number of Cross Reference Matrix Tables, the relevant one of which must be completed by the Operator or Flight Operations Representative (FOR).

The following Cross Reference Matrix Tables are provided: -

- Appendix A - Cross Reference Matrix LVTO
- Appendix B – Cross Reference Matrix CAT II & LVTO
- Appendix C – Cross Reference Matrix CAT II/IIIA & LVTO
- Appendix D – Cross Reference Matrix CAT II/IIIA/IIIB & LVTO

The completed Cross Reference Matrix together with the corresponding extracts of the Operators AWOPS Manual need to be submitted to the IOMAR as part of the application and approval process.

## Chapter 2 AWOPS Standards and Requirements

In order to gain an AWOPS approval, compliance with the IOMAR AWOPS standards and requirements must be met. For Operators wishing to use their existing AWOPS manual, the Operator must be able to demonstrate how their manual meets the standards and requirements set by the IOMAR.

The IOMAR requires that AWOPS Manual includes relevant information to provide the flight crew with an appreciation of the factors pertaining to the specific AWOPS category applied for.

### 2.0 Subject Applicability Table

The following tables provide guidance on the top level subjects which must be included in the AWOPS Manual. For further details on the specific requirements of each subject, please refer to the specific paragraph reference indicated in the table below.

Top Level Subject	AWOPS Category			
	LVTO	CATII & LVTO	CAT IIIA & LVTO	CAT IIIB & LVTO
<b>2.1 General</b>				
2.1.1 General Information Meteorology, Aerodrome and Aeroplane	Y	Y	Y	Y
2.1.2 AWOPS Terminology & Definitions (applicable to the specific approval)	Y	Y	Y	Y
<b>2.2 Operating Minima</b>				
<b>2.2.1 Take-Off</b>				
2.2.1.1 Aerodrome Operating Minima for LVTO	Y	Y	Y	Y
2.2.1.2 Exception to conduct Take-off below 150m/200m RVR	Y	Y	Y	Y
2.2.1.3 Take-off Alternate	Y	Y	Y	Y
2.2.1.4 LVTO Operating Minima Presentation	Y	Y	Y	Y
<b>2.2.2 Calculation of Aerodrome Operating Minima (AOM)</b>				
2.2.2.1 Aeroplane Speed Categories	N/A	Y	Y	Y
2.2.2.2 RVR Requirements	N/A	Y	Y	Y
2.2.2.3 Approach Ban (Commencement and Continuation of AWOPS Approach)	N/A	Y	Y	Y



<b>Top Level Subject</b>	<b>LVTO</b>	<b>CATII &amp; LVTO</b>	<b>CAT IIIA &amp; LVTO</b>	<b>CAT IIIB &amp; LVTO</b>
<b>2.3 Operating Procedures</b>				
2.3.1 All Weather Operating Procedures	Y	Y	Y	Y
2.3.2 All Weather Taxi Procedures	Y	Y	Y	Y
2.3.3 Low Visibility Take-off Procedures	Y	Y	Y	Y
<b>2.4 CAT II Specific Requirements</b>				
2.4.1 CAT II Pre-Flight Planning	N/A	Y	Y	Y
2.4.2 CAT II Operating Criteria	N/A	Y	Y	Y
2.4.2.1 CAT II Operating Minima	N/A	Y	Y	Y
2.4.2.2 CAT II Required Visual Reference	N/A	Y	Y	Y
2.4.2.3 CAT II Limitations	N/A	Y	Y	Y
2.4.2.4 CAT II Minimum Equipment List (MEL) Requirements	N/A	Y	Y	Y
2.4.3 CAT II Approach Preparation	N/A	Y	Y	Y
2.4.4 CAT II Aeroplane Operating Procedures	N/A	Y	Y	Y
2.4.4.1 Acquisition of Visual References	N/A	Y	Y	Y
2.4.4.2 Loss of Visual Reference	N/A	Y	Y	Y
2.4.5 CAT II Failures and Associated Actions	N/A	Y	Y	Y
2.4.5.1 CAT II Aeroplane Equipment Failures	N/A	Y	Y	Y
2.4.5.2 CAT II Aerodrome Equipment Failures	N/A	Y	Y	Y
<b>2.5 Use of Enhanced Vision Systems / Head Up Displays</b>				
2.5.1 AWOPS Using Enhanced Vision Systems (EVS)	Y	Y	Y	Y
2.5.1 AWOPS using Head-Up Display Landing Systems (HUDLS) – if applicable	N/A	Y	Y	Y
<b>2.6 Ongoing Compliance Monitoring of All Weather Approach and Landings</b>	N/A	Y	Y	Y

