GOVERNMENT OF INDIA
OFFICE OF THE DIRECTOR GENERAL OF CIVIL AVIATION
OPP. SAFDARJUNG AIRPORT, NEW DELHI – 110 003

CIVIL AVIATION REQUIREMENT
SECTION 8 – AIRCRAFT OPERATIONS
SERIES 'C' PART I
Dated 13th June 2011 **Effective: 01st November 2013**

F. No 22024/6/2012-FSD

Subject: All Weather Operations (AWO)

1. INTRODUCTION

Aerodrome Operating Minima are established in order to ensure the desired level of safety in Aeroplane Operations at an Aerodrome by limiting these operations in specified weather conditions. The values of aerodrome operating minima for a particular operation must ensure that at all times the combination of information available from external sources and the aeroplane instruments and equipment is sufficient to enable the aeroplane to be operated along the desired flight path.

2. APPLICABILITY: All Operators

This Civil Aviation Requirement (CAR) lays down the requirements for all weather operations conducted by Scheduled, Non-scheduled and General Aviation operators (Aeroplanes). This CAR is issued under the provisions of Schedule II, Rule 29C and Rule 133A of the Aircraft Rules, 1937.

3. DEFINITIONS/TERMINOLOGY

For the purpose of this CAR, definitions and terminology associated with AWO are amplified below;

Aerodrome operating minima. The limits of usability of an aerodrome for:

a) take-off, expressed in terms of runway visual range and / or visibility and, if necessary, cloud conditions;

b) landing in 2D instrument approach operations, expressed in terms

of visibility and/or runway visual range; minimum descent altitude/height (MDA/H) and, if necessary, cloud conditions; and

c) landing in 3D instrument approach operations, expressed in terms of visibility and/or runway visual range and decision altitude/height(DA/H) appropriate to the type and/or category of the operation.

Alert height. An alert height is a height above the runway threshold based on the characteristics of the aeroplane and its fail operational landing system, above which a Category III operation would be discontinued and a missed approach initiated if a failure occurred in one of the redundant parts of the landing system, or in the relevant ground equipment.

All weather operations. Any surface movement, take-off, departure, approach or landing operations in conditions where visual reference is limited by weather conditions.

Alternate aerodrome. An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing where the necessary services and facilities are available, where aircraft performance requirements can be met and which is operational at the expected time of use. Alternate aerodromes include the following:

Take-off alternate. An alternate aerodrome at which an aircraft would be able to land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure.

En-route alternate. An alternate aerodrome at which an aircraft would be able to land in the event that a diversion becomes necessary while en-route.

Destination alternate. An alternate aerodrome at which an aircraft would be able to land should it become either impossible or inadvisable to land at the aerodrome of intended landing.

Note: The aerodrome from which a flight departs may also be an en-route or a destination alternate aerodrome for that flight .

Approach ban point. The point on a final approach where the reported weather conditions at the runway must meet the applicable minima so as to be able to meet regulatory requirements for continuing an instrument approach to a landing.

Automatic flight control system (AFCS) with coupled approach mode. Airborne system which provides automatic control of the flight path of the aeroplane during approach.

Automatic landing system. The airborne system which provides automatic control of the aeroplane during the approach and landing.

Categories of aeroplanes. The following five categories of typical aeroplanes have been established based the indicated airspeed at threshold (Vat) which is equal to the stall speed V_{so} multiplied by 1.3 or stall speed V_{s1g} multiplied by 1.23 (whichever is higher) in the landing configuration at maximum certificated landing mass.

Category A — less than 169 km/h (91 kt) IAS
Category B — 169 km/h (91 kt) or more but less than 224 km/h (121 kt) IAS
Category C — 224 km/h (121 kt) or more but less than 261 km/h (141 kt) IAS
Category D — 261 km/h (141 kt) or more but less than 307 km/h (166 kt) IAS
Category E — 307 km/h (166 kt) or more but less than 391 km/h (211 kt) IAS

Ceiling. The height above the ground or water of the base of the lowest layer of cloud below 6000 m (20 000 ft) covering more than half the sky.

Circling approach. An extension of an instrument approach procedure which provides for visual circling of the aerodrome prior to landing.

Commercial air transport operation. An aircraft operation involving the transport of passengers, cargo or mail for remuneration or hire.

Continuous Descent Final Approach (CDFA). A technique, consistent with stabilized approach procedures, for flying the final approach segment of a non-precision instrument approach procedure as a continuous descent, without level-off, from an altitude/height at or above the final approach fix altitude/height to a point approximately 15 m (50 ft) above the landing runway threshold or the point where the flare manoeuvre should begin for the type of aircraft flown.

Converted Meteorological Visibility (CMV). A value equivalent to an RVR which is derived from the reported meteorological visibility, as converted in accordance with the specified requirements in the CAR

Decision altitude (DA) or ***decision height (DH).*** A specified altitude or height in a 3D instrument approach operation at which a missed approach must be initiated if the required visual reference to continue the approach has not been established.

Note 1. — Decision altitude (DA) is referenced to mean sea level and decision height (DH) is referenced to the threshold elevation.

Note 2. — The required visual reference means that section of the visual aids or of the approach area which should have been in view for sufficient time for the pilot to have made an assessment of the aircraft position and rate of change of position, in relation to the desired flight path. In Category III operations with a decision height the required visual reference is that specified for the particular procedure and operation.

Note 3. — For convenience where both expressions are used they may be written in the form "decision altitude/height" and abbreviated "DA/H".

Enhanced vision system (EVS). A system to display electronic real-time images of the external scene achieved through the use of image sensors.

Equivalent position. A position that can be established by means of a DME distance, a suitably located NDB or VOR, SRE or PAR fix or any other suitable fix between three and five miles from threshold that independently establishes the position of the aeroplane.

Fail-operational automatic landing system. An automatic landing system is fail-operational if, in the event of a failure, the approach, flare and landing can be completed by the remaining part of the automatic system.

Fail-operational hybrid landing system. A system which consists of two or more independent landing systems. In the event of failure of one system, guidance or control is provided by the remaining system(s) to permit completion of the landing.

Note.— A fail-operational hybrid landing system may consist of a fail-passive automatic landing system with a monitored head-up display which provides guidance to enable the pilot to complete the landing manually after failure of the automatic landing system.

Fail-passive automatic landing system. An automatic landing system is fail-passive if, in the event of a failure, there is no significant deviation of aeroplane trim, flight path or attitude but the landing will not be completed automatically.

Final approach. That part of an instrument approach procedure which commences at the specified final approach fix or point, or where such a fix or point is not specified,

a) at the end of the last procedure turn, base turn or inbound turn of a racetrack procedure, if specified; or

b) At the point of interception of the last track specified in the approach procedure; and ends at a point in the vicinity of an aerodrome from which:

   1) A landing can be made; or

   2) A missed approach procedure is initiated.

Final approach segment (FAS). That segment of an instrument approach procedure in which alignment and descent for landing are accomplished

Flight visibility. The visibility forward from the cockpit of an aircraft in flight.

GLS. An instrument approach operation that is based on GBAS.

Ground-based augmentation system (GBAS). An augmentation system in which the user receives augmentation information directly from a ground-based transmitter.

Head-up display (HUD). A display system that presents flight information into the pilot's forward external field of view.

Head-up display (HUD) approach and landing guidance system (HUDLS). An airborne instrument system which presents sufficient information and guidance in a specific area of the aircraft windshield, superimposed for a conformal view with the external visual scene, which permits the pilot to manoeuvre the aircraft manually by reference to that information and guidance alone to a level of performance and reliability that is acceptable for the category of operation concerned.

***Ground visibility*.** The visibility at an aerodrome as reported by an accredited observer or by automatic systems*.*

ILS critical area. An area of defined dimensions about the localizer and glide path antennas where vehicles, including aircraft, are excluded during all ILS operations. The critical area is protected because the presence of vehicles and/or aircraft inside its boundaries will cause unacceptable disturbance to the ILS signal-in-space.

ILS sensitive area. An area extending beyond the critical area where the parking and/or movement of vehicles, including aircraft, is controlled to prevent the possibility of unacceptable interference to the ILS signal during ILS operations. The sensitive area is protected to provide protection against interference caused by large moving objects outside the critical area but still normally within the airfield boundary.

Instrument approach operations. An approach and landing using instruments for navigation guidance based on an instrument approach procedure. There are two methods for executing instrument approach operations:

a) a two-dimensional (2D) instrument approach operation, using lateral navigation guidance only;
and

b) a three-dimensional (3D) instrument approach operation, using both lateral and vertical navigation guidance.

Note.— Lateral and vertical navigation guidance refers to the guidance provided either by:
a) a ground-based radio navigation aid; or
b) computer-generated navigation data from ground-based, space-based, self-contained navigation aids or a combination of these.

Instrument approach operations shall be classified based on the designed lowest operating minima below which an approach operation shall only be continued with the required visual reference as follows:

a) Type A: a minimum descent height or decision height at or above 75 m (250 ft); and

b) Type B: a decision height below 75 m (250 ft). Type B instrument approach operations are categorized as:

1) Category I (CAT I): a decision height not lower than 60 m (200 ft) and with either a visibility not less than 800 m or a runway visual range not less than 550 m;

2) Category II (CAT II): a decision height lower than 60 m (200 ft), but not lower than 30 m (100 ft) and a runway visual range not less than 300 m;

3) Category IIIA (CAT IIIA): a decision height lower than 30 m (100 ft) or no decision height and a runway visual range not less than 175 m;

4) Category IIIB (CAT IIIB): a decision height lower than 15 m (50 ft), or no decision height and a runway visual range less than 175 m but not less than 50 m; and

5) Category IIIC (CAT IIIC): no decision height and no runway visual range limitations.