<b>Top Level Subject</b>	<b>LVTO</b>	<b>CAT II &amp; LVTO</b>	<b>CAT IIIA &amp; LVTO</b>	<b>CAT IIIB &amp; LVTO</b>
<b>2.7 CAT III Specific Requirements</b>				
2.7.1 CAT III Pre-Flight Planning	N/A	N/A	<b>Y</b>	<b>Y</b>
2.7.2 CAT III Operating Criteria	N/A	N/A	<b>Y</b>	<b>Y</b>
2.7.2.1 CAT III Operating Minima	N/A	N/A	<b>Y</b> (2.7.2.1.1)	<b>Y</b> (2.7.2.1.2/ 2.7.2.1.3)
2.7.2.2 CAT III Required Visual Reference	N/A	N/A	<b>Y</b> (2.7.2.2.1)	<b>Y</b> (2.7.2.2.2)
2.7.2.3 CAT III Limitations	N/A	N/A	<b>Y</b> (2.7.2.3.1)	<b>Y</b> (2.7.2.3.2)
2.7.2.4 CAT III Minimum Equipment List (MEL) Requirements	N/A	N/A	<b>Y</b>	<b>Y</b>
2.7.3 CAT III Approach Preparation	N/A	N/A	<b>Y</b>	<b>Y</b>
2.7.4 CAT III Aeroplane Operating Procedures	N/A	N/A	<b>Y</b>	<b>Y</b>
2.7.4.1 CAT IIIA Aeroplane Operating Procedures	N/A	N/A	<b>Y</b>	<b>Y</b>
2.7.4.2 CAT IIIB Aeroplane Operating Procedures	N/A	N/A	N/A	<b>Y</b> (2.7.4.1.1/ 2.7.4.1.2)
2.7.5 CAT III Failures and Associated Actions	N/A	N/A	<b>Y</b>	<b>Y</b>
2.7.5.1 CAT IIIA Aeroplane Equipment Failures	N/A	N/A	<b>Y</b>	N/A
2.7.5.2 CAT IIIB Aeroplane Equipment Failures	N/A	N/A	N/A	<b>Y</b>
2.7.5.3 CAT III Aerodrome Equipment Failures	N/A	N/A	<b>Y</b>	<b>Y</b>

<b>Top Level Subject</b>	<b>LVTO</b>	<b>CAT II &amp; LVTO</b>	<b>CAT IIIA &amp; LVTO</b>	<b>CAT IIIB &amp; LVTO</b>
<b>Chapter 3 Training Requirements</b>				
3.1 Flight Crew Qualification	<b>Y</b>	<b>Y</b>	<b>Y</b>	<b>Y</b>
3.2 Initial AWOPS Training	<b>Y</b>	<b>Y</b>	<b>Y</b>	<b>Y</b>
3.2.1 Initial AWOPS Training for Crew with Previous Experience	N/A	<b>Y</b>	<b>Y</b>	<b>Y</b>
3.3 AWOPS Checking	<b>Y</b>	<b>Y</b>	<b>Y</b>	<b>Y</b>
3.4 Line Flying Under Supervision (LIFUS)	N/A	<b>Y</b> (3.5.1)	<b>Y</b> (3.5.2)	<b>Y</b> (3.5.3)
3.5 Operating Restrictions following Initial Training and LIFUS	N/A	<b>Y</b> (3.6.1)	<b>Y</b> (3.6.2)	<b>Y</b> (3.6.3)
3.6 Recurrent Training and Checking Requirements	N/A	<b>Y</b> (3.7.1)	<b>Y</b> (3.7.2)	<b>Y</b> (3.7.3)

## 2.1 General

General information which will assist pilots in gaining an appreciation of the factors governing AWOPS must be included in the OM.

### 2.1.1 General Information – Meteorology, Aerodrome and Aeroplane

The OM must include general information including definitions and descriptions relating to Meteorology, Aerodrome & Aeroplane, including but not limited to:-

- Meteorological Definitions
  - Visibility (Solid particles, Water particles, Fog, RVR & SVR, Visual Segment)
- Aerodrome
  - Limitation on Glide Path Angle
  - Terrain Characteristics
  - ILS (including Critical and Sensitive Areas)
  - Visual Aids
  - Runway Visual Range and Measuring Devices
  - Low Visibility Procedures (LVPs)
- Aeroplane
  - Types of Operation Approved
  - Minimum Equipment List (MEL) Requirements
  - Approach Category Status (how the pilot is made aware of the current status)
  - Approach Category Status following maintenance (procedures for the downgrading approach category following maintenance of defects and the subsequent reinstating of the applicable category)
  - Maintenance Requirements and Procedures

### 2.1.2 AWOPS Terminology & Definitions

The OM must include Terminology & Definitions used in relation to AWOPS intended to be conducted, including but not limited to:-

- Aeroplane Category
- Cloud Base/ Ceiling
- Decision Height (DH)
- Enhanced Vision System (EVS) / Head-Up Display (HUD)
- Fail-Passive Flight Control System (CAT III only)
- Fail-Operational Flight Control System (CAT III only)
- Final Approach
- Flight Control System
- Head-Up Guidance Landing System (HUDLS)
- Low Visibility Procedures (LVP)
- Low Visibility Take-Off (LVTO)
- Obstacle Clearance Height (OCH)
- Obstacle Clearance Limit (OCL)
- Precision Approach and Landing Operation
- Required Visual Reference
- Reported RVR
- Runway Visual Range (RVR)

## 2.2 Operating Minima

The OM must include information relating to the calculation of Operating Minima for Take-off and Approach & Landing.

### 2.2.1 Take-off

#### 2.2.1.1 Aerodrome Operating Minima for LVTO

All take-offs with an RVR less than 400m are considered LVTOs. LVTO minima are determined by the facilities at the aerodrome in terms of the runway lighting system and scope of the RVR measurement equipment.

For multi-engined aeroplanes whose performance is such that in the event of a critical power unit failure at any point during take-off, the aeroplane can either stop or continue to a height of 1,500ft above the aerodrome while clearing all obstacles by the required margins, the take-off minima may not be less than those given in the Table below:

FACILITIES	RVR/VISIBILITY (in metres) <sup>3</sup>
Nil – Day only	500
Runway Edge Lighting or Centreline Lighting	250/300 <sup>1,2</sup>
Runway Edge Lighting and Centreline Lighting	200/250 <sup>1</sup>
Runway Edge, Centreline Lighting and Multiple RVR information	150/200 <sup>1,4</sup>

Note <sup>1</sup>: The higher values apply to Category D aeroplanes.

Note <sup>2</sup>: For night operations, at least runway edge and runway end lights are required.

Note <sup>3</sup>: The RVR/Visibility representative of the initial part of the take-off run may be replaced by pilot assessment if it is not reported. Multiplying the number of lights (or the spaces between lights) that can be seen by the distance between them can give a good indication of the available visual segment.

Note <sup>4</sup>: The required RVR value must be achieved for all the relevant RVR reporting points except as stated in Note <sup>3</sup>.

#### 2.2.1.2 Exception to conduct Take-off below 150m/200m RVR

The IOMAR may approve an Operator to reduce the take-off minima to an RVR less than 150m but not lower than 125m RVR for Category A, B and C aeroplanes or to an RVR less than 200m but not lower than 150m RVR for Category D aeroplanes (*see note <sup>5</sup> below*) provided:

- Low Visibility Procedures are in force; and
- High intensity runway centreline lights spaced 15m or less and high intensity edge lights spaced 60m or less are in operation; and
- Flight crew members have satisfactorily completed training in a flight simulator; and
- A 90m visual segment is available from the cockpit at the start of the take-off run (*see Note <sup>3</sup> above*); and
- The required RVR value has been achieved for all of the relevant RVR reporting points.

Note<sup>5</sup>: An Operator of a Category D aeroplane using an approved lateral guidance system (i.e. HUD), may apply to reduce the take-off minima to an RVR less than 150m but not lower than 125m RVR. If approved, the IOMAR strongly recommend Operators utilise EVS system if available.

### 2.2.1.3 Take-off Alternate

The OM should include the take-off alternate limitations for the commencement of an LVTO.

### 2.2.1.4 LVTO Operating Minima Presentation

The OM should specify in what document the LVTO Minima will be presented.

## 2.2.2 Calculation of Aerodrome Operating Minima (AOM)

### 2.2.2.1 Aeroplane Speed Categories

Aeroplanes are divided into five speed categories based on their nominal threshold speed. The threshold speed is defined as 1.3 times the stalling speed in the landing configuration, or 1.23 times  $V_{SIG}$  at the maximum certificated landing mass, depending on the Aeroplane Design Code.

The five categories are:

CATEGORY	THRESHOLD SPEED (kts)
A	Less than 91
B	91 – 120
C	121 – 140
D	141 – 165
E	166 – 210

The OM must clearly state the category of the applicable aircraft.

### 2.2.2.2 RVR Requirements

The OM must include a description of the 3 RVR portions specify which RVR is controlling and in what circumstances, e.g. "The TDZ RVR is always controlling. If reported and relevant, the MID and STP RVR values are also controlling"

### 2.2.2.3 Approach Ban (Commencement and Continuation of AWOPS Approach)

The OM must specify that the conditions in which the approach may be continued when the reported RVR is less than the applicable minima.

The OM must specify the conditions in which the landing may be continued below DH with regard to the required visual reference.

## 2.3 Operating Procedures

### 2.3.1 AWOPS Procedures

For multi-crew aircraft, the OM should specify whether only the Pilot-In-Command (PIC) can be the nominated pilot for AWOPS, or whether the Second-In-Command (SIC) can be the nominated pilot flying.