Note 1.— Where decision height (DH) and runway visual range (RVR) fall into different categories of operation, the instrument approach operation would be conducted in accordance with the requirements of the most demanding category (e.g. an operation with a DH in the range of CAT IIIA but with an RVR in the range of CAT IIIB would be considered a CAT IIIB operation or an operation with a DH in the

range of CAT II but with an RVR in the range of CAT I would be considered a CAT II operation).

Note 2. — The required visual reference means that section of the visual aids or of the approach area which should have been in view for sufficient time for the pilot to have made an assessment of the aircraft position and rate of change of position, in relation to the desired flight path. In the case of a circling approach operation the required visual reference is the runway environment.

Note 3.— Guidance on approach classification as it relates to instrument approach operations, procedures, runways and navigation systems is contained in the All Weather Operations Manual (Doc 9365).

Instrument approach procedure. A series of predetermined manoeuvres by reference to flight instruments with specified protection from obstacles from the initial approach fix, or where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and thereafter, if a landing is not completed, to a position at which holding or en-route obstacle clearance criteria apply. Instrument approach procedures are classified as follows:

Non-precision approach (NPA) procedure. An instrument approach procedure designed for 2D instrument approach operations Type A.

Note.— Non-precision approach procedures may be flown using a continuous descent final approach technique (CDFA). CDFA with advisory VNAV guidance calculated by on-board equipment (see PANS-OPS (Doc 8168), Volume I, Part I, Section 4, Chapter 1, paragraph 1.8.1) are considered 3D instrument approach operations. CDFA with manual calculation of the required rate of descent are considered 2D instrument approach operations. For more information on CDFA refer to PANS-OPS (Doc 8168), Volume I, Section 1.7 and 1.8.

Approach procedure with vertical guidance (APV). A performance-based navigation (PBN) instrument approach procedure designed for 3D instrument approach operations Type A.

Precision approach (PA) procedure. An instrument approach procedure based on navigation systems (ILS, MLS, GLS and SBAS Cat I) designed for 3D instrument approach operations Type A or B.

Instrument flight rules (IFR). A set of rules governing the conduct of flight under instrument meteorological conditions.

Note.— IFR specifications are found in Chapter 4 of Annex 2. Instrument flight rules may be followed in both IMC and VMC.

Instrument meteorological conditions (IMC). Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling*, less than the minima specified for visual meteorological conditions.

*Note 1.— *Ceiling as defined in Annex 2.*

Note 2 - The specified minima for visual meteorological conditions are contained in Annex 2.

Low visibility procedures (LVP). *S*pecific procedures applied at an aerodrome for the purpose of ensuring safe operations during Categories II and III approaches and/or low visibility take-offs.

Low visibility take-off (LVTO). A term used in relation to flight operations referring to a take-off on a runway where the RVR is less than 400 m**.**

Minimum descent altitude (MDA) or ***minimum descent height (MDH).*** A specified altitude or height in a 2 D instrument approach or circling approach below which descent must not be made without the required visual reference.

Note 1.— Minimum descent altitude (MDA) is referenced to mean sea level and minimum descent height (MDH) is referenced to the aerodrome elevation or to the threshold elevation if that is more than 2 m (7 ft) below the aerodrome elevation. A minimum descent height for a circling approach is referenced to the aerodrome elevation.

Note 2. — The required visual reference means that section of the visual aids or of the approach area which should have been in view for sufficient time for the pilot to have made an assessment of the aircraft position and rate of change of position, in relation to the desired flight path. In the case of a circling approach the required visual reference is the runway environment.

Note 3. — For convenience when both expressions are used they may be written in the form "minimum descent altitude/ height" and abbreviated "MDA/H".

Missed approach point (MAPt). That point in an instrument approach procedure at or before which the prescribed missed approach procedure must be initiated in order to ensure that the minimum obstacle clearance is not infringed.

Missed approach procedure. The procedure to be followed if the approach cannot be continued.

Obstacle clearance altitude (OCA) or ***obstacle clearance height (OCH).*** The lowest altitude or the lowest height above the elevation of the relevant runway threshold or the aerodrome elevation as applicable used in establishing compliance with appropriate obstacle clearance criteria.

Note 1. — Obstacle clearance altitude is referenced to mean sea level and obstacle clearance height is referenced to the threshold elevation or in the case of non-precision approach procedures to the aerodrome elevation or the threshold elevation if that is more than 2 m (7 ft) below the aerodrome elevation. An obstacle clearance height for a circling approach is referenced to the aerodrome elevation.

Note 2. — For convenience when both expressions are used they may be written in the form "obstacle clearance altitude/ height" and abbreviated "OCA/H".

Obstacle free zone (OFZ). The airspace above the inner approach surface, inner transitional surfaces, and balked landing surface and that portion of the strip bounded by these surfaces, which is not penetrated by any fixed obstacle other than a low-mass and frangibly mounted one required for air navigation purposes.

Performance-based navigation (PBN). Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.

Note.— Performance requirements are expressed in navigation specifications (RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.

Procedure turn. A manoeuvre in which a turn is made away from a designated track followed by a turn in the opposite direction to permit the aircraft to intercept and proceed along the reciprocal of the designated track.

Note 1. — Procedure turns are designated "left" or "right" according to the direction of the initial turn.

Note 2. — Procedure turns may be designated as being made either in level flight or while descending, according to the circumstances of each individual instrument approach procedure.

Required Navigation Performance (RNP). A statement of the navigation performance necessary for operation within a defined airspace

Note. — Navigation performance and requirements are defined for a particular RNP type and/or application.

Runway holding position. A designated position intended to protect a runway, an obstacle limitation surface, or an ILS critical/sensitive area at which taxiing aircraft and vehicles shall stop and hold, unless otherwise authorised by the aerodrome control tower.

Note. — In radiotelephony phraseologies, the expression "holding point" is used to designate the runway-holding position.

Runway visual range (RVR). The range over which the pilot of an aircraft on the centreline of a runway can see the runway surface markings or the lights delineating the runway or identifying its centreline.

Stabilised Approach. (SAp). An approach which is flown in a controlled and appropriate manner in terms of configuration, energy and control of the flight path from a pre-determined point or altitude/height down to a point 50 feet above the threshold or the point where the flare manoeuvre is initiated, if higher.

Surveillance radar. Radar equipment used to determine the position of an aircraft in range and azimuth.

Touchdown zone (TDZ). The portion of a runway, beyond the threshold, where it is intended landing aeroplanes first contact the runway.

Vertical Navigation (VNAV). A method of navigation which permits aircraft operation on a vertical flight profile using altimetry sources, external flight path references, or a combination of these.

Visibility. Visibility for aeronautical purposes is the greater of:

a) the greatest distance at which a black object of suitable dimensions, situated near the ground, can be seen and recognized when observed against a bright background;

b) The greatest distance at which lights in the vicinity of 1 000 candelas can be seen and identified against an unlit background.

Note 1. — The two distances have different values in air of a given extinction coefficient, and the latter b) varies with the background illumination. The former a) is represented by the meteorological optical range (MOR).

Note 2. — The definition applies to the observations of visibility in local routine and special reports, to the observations of prevailing and minimum visibility reported in METAR and SPECI and to the observations of ground visibility.

Visual approach. An approach by an IFR flight when either part or all of an instrument approach procedure is not completed and the approach is executed by visual reference to terrain.

Visual flight rules (VFR). Regulatory provisions for visual flight.

Note – VFR specifications are found in Annex 2

Visual meteorological conditions (VMC). Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling*, equal to or better than specified minima.

*Note 1 - * Ceiling as defined in Annex 2.*

Note 2 - VFR specifications are found in Annex 2

4. AERODROME OPERATING MINIMA (AOM) - GENERAL

4.1 To enable Scheduled, Non-scheduled and General Aviation Operators to operate safely at an aerodrome under limiting weather conditions, Aerodrome Operating Minima (AOM) are established. There are two sets of Aerodrome Operating Minima for application by Indian operators and at Indian aerodromes; Normal Aerodrome Operating Minima and Restricted Aerodrome Operating Minima. Normal AOM is to be applied by scheduled operators. Restricted AOM consists of additives of height and visibility to the normal AOM and is to be applied in the following cases;

(a) By non-scheduled and general aviation operators.

(b) By PICs when operating to an aerodrome as required by CAR Section 8 Series O Part II Para 9.4.3.3 (a).

(c) By PICs till they have gained command experience of 100 hours on type.

4.2 An operator shall establish, for each aerodrome planned to be used, aerodrome operating minima. The method of determination of such minima must be approved by DGCA and shall be consistent with the provisions of this CAR and ICAO Doc 9365 Manual of All Weather Operations Doc 9365/AN/910 (3rd edition). Such minima shall not be lower than that may be established for such aerodromes by the State in which the aerodrome is located, except when specifically approved by that State. Foreign Air Operators are to be authorized by the State of the Operator for the use of the AOM in accordance with requirements of the Contracting State, however in no case will they operate at Indian Aerodromes at less than the Normal AOM.

4.3 In establishing the aerodrome operating minima which will apply to any particular operation, an operator must take full account of:

(a) the type, performance and handling characteristics of the aeroplane;

(b) the composition of the flight crew, their competence and experience;

(c) the dimensions and characteristics of the runways which may be selected for use;

(d) the adequacy and performance of the available visual and non-visual ground aids;

(e) the equipment available on the aeroplane for the purpose of navigation and/or control of the flight path, as appropriate, during the take-off, the approach, the flare, the landing, roll-out and the missed approach;

(f) the obstacles in the approach, missed approach and the climb-out areas required for the execution of contingency procedures and necessary clearance;

(g) the obstacle clearance altitude/height for the instrument approach procedures;

(h) the means to determine and report meteorological conditions; and

(i) the flight technique to be used during the final approach.