### 2.3.2 AWOPS Taxi Procedures

The OM should include enhanced briefing requirements for AWOPS, including but not limited to:

- Close communication;
- Confirmation Lighted Stop Bars must not be crossed;
- Use of external lights.

### 2.3.3 Low Visibility Take-off Procedures

The OM should include checks/actions to be completed, including but not limited to: -

- Before entering the runway;
- Whether TCAS can be used to enhance situational awareness, including the possible distractions;
- Runway line up, including confirmation aircraft is lined up on centreline lights;
- Check that the number of visible centerline lights is consistent with reported TDZ RVR;
- Aeroplane Operating Procedures for Normal Take-off and Rejected Take-off.
- If EVS or HUD is used, confirm EVS/HUD is operating normally.

## 2.4 CAT II Specific Requirements

### 2.4.1 CAT II Pre-Flight Planning Requirements

The OM must include the specific Pre-Flight Planning requirements which must be performed whenever CAT II approach conditions are likely to be encountered at the destination aerodrome, including but not limited to: -

- Review of NOTAMS to ensure destination airport meets CAT II Requirements, including Runway & Approach lighting; Nav Aid Availability; RVR equipment availability, etc.;
- Review of Technical Log (or similar) for defects that may affect the aeroplane's AWOPS status;
- Review both flight crew members' qualifications;
- Check that the weather forecast at destination is within company and crew operating minima; (Note: If the forecast is below CAT II minima, verify that weather forecasts at alternate aerodromes are acceptable.)
- Review extra fuel requirements. Extra fuel should be considered for possible approach delays.

### 2.4.2 CAT II Operating Criteria

The OM must include the CAT II Operating Criteria.

#### 2.4.2.1 CAT II Operating Minima

CAT II operating minima have been established to provide sufficient visual references at DH to permit either a manual landing or a missed approach to be executed.

The OM must include all the various limitations used to calculate DH for a CAT II approach, including the absolute minimum CAT II for the aeroplane type operated.

The Operating Minima for a CAT II Approach must be shown on the relevant approach chart for any aerodrome where such approaches are available.

### 2.4.2.2 CAT II Required Visual Reference

The OM must include the required visual references upon which a CAT II precision approach may be continued below DH.

### 2.4.2.3 CAT II Limitations

The OM must include applicable limitations for each aeroplane type operated, including: -

- The effect, if any, of the use of AWOPS aeroplane systems or handling procedures on aeroplane performance calculations, particularly the landing distance required;
- The maximum / minimum acceptable glidepath angles;
- The maximum allowable tail and crosswind components in AWOPS weather conditions;
- Any limitations, with descriptions as necessary, of the autopilot / automatic flight control system, including auto-throttle and auto go-around capability when applicable.

### 2.4.2.4 CAT II Minimum Equipment List (MEL) Requirements

The OM must include procedures to check when dispatching under the MEL, any conditions and/or limitations on the conduct of AWOPS as a result of missing or unserviceable equipment are observed. Such conditions and/or limitations may affect the following: -

- The commencement of a AWOPS approach;
- The final approach for an automatic landing (if applicable);
- An automatic landing, with or without automatic roll-out control.

### 2.4.3 CAT II Approach Preparation

The OM must include an approach preparation check which should include but not be limited to:

- Minimum Equipment Requirements
- Check to verify aeroplane equipment required for type of approach expected;
- Weather
- Check of weather condition at destination and alternate aerodromes;
- Required RVR Minima must be available, or there is a favourable trend, before making an approach;
- Approach Ban must be observed.
- Aerodrome Requirements
- Confirmation Low Visibility Procedures are in force;
- Clearance from ATC to conduct a CAT II approach is requested.
- AWOPS Approach Briefing.
- Should include normal items as for any IFR arrival;
- Destination and Alternate weather;
- Airfield and runway operational status (LVPs in force) etc;
- Aeroplane systems status and capacity;
- Review of task sharing;
- Review of the approach procedure;
- Review of the applicable minima from the approach chart, go-around procedure, ATC calls etc.;
- Review distribution of tasks and procedure for downgrading;
- Check seat position is optimal and set cockpit lights as appropriate;
- Confirm the use of APU and auto-brakes etc. as required.
- Use of Aeroplane Lights



## 2.4.4 CAT II Aeroplane Operating Procedures

The OM should include the SOPs for CAT II Approaches. As a minimum these should include: -

- Checks for the satisfactory functioning of the aeroplane equipment, both before departure and in flight;
- Aspects of crew co-ordination and distribution of flight deck duties;
- Action in the event of deterioration of the visual reference for landing;
- Action to be taken in relation to wind velocity, wind shear and turbulence information;
- Fuel policy – especially requirements to allow for ATC delays associated with AWOPS operations;
- Procedure for an approach to land on a runway at which aerodrome Low Visibility Procedures are not fully in force;
- Auto-land (if applicable) – a description of the sequence of events from 500ft radio height to touchdown and roll-out or go-around; and
- The land or go-around decision to be made by the pilot-in-command.

### 2.4.4.1 Acquisition of Visual References

The OM should include procedures and limitations on the commander for assessing the visual references.

### 2.4.4.2 Loss of Visual Reference

The OM should include procedures and limitations for loss of visual reference: -

- Before Touchdown; and
- After Touchdown.

## 2.4.5 CAT II Failures and Associated Actions

### 2.4.5.1 CAT II Aeroplane Equipment Failures

The OM should list the associated actions responses to the failure of any system, instrument or element of the Autopilot Flight Director System (AFDS) during the approach.

The nature of the failure and the point of its occurrence will determine which response is appropriate.

The types of aeroplane equipment failure can include: -

- ILS deviation warnings;
- Autopilot disconnect;
- Auto-throttle disconnect;
- Auto-land status change;
- Electrical failures;
- Engine failure;
- Failures at and below decision height;
- Incapacitation of the Pilot-in-Command.

### 2.4.5.2 CAT II Aerodrome Equipment Failures

The OM should list the aerodrome equipment failures and the effect on CAT II landing minima of temporary failures or downgrading of ground equipment. This data may be presented in the form of a table, e.g.

DOWNGRADED OR FAILED EQUIPMENT	EFFECT ON CAT II LANDING MINIMA
ILS Standby Transmitter	No effect
Outer Marker	No effect if replaced by published equivalent position
Touchdown Zone RVR Assessment System	May be temporarily replaced with midpoint RVR if approved by the State of the aerodrome. RVR may be reported by human observation
Mid-point or Stop-end RVR	No effect
Anemometer for Runway in Use	No effect if other ground source available
Ceilometer	No effect
Approach Lights	Not allowed
Approach Lights Except the Last 210m	Not allowed
Approach Lights Except the Last 420m	No effect
Standby Power for Approach Lights	No effect
Whole Runway Lighting System	Not allowed
Edge Lights	Day only; Night — not allowed
Centreline Lights	Day — RVR 300m Night — RVR 550m
Centreline Lights Spacing Increased to 30m	No effect
Touchdown Zone Lights	Day — RVR 300m Night — RVR 550m
Standby Power for Runway Lights	Not allowed
Taxiway Lighting System	No effect — except delays due to reduced movement rate

Conditions applicable to the tables above:

- a) Multiple failures of runway lights other than indicated in the table are not acceptable.
- b) Deficiencies of approach and runway lights are treated separately
- c) A combination of deficiencies in runway lights and RVR assessment equipment is not allowed.
- d) Failures other than ILS affect RVR only and not DH.

## 2.5 Use of Enhanced Vision Systems / Head Up Displays

### 2.5.1 AWOPS Using Enhanced Vision Systems (EVS)

Aeroplanes fitted with EVS may be operated using such systems to standard AWOPS minima provided the system includes a HUD/HUDLS that is certificated to at least applicable AWOPS certification requirements.

The applicable minima will be that shown on the AWOPS approach chart for the runway in use for standard AWOPS.

*To use an EVS/HUD to descend below minima on a CAT I Runway, please complete RP44 in order to receive the appropriate documentation from the IOMAR.*

### 2.5.2 AWOPS using Head-Up Display Landing Systems (HUDLS) – if applicable

Aeroplanes fitted with HUDLS may be operated using such systems to standard AWOPS minima provided the system includes a HUD/HUDLS that is certificated to at least AWOPS certification requirements.

The applicable minima will be that shown on the AWOPS approach chart for the runway in use for standard AWOPS operations.

*To use an EVS/HUD to descend below minima on a CAT I Runway, please complete RP44 in order to receive the appropriate documentation from the IOMAR.*

## 2.6 Ongoing Compliance Monitoring of AWOPS Approach and Landings

The OM must include a procedure for the recording and monitoring of all AWOPS Approaches and Landing, including practice approaches.

Unsuccessful approaches due to aircraft equipment failures must be reported to the operator immediately for remedial action.

The operator must collect and analyse AWOPS approach and landing records. Results of the analysis will be required by the Isle of Man Aircraft Registry as part of the AWOPS renewal application process.

*The IOMAR has produced an AWOPS Monitoring Form and Compliance Monitoring Spreadsheet which is available upon request.*

## 2.7 CAT III Specific Requirements

If CAT IIIA or CAT IIIB Approval is required, the OM must include the specific additional requirements related to CAT IIIA or CAT IIIB operations in addition to those needed for a CAT II approval.