4.4 The operator shall ensure the following:

(a) the PIC and Co-pilot must hold an instrument rating for flights under IFR and meet the requirements for recent experience;

(b) all flight crew members should be qualified and trained for take-off, instrument approaches and operations to the lowest Cat-I/II/III minima as applicable;

(c) the flight crew members should have completed all necessary proficiency checks including demonstration of proficiency using the relevant types of instrument approaches;

(d) the Operations Manual instructions are appropriate to the operation and reflect the mandatory procedures and/or limitations contained in the Flight Manual;

(e) a system of records is maintained to ensure that the necessary qualifications of the flight crew members are being met on a continuing basis; and

(f) the PIC of a scheduled operator must have gained command experience of 100 hours in the relevant aeroplane type with restricted AOM before using normal AOM.

4.5 Approach and landing conditions

Before commencing an approach to land, the PIC must satisfy himself/herself that, according to the information available to him/her, the weather at the aerodrome and the condition of the runway intended to be used should not prevent a safe approach, landing or missed approach, having regard to the performance information contained in the Operations Manual.

4.6 Commencement and Continuation of Approach (Approach Ban Policy)

4.6.1 The PIC shall not commence an instrument approach if the reported RVR/Visibility is below the applicable minimum.

4.6.2 If, after commencing an instrument approach, the reported RVR/Visibility falls below the applicable minimum, the approach shall not be continued:

(a) below 1 000 ft above the aerodrome; or

(b) into the final approach segment.

4.6.3 Where the RVR is not available, RVR values may be derived by converting the reported visibility.

4.6.4 If, after entering the final approach segment or descending below 1000 ft above the aerodrome elevation, the reported RVR/visibility falls below the applicable minimum, the approach may be continued to DA/H or MDA/H.

4.6.5 The approach may be continued below DA/H or MDA/H and the landing may be completed provided that the required visual reference is established at the DA/H or MDA/H and is maintained.

4.6.6 The touch-down zone RVR is always controlling. If reported and relevant, the mid-point and stop-end RVR are also controlling. The minimum RVR value for the mid-point is 125 m or the RVR required for the touch-down zone if less, and 50 m for the stop-end. For aeroplanes equipped with a stop-end (roll-out) guidance or control system, the minimum RVR value for the mid-point is 50 m.

Note: "Relevant", in this context, means that part of the runway used during the high speed phase of the landing down to a speed of approximately 60 knots.

4.7 Stabilized Approaches

All approaches shall be flown as stabilised approaches (SAp) unless otherwise approved by DGCA for a particular approach to a particular runway.

4.8 Non-precision Approaches.

All non-precision approaches shall be flown using the Continuous Descent Final Approaches (CDFA) technique unless otherwise approved by the DGCA for a particular approach to a particular runway. When calculating the minima the operator shall ensure that the applicable minimum RVR is increased by 200m for Cat A/B aeroplanes and by 400m for Cat C/D aeroplanes for approaches not flown using the CDFA technique, providing that the resulting RVR/CMV value does not exceed 5000m.

4.9 Conversion of Reported Meteorological Visibility to RVR/CMV

Horizontal visibility reported by the meteorological office could be different from the slant visibility observed by the pilot due to factors such as low lying haze and a smoke layer. The reported visibility has inherent limitations due to the fact that it is reported at a site that is removed from the point at which a pilot makes the approach to land and is expected to acquire the visual reference to continue the approach. An RVR is a better representation of the expected distance that the pilot may acquire visual cues on approach. As RVR and meteorological visibility are established differently, a ratio can be identified between the two. Effect of lighting intensities and background luminance play a role when establishing an RVR. In cases where the RVR is not reported, a pilot may derive RVR/CMV by using a mathematical conversion depending upon the type of approach lighting and day/night conditions. The RVR/CMV derived from the table below may be used by an operator to commence or continue an approach to the applicable DA/MDA.

An Operator should ensure that a meteorological visibility to RVR conversion is not used;

a) for takeoff,

b) for calculating any other required RVR minimum less than 800 m,

c) for visual/circling approaches,

d) or when reported RVR is available.

When converting meteorological visibility to RVR in all other circumstances than those in sub-paragraph above, an operator should ensure that Table 1 below is used:

Note- If the RVR is reported as being above the maximum value assessed by the aerodrome operator, e.g. "RVR more than 1500 metres", it is not considered to be a reported value for the purpose of this paragraph.

Table 1: Conversion of Meteorological visibility to RVR

Lighting elements in operation	RVR = Reported Meteorological. Visibility x	
	Day	Night
HI approach and runway lighting	1·5	2·0
Any type of lighting installation other than above	1·0	1·5
No lighting	1·0	Not applicable

5. LOW VISIBILITY OPERATIONS - GENERAL

5.1 An operator shall not conduct Category II or III operations unless:

(a) Each aeroplane concerned is certified for operations with decision heights below 200 ft, or no decision height, and equipped in accordance with CAR Section 2 Series O Part XIV Airworthiness and Maintenance Requirements for Cat II/III Operations.

(b) The operations are approved by DGCA in accordance with CAR Section 2 Series O Part XIV Airworthiness and Maintenance Requirements for Cat II/III Operations, CAR Section 8 Series B Part I Operator Authorization for ILS Cat II/III/A/B Operations and this CAR.

(c) A suitable system for recording approach and/or automatic landing success and failure is established and maintained to monitor the overall safety of the operation;

(d) The flight crew consists of at least two pilots; and

(e) Decision height is determined by means of a radio altimeter.

5.2 An operator shall not conduct low visibility take-offs in less than 400 m RVR unless approved by DGCA. Scheduled operators may be authorized LVTO minima of up to 125 m. This requires that a 90 m visual segment shall be available from the cockpit at the start of the take-off run. Foreign operators, who are authorized by their State Regulatory Authority for LVTO, shall submit requisite documents to DGCA for approval of LVTO at Indian aerodromes. Non-scheduled and general aviation operators shall not conduct take-offs below 500 m RVR.

6. LOW VISIBILITY OPERATIONS — AERODROME CONSIDERATIONS

6.1 An operator shall not use an aerodrome for Category II or III operations unless the aerodrome is approved for such operations.

6.2 An operator shall verify that low visibility procedures (LVP) have been established, and will be enforced, at those aerodromes where low visibility operations are to be conducted.

7. LOW VISIBILITY OPERATIONS — TRAINING AND QUALIFICATIONS

7.1 An operator shall ensure that low visibility training and checking is conducted in accordance with a detailed syllabus approved by FSD, DGCA and included in the Operations Manual. The flight crew qualification is specific to the operation and aircraft type. An operator shall ensure that, prior to conducting LVTO, Category II and III operations each flight crew member completes the training and checking requirements for LVTO and CAT II/III prescribed herein to the limiting values of RVR and Decision Height appropriate to the operator's approval; and is qualified in accordance with this CAR. LVTO and CAT II/III authorization shall be applicable only to scheduled operators. LVTO and CAT II/III training and qualification shall be based on a modular concept of training. LVTO training and qualification module is a pre-requisite for CAT II/III training and qualification modules. CAT II/III training may be combined while covering respective approaches and failures. For operators conducting manual F/D CAT II landings, the simulator training (initial/recurrent) and evaluation shall include at least one manual F/D CAT II landing. The quantum of ground/simulator training and checking for respective modules is tabled below (breakdown of exercises is covered in following paragraphs);

Exercise	Ground training	Simulator training	Simulator check
Initial authorization			
LVTO	1:00	1:00	1:00
CAT II	2:00	2:00	1:00
CAT III	2:00	1:00	1:00
CAT II/III (combined)	3:00	3:00	1:00
Pilots with previous authorization on similar design type			
LVTO	1:00	1:00	1:00
CAT II	2:00	1:00	1:00
CAT III	2:00	1:00	1:00
CAT II/III (combined)	3:00	2:00	1:00

7.2 Qualifications and Flying Experience Requirements for Cat-II/III

Prior to being authorized for CAT-II or CAT-III operations, pilot shall meet the following qualifications and experience requirements:

7.2.1 Licence and Ratings

(a) Current CPL or higher licence.
(b) Instrument Rating

7.2.2 Flying Experience for PIC

(a) Total flying experience 2500 hrs
(b) PIC experience on type 500 hrs. (for pilots with no previous CAT II/III authorization), 100 hrs (for pilots with previous CAT II/III authorization).
(c) Night Flying on type 100 hrs.
(d) Instrument Flying 100 hrs (including not more than 50 hrs on Full Flight Simulator of the type).

7.2.3 Flying Experience for Co-Pilot

(a) Total flying experience 500 hrs
(b) On type experience as released Co-pilot 300 hrs (for pilots with no previous Cat II/III authorization), 100 hrs (for pilots with previous CAT II/III authorization).
(c) Instrument Flying 100 hrs. (including not more than 50 hrs on Full Flight Simulator of the type

7.3. Ground Training for PIC, Co-Pilot for CAT II and CAT III Authorization

The ground training shall lay specific emphasis on the following;

7.3.1 All the technical aspects required for CAT II and CAT III operations, the aircraft equipment required for carrying out CAT II and CAT III approaches and associated weather phenomenon, with special emphasis on poor visibility in fog, rain, meteorological minima etc. This training shall be given by Ground Instructor/Flight Instructor/TRI/SFI/Examiner trained in CAT II and CAT III operations.

7.3.2 The techniques for CAT II and CAT III operations, effects on operations due failures in the airborne and ground equipment and their indications, and action required to be taken on various failures. This training shall be given during pre-simulator briefing by Flight Instructor/TRI/SFI/Examiner trained in CAT II and CAT III operations.

7.4. Simulator Training and Line Flying for CAT II/CAT III Authorization

The training exercises stipulated hereunder shall be the minimum to be carried out on an approved simulator. The Flight Instructor/TRI/SFI/Examiner shall ensure that the pilot acquires the required proficiency and if necessary additional training be given. In case of a gap between ground classes/ simulator training and line flying of more than six months the pilot shall undergo a simulator training session of at least 8 CAT II/III approaches. This may be combined with recurrent IR/PPC training.

7.4.1 Simulator Training for PIC/Co-pilot.

7.4.1.1 Pilots with no previous CAT II/III Authorization

(a) One CAT II training session of minimum of 2 hours consisting of a minimum of 10 CAT II approaches in which at least 4 landings and 4 go around shall be accomplished. The exercise shall also include approaches with one engine inoperative for landing and go-around. Handling of failures and taking necessary corrective action shall also be part of the training.

(b) One CAT II check session of 1 hour by a TRI/Examiner to assess the proficiency consisting of at least 3 landings and 1 go around to include engine failure on approach, go around, recognition of aircraft and ground equipment failures and to take necessary corrective action.

(c) Only on successful completion of simulator training/check for CAT II operations, pilot shall undergo one CAT III training session of 1 hour consisting of at least 3 landings and 1 go around with all engines operating, critical engine failure and also with equipment failures and to demonstrate ability to take necessary corrective actions to handle the failures.

(d) One CAT III check session of 1 hour by a TRI/Examiner to assess the proficiency consisting of a minimum of 3 landings and 1 go around.

(e) An operator may combine CAT II/III training and check modules. In this case, the training session will be identical as covered above (2 hours for CAT II and 1 hour for CAT III), however, the check for CAT II and CAT III can be combined in one session of 1 hour consisting of at least 3 landings and 1 go around of which minimum 1 landing shall be CAT II.

7.4.1.2 Pilots with previous CAT II/III authorization on different design type

Training and evaluation as per Para 7.4.1.1 above.

7.4.1.3 Pilots with previous CAT II/III authorization on similar design type.

(a) One CAT II training session of minimum of 1 hours consisting of a minimum of 3 CAT II landings and 1 go around shall be accomplished. The exercise shall also include approaches with one engine inoperative for landing and go-around. Handling of failures and taking necessary corrective action shall also be part of the training.

(b) One CAT II check session of 1 hour by a TRI/Examiner to assess the proficiency for consisting of at least 3 landings and 1 go around to include to include engine failure on approach, go around, recognition of aircraft and ground equipment failures and to take necessary corrective action.

(c) Only on successful completion of simulator training/check for CAT II operations, pilot shall undergo one Cat-III training session of 1 hour consisting of at least 3 CAT III landings and 1 go around with all engines operating, critical engine failure and also with equipment failures and to demonstrate ability to take necessary corrective actions to handle the failures.

(d) One CAT III check session of 1 hour by a TRI/Examiner to assess the proficiency consisting of a minimum of 3 approaches and 1 go around.

(e) An operator may combine CAT II/III training and check modules. In this case, the training session will be identical as covered above (1 hour for CAT II and 1 hour for CAT III), however, the check for CAT II and CAT III can be combined in one session of 1 hour consisting of at least 3 landings and 1 go around of which minimum 1 landing shall be CAT II.
Note 1: CAT II/III training and checking may be conducted as part of PIC upgrade/co-pilot type training conversion course.
Note 2: Incapacitation procedures shall be practised

7.4.1.4 Pilots upgrading from CAT IIIA to CAT IIIB on the same aircraft type.

Pilots upgrading from CAT IIIA to CAT IIIB on the same type shall undergo 0:45 minutes training consisting of minimum 2 approaches and 1 go around followed by 0:45 minutes check consisting of minimum 2 approaches and 1 go around on the simulator. There shall be no additional requirement of line flying to qualify from CAT IIIA to CAT IIIB.

7.4.2 Line Flying for PIC/Co-pilot

(a) One ILS CAT II/ CAT III approach for PIC in weather conditions at or above the CAT I minima under the supervision of Flight Instructor/TRI/Examiner. The Flight Instructor/TRI/Examiner may occupy RHS/observer seat as appropriate.

(b) One ILS CAT II/ CAT III approach for Co-pilot with a Cat-II/II qualified PIC in weather conditions at or above the CAT I minima.

7.5 Recency Requirements for Cat-II/III

To exercise the privileges of applicable CATII/III authorization, a PIC/co-pilot shall have carried out a minimum of 6 CAT II/III approaches to the authorized RVR including 3 landings in the approved simulator. For CAT II authorized pilots, at least one CAT II landing shall be conducted in the simulator exercise above. There is no separate requirement to mantain CAT II recency for such pilots.

Note: All the above required practice approaches on the aircraft for initial authorization can be carried out at any Category-I ILS runway where autoland can be carried out and which has been suitably assessed, after flight trials, by the operator. All Operators must maintain a periodically updated list of airports/ runways where practice CAT II/ III approaches/ autoland may be carried out.

7.6. Recurrent Training and Checking for CAT II/III

7.6.1 Recurrent Ground Training.

Recurrent ground training shall provide any remedial review of topics specified in initial CAT II and CAT III ground training, to ensure continued familiarity with those topics. Emphasis shall be placed on any programme modifications, changes to aircraft equipment or procedures, review of any occurrences or incidents that may be pertinent, and finally emphasis may be placed on re-familiarisation with topics such as flight mode annunciation for failure conditions or other information which the pilots may not routinely see during normal line operations. Topics to be addressed for each PIC and Copilot are those topics, necessary for the performance of the assigned duties for each respective crew member in the current assignment. This training may be completed during annual refresher training.

7.6.2 Recurrent Simulator Training and Checks for PIC/co-pilot

Pilot's knowledge and ability to perform the tasks associated with the particular category of operation for which he is authorized, is to be demonstrated during training and PPC/IR checks. This shall include a minimum of 3 CAT II/III approaches and a minimum of 1 go-around in the training and PPC/IR check profiles.

7.7 Qualification and Flying Experience Requirements for LVTO

7.7.1 An operator shall ensure that, prior to conducting Low Visibility Take-offs each flight crew member:

(a) Completes the training and checking requirements for LVTO prescribed in this CAR as appropriate to the operator's approval; and

(b) Is qualified in accordance with this CAR

(c) On successful completion of LVTO training and checks, the Pilot's proficiency to undertake LVTO Operations will be recorded and certified

(d) The air operator is required to indicate in the Operations Manual the airfields along with their designated take-off alternate(s) for each of the aerodromes at which LVTO Operations would be carried out.

7.7.2 The PIC and Co-pilot should have gained experience of 100 hours in the relevant aeroplane type as PIC and released Co-pilot respectively before being authorized to use LVTO minima up to the limiting RVR.

7.8 Ground Training for LVTO

This training programme shall outline the procedures and techniques, conditions and requirements (like MEL, Special Weather phenomenon etc.) for reduced visibility take-off under weather conditions below landing minima. Emphasis should be given on taxiing in low visibility conditions; CRM for Low Visibility Operations; R/T procedures and avoidance of runway incursions

7.9 Simulator Training and Checking for LVTO

The pilots shall be subjected to adequate simulator training (minimum 1 hour) to cover the following and any other relevant maneuvers:

(a) Take-offs under simulated conditions of RVR 125 m.

(b) Reject take-off at low speed and high speed under limiting RVR conditions.

(c) Exercise of diversion to the designated take-off alternate from engine failure/fire at V1 including climb-out to en-route airway and landing at take-off alternate at landing minima

.

(d) Simulator check (minimum 1 hour) covering the above to assess the proficiency.

Note 1: LVTO training and checking may be conducted as part of PIC upgrade/co-pilot type training conversion course.

Note 2: Incapacitation procedures shall be practised

7.10 Recurrent Simulator Training and Checking for LVTO for PIC/co-pilot

Pilot's knowledge and ability to perform the tasks for which he is authorised, is to be demonstrated during normal proficiency/IR training and checks. This shall include a minimum of one take-off and one reject take-off under limiting RVR conditions in the training and PPC/IR check profiles.

8. LOW VISIBILITY OPERATIONS — OPERATING PROCEDURES

8.1 An operator must establish procedures and instructions to be used for low visibility take-off, Category II and III operations. These procedures must be included in the Operations Manual and contain the duties of flight crew members during taxiing, take-off, approach, flare, landing, roll-out and missed approach as appropriate.

8.2 The PIC shall satisfy himself/herself that:

(a) The status of the visual and non-visual facilities is sufficient prior to commencing a low visibility take-off, Category II or III approach;

(b) Appropriate LVPs are in force according to information received from Air Traffic Services, before commencing a low visibility take-off, Category II or III approach; and

(c) The flight crew members are properly qualified and trained prior to commencing a low visibility take-off (in an RVR of less than 400 m), Category II or III approach.

8.3 Full thrust take off rating is to be used for LVTO.

8.4 Supervised take off and landing is not permitted during CAT II/III operations or LVTO.

9. LOW VISIBILITY OPERATIONS – MINIMUM EQUIPMENT (AIRCRAFT)

9.1 An operator must include in the Operations Manual , the minimum equipment that has to be serviceable at the commencement of a low visibility take-off, Category II or III approach in accordance with the AFM or other approved document. The following aircraft systems equipment listed as applicable/installed which are critical for LVTO Operations shall be fully serviceable;

9.1.1 Windshield wipers (where fitted) for both PIC and Co-pilot

~~9.1.3~~9.1.2 Window heat system for all heated cockpit windows

9.1.3 Anti-skid system

9.1.4 Thrust reversers for all engines

9.2 The PIC shall satisfy himself/herself that the status of the aeroplane and of the relevant airborne systems is appropriate for the specific operation to be conducted.