### 2.7.1 CAT III Pre-Flight Planning

There are no additional pre-flight planning requirements to those for CAT II operation, however the OM must refer to the applicable Category as per the operating approval.

## **2.7.2 CAT III Operating Criteria**

ILS CAT III operating minima do not provide sufficient visual references to allow a manual landing to be performed. The minima only permits the pilot to decide if the aeroplane will land in the touchdown zone and to ensure safety during roll-out.

### **2.7.2.1 CAT III Operating Minima**

The OM must include all the various limitations used to calculate DH for a CAT IIIA or CAT IIIB approach, including the absolute minimum CAT IIIA / IIIB for the aeroplane type operated.

The Operating Minima for a CAT IIIA / IIIB Approach must be shown on the relevant approach chart for any aerodrome where such approaches are available.

The OM should state where in the list of authorised runways will be located for CAT IIIA or CAT IIIB.

#### **2.7.2.1.1 CAT IIIA Operations**

The OM must include how the pilots determines the DH for a CAT IIIA approach, and include the absolute minimum CAT IIIA DH for each aeroplane type operated.

#### **2.7.2.1.2 CAT IIIB Operations with a DH**

If CAT IIIB operations are being applied for, the OM must include:

- a) The minimum decision height specified in the AFM, if stated;
- b) The minimum height to which the precision approach aid can be used without the required visual reference; or
- c) The decision height to which the flight crew is authorised to operate.

#### **2.7.2.1.3 CAT IIIB Operations without a DH**

The OM must state, for each aeroplane type operated, whether or not operations without a DH are permitted for each aeroplane type operated.

### **2.7.2.2 CAT III Required Visual Reference**

#### **2.7.2.2.1 CAT IIIA**

The OM must include the visual reference required with either an approved HUDLS or for the different type of flight control system (fail-passive flight control, fail-operational landing system, or a fail-operational hybrid landing system).

#### **2.7.2.2.2 CAT IIIB**

For ILS CAT IIIB operations with fail-operational flight control systems using a DH the approach may not be continued below DH unless visual contact with at least one centreline light has been attained and can be maintained:

For ILS CAT IIIB operations with no DH there is no requirement for visual contact with the runway prior to touchdown.

### **2.7.2.3 CAT III Limitations**

Any limitations imposed by the Aeroplane Flight Manual (AFM) must be observed.

#### **2.7.2.3.1 CAT IIIA**

The OM must include applicable limitations for each aeroplane type operated specific to CAT IIIA operations.

#### **2.7.2.3.2 CAT IIIB**

The OM must include applicable limitations for each aeroplane type operated specific to CAT IIIB operations, including any limitation to CAT IIIB that do not apply to CAT IIIA.

### **2.7.2.4 CAT III Minimum Equipment List (MEL) Requirements**

As per the requirements for CAT II, the OM must include procedures to check when dispatching under the MEL, any conditions and/or limitations on the conduct of AWOPS as a result of missing or unserviceable equipment are observed. Such conditions and/or limitations may affect the following: -

- The commencement of an AWOPS approach;
- The final approach for an automatic landing (if applicable);
- An automatic landing, with or without automatic roll-out control.

### **2.7.3 CAT III Approach Preparation**

The IOMAR requirements for CAT III Approach Preparations are the same as for CAT II.

### **2.7.4 CAT III Aeroplane Operating Procedures**

The Commander's primary task as pilot flying is to manage the approach and to make decisions regarding its continuance. The co-pilot's primary task as pilot monitoring is to monitor the performance of the aeroplane's systems through to touchdown and rollout and to advise the Commander of any abnormality that degrades the aeroplane's capabilities including flight path deviations.

#### **2.7.4.1 CAT IIIA Aeroplane Operating Procedures**

The OM must include the Standard Operating Procedures (SOPs) for CAT III approaches. The SOPs for a CAT III approach are more stringent than those required for a CAT II approach. The SOPs for CAT III must include, crew responsibilities, standard calls and handling techniques. As a minimum these should include:

- Checks for the satisfactory functioning of the aeroplane equipment, both before departure and in flight;
- Aspects of crew co-ordination and distribution of flight deck duties such as:
  - Handling the aeroplane and normal AWOPS approach procedures;
  - Tuning of navigation receivers;
  - Use of autopilot / automatic flight control system;
  - Use of checklists;
  - Handling radio communications;
  - Monitoring and cross-checking of instruments;
  - Cockpit calls;
- Action in the event of deterioration of the visual reference for landing;

- Action to be taken in relation to wind velocity, wind shear and turbulence information;
- Fuel policy – especially requirements to allow for ATC delays associated with AWOPS;
- Procedure for an approach to land on a runway at which aerodrome Low Visibility Procedures are not fully in force;
- Auto-land – a description of the sequence of events from 500ft radio height to touchdown and roll-out or go-around;
- The land or go-around decision to be made by the pilot-in-command.