10. VFR OPERATING MINIMA

An operator shall ensure that:

10.1 VFR flights are conducted in accordance with the Visual Flight Rules and in accordance with Table 2.

10.2 Special VFR flights are not permitted for commercial air transport aeroplanes.

Table 2: Minimum Visibilities for VFR Operations

Altitude Band	Airspace Class	Flight Visbility	Distance from Cloud
At or above 3050 m (10000 ft) AMSL	A[3] B C D E F G	8 km	1500 m horizontally 300 m (1000 ft) vertically
Below 3050 m (10000 ft) and above 900 m (3000 ft) AMSL, or above 300 m (1000 ft) above terrain, whichever is the higher	A[3] B C D E F G	5 km	1500 m horizontally 300 m (1000 ft) vertically
At or below 900 m (3000 ft) AMSL, or 300 m (1000 ft) above terrain, whichever is the higher	A[3] B C D E	5 km	1500 m horizontally 300 m (1000 ft) vertically
	F G	5 km[2]	Clear of clouds and with the surface in sight

Note 1 - When the height of the transition altitude is lower than 3 050 m (10 000 ft) AMSL, FL 100 should be used in lieu of 10 000 ft.

Note 2 - When so prescribed by the appropriate ATS authority: flight visibilities reduced to not less than 1 500 m may be permitted for flights operating:

1) at speeds that, in the prevailing visibility, will give adequate opportunity to observe other traffic or any obstacles in time to avoid collision; or

2) in circumstances in which the probability of encounters with other traffic would normally be low, e.g. in areas of low volume traffic and for aerial work at low levels.

b) Helicopters may be permitted to operate in less than 1 500 m flight visibility, if manoeuvred at a speed that will give adequate opportunity to observe other traffic or any obstacles in time to avoid collision.

Note 3 - The VMC minima in Class A airspace are included for guidance to pilots and do not imply acceptance of VFR flights in Class A airspace.

11. AERODROME OPERATING MINIMA - LANDING

11.1 Normal Aerodrome Operating Minima

Normal AOM shall be calculated based on the latest information of airport facilities, procedures and OCAs. Operators shall ensure that only information promulgated by the Airports Authority of India (AAI) through the Aeronautical Information Service is used for calculation of AOM at civil and defence aerodromes.

11.2 Restricted Aerodrome Operating Minima.

Restricted AOM shall be based on additives applied to the Normal AOM as below;

Restricted AOM = Normal AOM DA(H)/MDA (H) + 100 ft and normal AOM Visibility/RVR + 400 m .

Non-Scheduled and General Aviation Operators may apply to DGCA for approval of normal AOM subject to the following conditions:

11.2.1 The PIC and Co-pilot shall have minimum 200 hours experience on type.

11.2.2 The PIC and Co-pilot shall have minimum 10 hours experience on type in the preceding 90 days.

11.2.3 The operator shall provide adequate training including training on the relevant simulator (minimum Level C) to its pilots to make them familiar with the operation under reduced visibility conditions and other associated hazards.

11.2.4 The PIC and Co-pilot shall have to demonstrate to an Examiner qualified on type his proficiency to handle normal/abnormal situations under simulated/actual reduced visibility conditions.

11.3 Category I, APV and Non-Precision Approach Operations

11.3.1 A Category I approach operation is a precision instrument approach and landing using ILS, GLS (GNSS/GBAS) or PAR with a decision height not lower than 200 ft and with an RVR not less than 550 m.

11.3.2 A non-precision approach (NPA) operation is an instrument approach using any of the facilities described on Table 3 (System Minima) with a MDH or DH not lower than 250 ft and an RVR/CMV not lower than 750 m unless accepted by DGCA.

11.3.3 An APV operation is an instrument approach which utilizes lateral and vertical guidance, but does not meet the requirements established for precision approach and landing operations, with a DH not lower than 250 ft and a runway visual range of not less than 600 m unless approved by DGCA.

11.3.4 Decision height (DH). An operator must ensure that the decision height to be used for an approach is not lower than:

(a) the minimum height to which the approach aid can be used without the required visual reference; or

(b) the OCH for the category of aeroplane; or

(c) the published approach procedure decision height where applicable; or

(d) 200 ft for Category I approach operations; or

(e) the lowest decision height specified in the Aeroplane Flight Manual (AFM) or equivalent document, if stated;

whichever is higher.

11.3.5. Minimum descent height (MDH).

An operator must ensure that the minimum descent height for an approach is not lower than:

(a) the OCH for the category of aeroplane; or

(b) the system minimum in Table 3; or

(c) the minimum descent height specified in the Aeroplane Flight Manual (AFM) if stated;

whichever is higher.

11.3.6. Visual reference.

A pilot may not continue an approach below MDA/MDH unless at least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot:

(a) elements of the approach light system;

(b) the threshold;

(c) the threshold markings;

(d) the threshold lights;

(e) the threshold identification lights;

(f) the visual glide slope indicator;

(g) the touchdown zone or touchdown zone markings;

(h) the touchdown zone lights;

(i) runway edge lights

Table 3: System Minima vs Instrument Approach Procedures

System minima	
Instrument Approach Procedure	Lowest DH / MDH
ILS/MLS/GLS CAT I	200 ft[1]
RNAV with approved vertical guidance	200 ft
Localizer with or without DME	250 ft
SRA (terminating at ½ NM)	250 ft
SRA (terminating at 1 NM)	300 ft
SRA (terminating at 2 NM or more)	350 ft
RNAV without approved vertical guidance	300 ft
VOR	300 ft
VOR/DME	250 ft
NDB	350 ft
NDB/DME	300 ft
VDF	350 ft

Note 1.— 200 ft is the lowest authorized DH for Category I operation unless an equivalent level of safety can be achieved through use of additional procedural or operational requirements.

Note 2.— A lowest DH of 200 ft for RNAV with approved vertical guidance approaches shall only be used if full SBAS capability is available. Otherwise a DH of 250 ft is required.

11.3.7 Determination of RVR/CMV/Visibility minima for Category 1, APV and non-precision approaches.

The minimum RVR/CMV/Visibility shall be the highest of the values derived from Table 4 or Table 5, but not greater than the maximum values shown in Table 5 where applicable. The values in Table 4 are derived from the formula below with the length of the approach lighting system taken into account as part of the formula for derivation of RVR;

Required RVR/Visibility (m) = [(DH/MDH (ft) x 0.3048) / tanα] - length of approach lights (m);

where α is the calculation angle, being a default value of 3.00° increasing in steps of 0.10° for each line in Table 5 up to 3.77° and then remaining constant.

Table 4: Lowest Straight-in Approach Minima for Instrument Approach and Landing Operations Other Than CAT II or CAT III

DH or MDH (ft)			Class of Lighting Facility			
			FALS	IALS	BALS	NALS
			(metres)			
			See para 11.3.9. for RVR < 750 m			
200	-	*210*	*550*	*750*	*1000*	*1200*
211	-	*220*	*550*	*800*	*1000*	*1200*
221	-	*230*	*550*	*800*	*1000*	*1200*
231	-	*240*	*550*	*800*	*1000*	*1200*
241	-	*250*	*550*	*800*	*1000*	*1300*
251	-	*260*	*600*	*800*	*1100*	*1300*
261	-	*280*	*600*	*900*	*1100*	*1300*
281	-	*300*	*650*	*900*	*1200*	*1400*
301	-	*320*	*700*	*1000*	*1200*	*1400*
321	-	*340*	*800*	*1100*	*1300*	*1500*
341	-	*360*	*900*	*1200*	*1400*	*1600*
361	-	*380*	*1000*	*1300*	*1500*	*1700*
381	-	*400*	*1100*	*1400*	*1600*	*1800*
401	-	*420*	*1200*	*1500*	*1700*	*1900*
421	-	*440*	*1300*	*1600*	*1800*	*2000*
441	-	*460*	*1400*	*1700*	*1900*	*2100*
461	-	*480*	*1500*	*1800*	*2000*	*2200*
481	-	*500*	*1500*	*1800*	*2100*	*2300*
501	-	*520*	*1600*	*1900*	*2100*	*2400*
521	-	*540*	*1700*	*2000*	*2200*	*2400*

DH or MDH (ft)			Class of Lighting Facility			
			FALS	IALS	BALS	NALS
			(metres)			
			See para 11.3.9. for RVR < 750 m			
541	-	*560*	*1800*	*2100*	*2300*	*2500*
561	-	*580*	*1900*	*2200*	*2400*	*2600*
581	-	*600*	*2000*	*2300*	*2500*	*2700*
601	-	*620*	*2100*	*2400*	*2600*	*2800*
621	-	*640*	*2200*	*2500*	*2700*	*2900*
641	-	*660*	*2300*	*2600*	*2800*	*3000*
661	-	*680*	*2400*	*2700*	*2900*	*3100*
681	-	*700*	*2500*	*2800*	*3000*	*3200*
701	-	*720*	*2600*	*2900*	*3100*	*3300*
721	-	*740*	*2700*	*3000*	*3200*	*3400*
741	-	*760*	*2700*	*3000*	*3300*	*3500*
761	-	*800*	*2900*	*3200*	*3400*	*3600*
801	-	*850*	*3100*	*3400*	*3600*	*3800*
851	-	*900*	*3300*	*3600*	*3800*	*4000*
901	-	*950*	*3600*	*3900*	*4100*	*4300*
951	-	*1000*	*3800*	*4100*	*4300*	*4500*
1001	-	*1100*	*4100*	*4400*	*4600*	*4900*
1101	-	*1200*	*4600*	*4900*	*5000*	*5000*
1201 and above			*5000*	*5000*	*5000*	*5000*

Table 5: Minimum and Maximum RVR for Instrument Approaches down to CAT I Minima

Facility/Conditions	*RVR/CMV (m)*	*Aeroplane Category*			
		A	*B*	*C*	*D*
ILS/MLS/GLS, PAR, and RNAVwith approved vertical guidance	*Min*	*According to Table 4*			
	Max	*1500*	*1500*	*2400*	*2400*
NDB, NDB/DME, VOR, VOR/DME, LOC, LOC/DME, VDF, SRA, RNAVwithout approved vertical guidance with a procedure which fulfills the critera in paragraph 11.3.8(b)	*Min*	*750*	*750*	*750*	*750*
	Max	*1500*	*1500*	*2400*	*2400*
For NDB, NDB/DME, VOR, VOR/DME, LOC, LOC/DME, VDF, SRA, RNAVwithout approved vertical guidance: - *Not fulfilling the criteria in paragraph 11.3.8(b), or* - *With a DH or MDH ≥ 1200 ft*	*Min*	*1000*	*1000*	*1200*	*1200*
	Max	*According to Table 4, if flown using the CDFA technique, otherwise an add-on of 200/400 m applies to the values in Table 4 but not to result in a value exceeding 5000 m.*			

Table 5a: Failed or downgraded equipment – effect on landing minima

Table 5a contains instructions concerning failed or downgraded equipment and consequential effect on landing minima. The table has instructions intended for use both pre-flight and in-flight. It is however not expected that the PIC would consult such instructions after passing 1 000 ft above the aerodrome. If failures of ground aids are announced at such a late stage, the approach could be continued at the PIC's discretion. If failures are announced before such a late stage in the approach, their effect on the approach should be considered as described in Table 5a, and the approach may have to be abandoned.

Failed or downgraded equipment[1]	*Effect on landing minima*	
	CAT I	*APV, NPA*
ILS standby transmitter	No effect	
Outer marker	No effect if replaced by height check at 1 000 ft	APV - Not applicable
		NPA with FAF: No effect unless used as FAF
		If FAF cannot be identified (e.g. no method available for timing of descent), NPA cannot be conducted
Middle marker	No effect	No effect unless used as MAPt
RVR assessment systems	No effect	
Approach lights	Minima as for NALS	
Approach lights except the last 210 m	Minima as for BALS	
Approach lights except the last 420 m	No effect	Minima as for IALS

Failed or downgraded equipment [1]	*Effect on landing minima*	
	CAT I	*APV, NPA*
Standby power for approach lights	No effect	
Edge lights, threshold lights and runway end lights	Day: no effect Night: Not allowed	
Centre line lights	No effect if F/D or auto land; otherwise RVR 750m	No effect
Centre line lights spacing increased to 30m	No effect	
Touchdown zone lights	No effect if F/D or auto land; otherwise RVR 750 m	No effect
Taxiway lighting system	No effect	

Note1 – Conditions applicable to Table 5a:

(a) multiple failures of runway lights other than indicated in Table 5a are not acceptable;

(b) deficiencies of approach and runway lights are treated separately;

(c) Category II or III operations. Deficiencies in equipment are not permitted; and

(d) failures other than ILS affect RVR only and not DH.

(e) "RVR assessment - "No effect" is subject to

- *As long as manual RVR is reported, when visibility is below 800m.*
- *The MID RVR report may be substituted for TDZ RVR if TDZ RVR report is not available)*

Table 6: Approach Lighting Systems

Class of facility	Length, configuration and intensity of approach lights
FALS (full approach light system)	Precision approach CAT I lighting system (HIALS >720m) distance coded centreline, barrette centerline
IALS (intermediate approach light system)	Simple approach lighting system (HIALS 420-719m) single source, barrette
BALS (basic approach light system)	Any other approach lighting system (HIALS, MIALS or ALS 210-419m)
NALS (no approach light system)	Any other approach lighting system (HIALS, MIALS or ALS <210m) or no approach lights

11.3.8 In order to qualify for the lowest allowable values of RVR detailed in Table 4 (applicable to each approach grouping), the instrument approach procedures should be flown as an instrument approach and landing operation and shall meet at least the following facility requirements and associated conditions:

(a) Instrument approaches procedures with a designated vertical profile up to and including 4.5° for Category A and B aeroplanes, or 3.77° for Category C and D aeroplanes, unless other approach angles are approved by DGCA, where the facilities are:

i) ILS/MLS/GLS/PAR; or

ii) RNAV with approved vertical guidance; and

where the final approach track is offset by not more than 15 degrees for Category A and B aeroplanes or by not more than 5 degrees for Category C and D aeroplanes.

(b) Instrument approach procedures flown using the CDFA technique with a nominal vertical profile up to and including 4.5° for Category A and B aeroplanes, or 3.77° for Category C and D aeroplanes, unless other approach angles are approved by DGCA, where the facilities are NDB, NDB/DME, VOR, VOR/DME, LOC,LOC/DME, VDF, SRA or RNAV/LNAV, with a final approach segment of at least 3 NM, which also fulfill the following criteria:

i) the final approach track is offset by not more than 15 degrees for Category A and B aeroplanes or by not more than 5 degrees for Category C and D aeroplanes; and

ii) the FAF or another appropriate fix where descent is initiated is available, or distance to THR is available by FMS/RNAV or DME; and

ii) if the MAPt is determined by timing, the distance from FAF to THR is < 8 NM.

11.3.9 An RVR of less than 750 m as indicated in Table 4 may be used for:

(a) Category I operations to runways with FALS (see Table 6), runway touchdown zone lights (RTZL) and runway centre line lights (RCLL); or

(b) Category I operations to runways without RTZL and RCLL when an approved HUDLS, or equivalent approved system, or when conducting a coupled approach or flight-director-flown approach to the DH; or

(c) RNAV with approved vertical guidance approach procedures to runways with FALS, RTZL and RCLL when using an approved HUD.

11.4 Precision Approach – Category II Operations

11.4.1 A Category II operation is a precision instrument approach and landing using ILS with:

(a) A decision height below 200 ft but not lower than 100 ft; and

(b) A runway visual range of not less than 300 m.

11.4.2 Decision Height.

An operator must ensure that the decision height for Category II operations is not lower than:

(a) The minimum decision height specified in the AFM, if stated; or

(b) The minimum height to which the precision approach aid can be used without the required visual reference; or

(c) The OCH for the category of aeroplane; or

(d) The decision height to which the flight crew is authorised to operate; or

(e) 100 ft.

whichever is higher.

11.4.3 Visual reference.

A pilot may not continue an approach below either the Category II decision height determined in accordance with Para 11.4.2 above unless visual reference containing a segment of at least 3 consecutive lights being the centre line of the approach lights, or touchdown zone lights, or runway centre line lights, or runway edge lights, or a combination of these is attained and can be maintained. This visual reference must include a lateral element of the ground pattern, i.e. an approach lighting crossbar or the landing threshold or a barrette of the touchdown zone lighting.

11.4.4 Required RVR.

The lowest minima to be used by an operator for Category II operations is 300 m for a DH of 100 ft. If it is necessary to increase DH due to, for example, facility limitations or an increased OCH, then a corresponding increase in minimum RVR will be required as shown in Table 7.

Table 7: RVR for Category II operations minima

Decision Height	Category II operations minima (RVR) coupled to below DH[1]	
	RVR/aeroplane Category A, B and C	RVR/aeroplane Category D
100 ft - 120 ft	300 m	300 m[2] / 350 m
121ft - 140 ft	400 m	400 m
141 ft – 199 ft	450 m	450 m

Note1 - The reference to "Coupled to below DH" in this table means continued use of the automatic flight control system down to a height which is not greater than 80 per cent of the applicable DH. Thus airworthiness requirements may, through minimum engagement height for the automatic flight control system, affect the DH to be applied.

Note 2- For a CAT D aeroplane conducting an auto land, 300 m may be used.

11.5 Precision Approach – Category III Operations

11.5.1 Category III operations are subdivided as follows:

(a) Category III A operations. A precision instrument approach and landing using ILS with:

(i) a decision height lower than 100 ft or no decision height; and

(ii) a runway visual range not less than 175 m.

(b) Category III B operations. A precision instrument approach and landing using ILS with:

(i) a decision height lower than 50 ft, or no decision height; and

(ii) a runway visual range lower than 175 m but not less than 50 m.

Note: Where the decision height (DH) and runway visual range (RVR) do not fall within the same Category, the RVR will determine in which Category the operation is to be considered.

11.5.2. Decision height.

For operations in which a decision height is used, an operator must ensure that the decision height is not lower than:

(a) the minimum decision height specified in the AFM, if stated; or

(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.

11.5.3. No decision height operations.

Operations with no decision height may only be conducted if:

(a) the operation with no decision height is authorised in the AFM; and

(b) the approach aid and the aerodrome facilities can support operations with no decision height; and

(c) the operator has an approval for CAT III operations with no decision height.

Note: In the case of a CAT III runway it may be assumed that operations with no decision height can be supported unless specifically restricted as published in the AIP or NOTAM.

11.5.4. Visual reference.

(a) For Category III A operations, and for Category III B operations conducted either with fail-passive flight control systems a pilot may not continue an approach below the decision height determined in accordance with Para 11.5.2. above unless a visual reference containing a segment of at least three consecutive lights being the centreline of the approach lights, or touchdown zone lights, or runway centreline lights, or runway edge lights, or a combination of these is attained and can be maintained.

(b) For Category III B operations conducted either with fail-operational flight control systems or with a fail operational hybrid landing system using a decision height a pilot may not continue an approach below the decision height, determined in accordance with Para 11.5.2. above, unless a visual reference containing at least one centreline light is attained and can be maintained.

(c) For Category III B operations conducted either with fail-operational flight control systems or with a fail operational hybrid landing system without a decision height, there are no requirements for a visual verification prior to landing.