#### **2.7.4.2 CAT IIIB Aeroplane Operating Procedures**

In addition to CAT IIIA operating procedure the OM should include the SOPs for CAT IIIB approaches for each type operated. It will only be necessary to give SOPs for CAT IIIB operations which are different from or additional to those for CAT IIIA operations. The guidance below should also be included in the OM.

##### ***2.7.4.1.1 CAT IIIB Approaches Without a DH***

For this category of operation, the decision to continue does not depend on visual references, even though a minimum RVR is specified. It is nevertheless good airmanship to confirm the aeroplane's position with available visual references. However, the decision depends only on the operational status of the aeroplane and ground equipment.

If a failure occurs prior to reaching the alert height, a go-around will be initiated. A go-around must also be performed from below the alert height if certain warnings specified for the particular aeroplane type occur.

##### ***2.7.4.1.2 CAT IIIB Approach With or Without DH – After Touchdown***

If the required visual reference is lost after touchdown, a go-around should not be attempted. The rollout should be continued with the autopilot in ROLLOUT mode down to taxi speed.

#### **2.7.5 CAT III Failures and Associated Actions**

##### **2.7.5.1 CAT IIIA Aeroplane Equipment Failures**

The OM should include the appropriate responses to representative failures.

##### **2.7.5.2 CAT IIIB Aeroplane Equipment Failures**

The OM should include the appropriate responses to representative failures where these are different or additional to those for CAT IIIA operations.

### 2.7.5.3 CAT III Aerodrome Equipment Failures

The OM should list the aerodrome equipment failures and the effect on CAT IIIA landing minima of temporary failures or downgrading of ground equipment. This data may be presented in the form of a table, e.g.

<b>DOWNGRADED OR FAILED EQUIPMENT</b>	<b>EFFECT ON CAT IIIA LANDING MINIMA</b>	<b>ADDITIONAL EFFECT ON CAT IIIB LANDING MINIMA</b>
ILS Standby Transmitter	Not allowed	
Outer Marker	No effect if replaced by published equivalent position	
Touchdown Zone RVR Assessment System	May be temporarily replaced with midpoint RVR if approved by the State of the aerodrome. RVR may be reported by human observation	
Mid-point or Stop-end RVR	No effect	
Anemometer for Runway in Use	No effect if other ground source available	
Ceilometer	No effect	
Approach Lights	Not allowed for DH>50 feet	
Approach Lights Except the Last 210m	No effect	
Approach Lights Except the Last 420m	No effect	
Standby Power for Approach Lights	No effect	
Whole Runway Lighting System	Not allowed	
Edge Lights	Day only; Night — not allowed	
Centreline Lights	Day — RVR 300m Night — Not allowed	
Centreline Lights Spacing Increased to 30m	No effect	RVR 150m
Touchdown Zone Lights	Day — RVR 300m Night — RVR 550m	Day — RVR 200m Night — RVR 300m
Standby Power for Runway Lights	Not allowed	
Taxiway Lighting System	No effect — except delays due to reduced movement rate	

Conditions applicable to the tables above:

- a) Multiple failures of runway lights other than indicated in the table are not acceptable;
- b) Deficiencies of approach and runway lights are treated separately;
- c) A combination of deficiencies in runway lights and RVR assessment equipment is not allowed;
- d) Failures other than ILS affect RVR only and not DH.

## Chapter 3 AWOPS TRAINING

Flight crew training programmes for AWOPS must include structured courses of ground and flight simulator training.

### 3.1 Flight Crew Qualifications

The OM must specify the flight crew qualification acceptable to the Operator, including the requirements for any checks flight and/or simulator session.

### 3.2 Initial AWOPS Training

The OM must include the initial Low Vis Ops training, including any abbreviated requirements based on previous experience.

The Initial training will consist of both Ground School and Flight Simulator training syllabus.

#### 3.2.1 Initial AWOPS Training for Crew with Previous Experience

If acceptable to the Operator, the OM should include abbreviate training requirements for Initial Training where the crewmember has previous AWOPS experience with another operator provided the previous training meets the IOMAR standards.

### 3.3 AWOPS Checking

The OM must include the requirement that each flight crew member completes a check before conducting LVTO in RVRs of less than 150m (less than 200m for Category D aeroplanes) and before conducting AWOPS Approach and Landings.

### 3.4 Line Flying Under Supervision (LIFUS)

The OM must meet the minimum standards set by the IOMAR.