11.5.5. Required RVR.

The lowest minima to be used by an operator for Category III operations depend on the decision height and aeroplane systems as shown in Table 8 below:

Table 8: RVR for Category III operations minima

Category	Decision Height	Roll-out control/guidance system	RVR
III A	Less than 100 ft	Not required	175 m
III B	Less than 50 ft or no DH	Fail-operational [1]	50 m

Note 1 – The fail-operational system referred to may consist of a fail operational hybrid system

12. CIRCLING APPROACH MINIMA

Circling approach and the associated minima will be authorized for Operators by Flight Standards Directorate as per the training programme implemented by Operators.

13. VISUAL APPROACH

For a visual approach, an operator shall use higher of the associated non-precision approach minima or minimum visibility/RVR of 2800 m for Category A/B aeroplanes, 3200 m for Category C aeroplanes and 3600 m for Category D aeroplanes. If visual approach is requested for a runway which has only a circling approach, the ground visibility shall not be less than 5 Km.

Table 9: Alternate (Destination and Enroute) Aerodrome Operating Minima for Dispatch

Approach facility configuration	Ceiling DA/H or MDA/H	RVR
For airports supporting one approach and landing operation.	Authorized DA/H or DA/H plus an increment of 400 ft	Authorized visibility plus an increment of 1 500 m
For airports supporting at least two approach and landing operations, each providing a straight-in approach and landing operation to different, suitable runways	Authorized DA/H or MDA/H plus an increment of 200 ft	Authorized visibility plus an increment of 800 m
For airports with a published Cat II or Cat III approach and landing operation, and at least two approach and landing operations, each providing a straight-in approach and landing operation to different, suitable runways	Cat II procedures, a ceiling of at least 300 ft, or for Cat III procedures, a ceiling of at least 200 ft	Cat II, a visibility of at least RVR 1 200 m or, for Cat III, a visibility of at least RVR 550 m

Note 1 - Conditional forecast elements need not be considered, except that a PROB40 or TEMPO condition below the lowest applicable planning minima must be taken into account

Note 2 – When determining the usability of an IAP, wind plus gust forecast must be within operating limits, including reduced visibility limits, and should be within the aeroplane maximum approved crosswind value.

Note 3 – When dispatching under the provisions of MEL, those MEL limitiations affecting instrument approach minima must be considered in determining alternate minima.

Note 4 – For airports supporting at least to approach and landing operations each providing a straight-in approach and landing operation to different suitable runways, the term "suitable runways" will account for factors such as crosswind/tailwind components, LDA, runway surface that shall be within aircraft limitations for both runways

14. AERODROME OPERATING MINIMA – TAKE OFF

14.1 Take-off minima established by the operator must be expressed as visibility or RVR limits, taking into account all relevant factors for each aerodrome planned to be used and the aeroplane characteristics. Where there is a specific need to see and avoid obstacles on departure, take-off minima may include cloud base limits. Where avoidance of such obstacles may be accomplished by alternate procedural means, such as use of climb gradients or specified departure paths, cloud base restrictions need not be applied.

14.2 A take-off alternate aerodrome shall be selected and specified in the operational flight plan if either the meteorological conditions at the aerodrome of departure are below the operator's established aerodrome landing minima for that operation or if it would not be possible to return to the aerodrome of departure for other reasons. The take-off alternate aerodrome should have weather conditions and facilities suitable for landing the aeroplane in normal and non-normal configurations pertinent to the operation. In addition, in the non-normal configuration the aeroplane should be capable of climbing to, and maintaining, altitudes which provide suitable obstacle clearance and navigation signals en route to a take-off alternate aerodrome. For an aerodrome to be selected as a take-off alternate the available information shall indicate that, at the estimated time of use, the conditions will be at or above the operator's established aerodrome operating minima for that operation, and in any case not lower than Cat I minima. Any limitation related to one-engine-inoperative operations shall be taken into account. The take-off alternate aerodrome should be located within the following distances from the aerodrome of departure:

(a) aeroplanes with two engines: one hour of flight time at a one-engine-inoperative cruising speed, determined from the aircraft operating manual, calculated in ISA and still-air conditions using the actual take-off mass; or

(b) aeroplanes with three or more engines: two hours of flight time at an all-engines operating cruising speed, determined from the aircraft operating manual, calculated in ISA and still-air conditions using the actual take-off mass; or

(c) aeroplanes engaged in extended diversion time operations (EDTO): where an alternate aerodrome meeting the distance criteria of (a) or (b) is not available, the first available alternate aerodrome located within the distance of the operator's approved maximum diversion time considering the actual take-off mass.

Note: To be "engaged in EDTO operations" means that the aircraft and operator have been approved for EDTO operations and the aircraft has been dispatched in accordance with applicable EDTO requirements

14.3 Visual reference.

The take-off minima must be selected to ensure sufficient guidance to control the aeroplane in the event of both a discontinued take-off in adverse circumstances and a continued take-off after failure of the critical power unit.

14.4 Required RVR/Visibility

For multi-engine 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 the take-off to a height of 1500 ft above the aerodrome while clearing obstacles by the required margins, the take-off minima established by an operator must be expressed as RVR/Visibility values not lower than those given in the table below. Use of these minima is based on the following factors:

14.4.1 Flight characteristics and cockpit instrumentation typical of multi-engine turbine aircraft;

14.4.2 Comprehensive programmes for crew qualification which address use of the specified minima;

14.4.3 Comprehensive programmes for airworthiness, with any necessary equipment operational (MEL);

14.4.5 Availability of specified facilities for the respective minima, including programmes for assurance of the necessary reliability and integrity;

14.4.6 Availability of air traffic services to ensure separation of aircraft and timely and accurate provision of weather, NOTAM, and other safety information;

14.4.7 Standard runway, airport, obstruction clearance, surrounding terrain, and other characteristics typical of major facilities serving scheduled international operations;

14.4.8 Routine low visibility weather conditions (e.g. fog, precipitation, haze, wind components, etc.) which do not require special consideration; and

14.4.9 Availability of alternate courses of action in the event of emergency situations.

Table 10 : RVR/Visibility for Take-off (Commercial Transport Aeroplanes)

Take-off RVR/Visibility	
Facilities	*RVR/VIS* [1] *Cat A, B, C & D*
Adequate Visual reference [2] (Day only)	500m
Runway edge lights or Runway centre line markings [3]	400 m
Runway edge lights and Runway centre line markings [3]	300 m
Runway edge lights and Runway centre line lights	200 m
Runway edge lights and Runway centre line lights and relevant RVR information [4]	150 m
High intensity Runway edge lights and Runway centre line lights (spacing 15 m or less) and relevant RVR information [4]	125 m

Note 1 – The TDZ RVR/VIS may be assessed by the pilot

Note 2 - Adequate Visual reference means, that a pilot is able to continuously identify the take-off surface and maintain directional control.

Note 3 - For night operations at least runway edge lights or centre line lights and runway end lights are available.

Note 4 - The required RVR must be achieved for all relevant RVR reporting points (touchdown, mid- point and stop-end/roll-out). The governing RVR shall be the lowest of the reported RVRs

15. This CAR supersedes CAR Section 7 Series X Part I Pilot Authorisation for ILS Category II and Category III Operations, Operations Circular 6/1995 Implementation of Award of Shri MR Sivaraman in the Matter of Dispute Between ICPA and Indian Airlines, Operations Circular 1/2008 Approval of Instructor/Examiner to carry our check from Observer Seat for Pilot Authorisation for Cat II/III AB Operations, Operations Circular 3/2008 ILS Cat II/III Aircraft Training, Operations Circular 1/2005 CANPA.

(Arun MIshra)
Director General of Civil Aviation

Annexure 1

ADVERSE WEATHER /MONSOON OPERATIONS

1. Background

Adverse weather is an integral part of flight operations. Adverse weather prevails in one part of an operator's network or another at different times of the year. Adverse weather operations encompass those operations conducted in weather conditions that could result in degradation of take and landing surfaces due to rain, snow, sleet, other contaminants associated with wet and cold weather.

2. Purpose:

Operating techniques applicable to each aircraft, under various generic adverse weather conditions, exist in flight manuals and must be adhered to. However, to ensure an enhanced level of safety, the reinforcement of these operating practices in the context of the adverse weather with relevant, specific and mandatory regulatory guidelines is necessary. Operators are to ensure that pilots are qualified as per this Annexure to CAR prior to undertaking flights into adverse weather affected regions.

3. Applicability:

Indian registered aircraft and Indian operators. The period of adverse weather is reckoned by actual and forecast weather conditions at an aerodrome (departure, destination and alternate) that could result in degradation of take and landing surfaces due to rain, snow, sleet and other contaminants associated with wet and cold weather.

4. Pilots who have Obtained Command Rating for the First Time:

Pilots, who have obtained their command rating on commercial transport aircraft for the first time, will fall under this category.

The following additional criteria must be fulfilled:

(a) Should have operated as a P2 on commercial transport aircraft during a minimum of one monsoon season prior to obtaining PIC rating for the first time.

(b) Should have at least 100 hours PIC experience on type before being released to fly as PIC during adverse weather conditions unless the pilot has a minimum of three monsoon seasons as P2 on type prior to obtaining PIC rating for the first time. In cases where a PIC is short of the 100 hours requirement or his endorsement has been obtained prior to or during adverse weather, the pilot may continue to fly as PIC during adverse weather conditions till he achieves 100 hours provided the co-pilot has a minimum of 1000 hours on type and a minimum of two monsoon seasons on type.

Note: For the purpose of qualification criteria of Para 4;

- *100 hours of PIC must include actual time in the left seat and not include hours logged as a cruise captain*.
- *Monsoon season in Sub Para (a) and (b) refers to April-Sep*

5. Adverse Weather Training and Checks

All Operators are to provide annual adverse weather ground training as below to all their pilots irrespective of the fact that they may have flown during previous adverse weather periods. This ground training may be combined with the annual recurrent training programme of pilots.