#### 3.4.1 CAT II LIFUS

Following LVOPS Ground and Flight Simulator/Flight Training, each flight crew member must undergo the following line flying under supervision (LIFUS):

For CAT II when a manual landing or a HUDLS approach to touchdown is required, a minimum of:

- a) Three landings from autopilot disconnect;
- b) Four landings with HUDLS used to touchdown;

except that only one manual landing (two using HUDLS to touchdown) is required when the relevant training has been carried out in a flight simulator qualified for zero flight time conversion.



### 3.4.2 CAT IIIA LIFUS

Following AWOPS Ground and Flight Simulator/Flight Training, each flight crew member must undergo the following line flying under supervision (LIFUS):

A minimum of two auto-lands except that:

- a) Only one auto-land is required when the relevant training has been carried out in a flight simulator qualified for zero flight time conversion;
- b) No auto-land is required during LIFUS when the relevant training has been carried out in a flight simulator qualified for zero flight time conversion and the flight crew member successfully completed the zero flight time type rating conversion course. This entitles the flight crew member to operate to CAT IIIA minima;
- c) For CAT IIIA approaches using HUDLS to touchdown a minimum of four approaches

### 3.4.3 CAT IIIB LIFUS

The LIFUS requirements for CAT IIIB are satisfied by those for CAT IIIA.

The operator should ensure that the OM for CAT IIIA and IIIB LIFUS requirements are expressed in terms of "CAT III".

## 3.5 Operating Restrictions following Initial Training and LIFUS

The OM must meet the minimum standards set by the IOMAR.

### 3.5.1 CAT II

Following Initial Training and LIFUS, the following additional requirements are applicable to commanders, or pilots to whom conduct of the flight may be delegated, who are new to the aeroplane type before they may commence Category II operations:

- a) 50 hours or 20 sectors must be completed on the type, including line flying under supervision; and
- b) 100m must be added to the applicable CAT II RVR minima when the operation requires a CAT II manual landing or use of HUDLS to touchdown until:
- c) A total of 100 hours or 40 sectors, including LIFUS has been achieved on the type; or
- d) A total of 50 hours or 20 sectors, including LIFUS has been achieved on the type where the flight crew member has been previously qualified for Category II manual landing operations with another operator.

**Note:** For HUDLS operations the sector requirements in paragraphs a) and b) above shall always be applicable, the hours on type or class does not fulfil the requirement.

### 3.5.2 CAT IIIA

Before commencing CAT IIIA operations the following additional requirements are applicable to commanders, or pilots to whom the conduct of the flight may be delegated, who are new to the aeroplane type:

- a) 50 hours or 20 sectors must be completed on the type, including line flying under supervision; and
- b) 100m must be added to the applicable CAT II or CAT IIIA RVR minima unless he/she has previously qualified for CAT II or CAT III operations with another operator until a total of 100 hours or 40 sectors, including LIFUS has been achieved on the type.

### 3.5.3 CAT IIIB

There are no additional operating restrictions for CAT IIIB as they are satisfied by those for CAT IIIA.

The operator should ensure that the OM for CAT IIIA and IIIB Operating Restrictions are expressed in terms of "CAT III".

## 3.6 Recurrent Training and Checking Requirements

The OM must meet the minimum standards set by the IOMAR.

### 3.6.1 CAT II

In conjunction with the normal recurrent training and Licence Proficiency Checks (LPC), a pilot's knowledge and ability to perform the tasks associated with the particular category of AWOPS operation for which he/she is authorised is checked. The required number of approaches to be undertaken in the flight simulator within the validity period of the LPC (normally 12 months) is: -

4, of which

- 2 must be landings at the lowest approved RVR, and
- 1 of these approaches may be substituted by an approach and landing in the aeroplane using approved CAT II procedures.

Or when HUDLS and/or EVS is utilised to touchdown

8, of which

- 2 must be landings at the lowest approved RVR, and
- 2 may be substituted by an approach and landing in the aeroplane using approved CAT II procedures.

In addition, during the conduct of the LPC, 2 missed approaches and 2 take-offs at the lowest authorised minima shall be flown.

### 3.6.2 CAT IIIA

CAT IIIA Recurrent Training and Checking Requirements are the same as for CAT II, with the exception that they are to be flown to CAT IIIA Minima.

An operator must ensure that, for Category IIIA operations on aeroplanes with a fail-passive flight control system, including HUDLS, a missed approach is completed at least once during a LPC as the result of an autopilot failure at or below decision height when the last reported RVR was 300m or less.

When utilising a HUD/HUDLS or hybrid HUD/HUDLS or an EVS for AWOPS, use of HUD/HUDLS in normal operations in all phases of flight is checked during the LPC.

### 3.6.3 CAT IIIB

CAT IIIB Recurrent Training and Checking Requirements are the same as for CAT IIIA, with the exception that they are to be flown to CAT IIIB Minima.

The operator should ensure that the OM for CAT IIIA and IIIB Recurrent Training and Checking Requirements are expressed in terms of "CAT III".