All pilots are to undergo simulator training and checks as below before they are released to fly as PIC on a new type in actual or forecast, adverse weather conditions. Simulator training and checks may be conducted during PIC upgrade/co-pilot type training conversion course.

(a) Ground Training

Ground training shall cover, but not be limited to:

(i) Aircraft Performance during Take-off and Landing with specific emphasis on wet and contaminated runway conditions.

(ii) Calculation of take-off and landing field lengths and impact of individual failure events (type specific).

(iii) Use of weather radar (type specific)

(iv) Techniques of weather avoidance.

(v) Indian monsoon climatology

(vi) ALAR and Adverse Weather Tool Kit

(b) Simulator Training:

(i) One hour simulator training for adverse weather operations covering all aspects of adverse weather conditions likely to be encountered en-route and in terminal areas covering aircraft performance related to wet/ contaminated runway conditions combined with MEL dispatch. Increased emphasis on landing performance should be given including assessment of landing distance required in reduced braking effectiveness vs. actual Landing Distance Available (Safety Margins).

(ii) One hour simulator check for adverse weather operations.

(c) Aircraft not having Simulator

(i) Pilots of such Operators will undergo ground training as given above.
(ii) Two sector route check on aircraft. The check has to be done in actual adverse weather conditions for landing.

6. General Conditions:

(i) Minimum total cockpit experience level of the crew as PIC and Co-Pilot should not be less than 500 hours on type.
(ii) No supervised take-offs and landings in actual adverse weather conditions.
(iii) Approach briefing prior to Top of Descent shall include wet/contaminated Actual Landing Distance calculation. Scheduled Operators shall prepare a quick analysis table for use during normal operations for wet/contaminated ALD and 1.15*ALD in view of the high cockpit work-load environment. For aeroplanes where the ALD is factored by at least 15% to derive an Operational Landing Distance, this figure may be used.
(iv) ILS approaches are to be preferred to non-precision approaches. In case of non-precision approaches, emphasis must be given on CDFA.
(v) Greater emphasis on stabilized approaches (Refer Operations Circular No. 1 of 2003 on "ALAR India Training Tool Kit and Circular No.9 of 2009 – Standard Operating Procedures).
(vi) All Operators are required to follow a non-reprisal policy for Go around and Diversion,
(vii) Documentation about upset recovery technique for specific airplane must be reviewed.
(viii) Full flap landing and adequate usage of Reverse thrust and consideration of extra en-route/ terminal fuel computation shall be adhered to. (Type specific manufacturer's guidance accepted)

7. MEL Requirements

7.1 General.

All commercial transport operators shall ensure that the following is fully serviceable for flights to or from aerodromes with forecast or actual adverse weather conditions irrespective of the type of aircraft.

(a) Weather radar.
(b) Windshield wipers (where fitted).

7.2 Aircraft certificated for adverse weather performance.

Aircraft that have manufacturer certificated adverse weather performance with appropriate MMEL for defects/unavailability are to incorporate the same in their MEL and be governed by the limitations and considerations therein.

7.3 Aircraft not certificated for adverse weather performance.

7.3.1 For aircraft that do not have manufacturer certificated adverse weather performance, the following equipment must be serviceable during adverse weather conditions:

(a) All deceleration devices including thrust reversers and speed brakes.
(b) Anti-skid system.
(c) Anti-icing/de-icing system.

7.3.2 For aircraft that do not have manufacturer certificated adverse weather performance the following items even though un-serviceable, could be accepted “to return direct to base station for maintenance” (i.e. one landing only) subject to acceptable weather conditions at departure and destination station”.

(a) One Thrust reverser provided other decelerating devices are serviceable – Subject to additional margin of minimum 1000 feet to field length requirement for take-off and landing.
(b) Anti-Skid system – Subject to performance limitations.
(c) Wind-shield Wipers (where fitted) – Subject to the PIC side (LHS) being serviceable.
(d) Anti-icing and De-icing – Subject to performance limitations.

Note 1: Clubbing of 7.3.2 (a) and (b) is not permitted.
Note 2: The *above waivers to the MEL restrictions will in any case never be applied if the MEL/ other regulatory requirements are not permitting the same for any other specific operations*.

Annexure 2

ALL WEATHER OPERATIONS EXPLANATORY MATERIAL

1. Para 4.2: Operators need to specify method of determination of minima for approval by DGCA. Compliance with this CAR will be an acceptable method. Additionally, operators will need to specify the presentation of AOM to crew for reference. Once the method of determination of minima has been approved by DGCA, operators need not file individual aerodrome minima with DGCA unless specifically required. Visibility/RVR minima are based on the MDA(H)/DA(H). It is the responsibility of the service provider which publishes the approach procedure to promulgate OCA(H) for that approach procedure that forms the basis of calculation of visibility/RVR minima by the operator. The State as a minimum will ensure that the OCA (H) is promulgated for use by the operator. Where the associated visibility/RVR minimum is also published by the State Civil Aviation Authority, the minima established by the operator cannot be lower.

2. Para 4.6.5: The required visual reference for different types of approach operations has been specified in the CAR. For CAT III B approaches without DH where there is no required visual reference, and hence the provision of continuation of approach below 100 feet above aerodrome with RVR below minimum does not apply. If the RVR falls below the minimum in a CAT III B approach without DH, a missed approach must be carried out.

3. Para 4.6.6: Touch-down zone RVR needs to be reported for Cat I operations, touch-down and mid zone RVR for Cat II operations, touch-down, mid and roll-out zone RVR for Cat III operations. In all cases, touch-down zone will always be controlling, however if any other RVR is reported and is relevant (operator shall not define relevant depending on runway length/aircraft stopping distance unless approved by FSD, DGCA) it also becomes controlling. The mid zone and roll-out zone can be lower than the touch-down zone provided conditions enumerated in Note 1 below are met. The following table is to be used for reference;

Type of operation	RVR		
	Touch-down zone	Mid zone	Roll-out zone
CAT I	**550m**	125m	125m
CAT II	**300 m**	**125m**	125m
CAT III A	**175m**	**125m**	**125m**
CAT III B (with roll-out guidance)	**75/50m**	**75/50m**	**75/50m**

Note 1: The use of minimum RVRs in the table above is subject to:

- *operator authorization;*
- *aeroplane authorization;*
- *flight crew training and qualification; and*
- *aerodrome facilities.*

Note 2: The use of minimum RVR of 75m or 50m depends on value approved for operators and aeroplanes with roll-out guidance system.

Note 3: The values in bold font are required for the type of operation.

4. Para 4.1 (b) requirement of additive to AOM is for the first flight to an aerodrome by a pilot or where recency requirements are not met as per the CAR. This is intended for the destination aerodrome and not enroute alternate aerodromes.

5. Para 4.9: CMV is not to be used for calculating any established RVR minima below 800m. (e.g. if the reported visibility is 700m, then CMV is not to be used for established RVR minima below 800m). CMV is meant to be used by pilots in flight and not as a planning tool for dispatch of a flight.

6. Para 4.9: The minimum length of approach lights for application of CMV is 420 m.

7. Para 7.3.2: In case an SFI has not held a CAT II/III authorization on type within the previous 36 months, then prior to imparting training for LVTO and CAT II/III operations, he must complete the ground training for LVTO and CAT II/III. Thereafter, the SFI shall observe and conduct under supervision LVTO and CAT II/III training under an SFI/TRI/Instructor/Examiner as appropriate prior to conducting LVTO and CAT II/III training.

8. Para 7.4: Simulator training for CAT II/III is prescribed for a standard crew complement of one PIC and co-pilot. However, in case two PICs or co-pilots are paired for the training, it shall be ensured that training and evaluation is completed specific to the seat (e.g. if the quantum is 2 hours training and 1 hour evaluation for CAT II, this shall be carried out for each of the pilots in a non-standard crew complement which 2 hours plus 1 hour for each pilot).

9. Para 7.4.1.3: Similar design types are aeroplanes that have similar displays and procedures for CAT II/III operations such as fail operational A320 family/A330 and fail operational B737/B747/B777/B787.

10. Para 10.2: Special VFR flights may be conducted by commercial air transport operators for ferry/test flights and recovery of aeroplanes provided no passengers are carried and requisite safety assessment has been carried out.

11. Para 11.1: The calculation of AOM at civil and defence aerodromes is to be done on the basis of AIS information published by the State of the Aerodrome (AAI for Indian aerodromes). For aerodromes where this information is currently not available, operators may continue operating with present available information provided a safety assessment is conducted, up to but not later than 01 Oct 2015, beyond which AOM needs to be based on AIS published information.

12.Para 11.2: Non-scheduled and general aviation operators fulfilling the specified conditions for normal AOM will be given approval for specific crew, aeroplane and type of approach operations. The use of normal AOM once approved will require recency experience as in Para 11.2.2. and bi-annual pilot proficiency checks of which at least every alternate check needs to be in the approved simulator (up to Cat I). If these are conditions are not met, then restricted AOM will apply. Restricted AOM is an additive to the normal AOM. In order to calculate restricted AOM, an operator needs to obtain normal AOM from Table 4 and 5 as applicable, and then add 100 feet to the DA/MDA and 400 m to the normal AOM. There is no requirement to re-enter Table 4 or 5 with the restricted AOM values.

13. Para 11.3.6, 11.4.3 and 11.5.4: The required visual reference for different types of approach operations consist of aerodrome lighting systems and facilities. Any one of the specified visual references if acquired and maintained are adequate to continue the approach to landing. For the purpose of AOM application, these visual references (lighting or marking) are expected to be fully serviceable and available. Additionally, operators are expected to stipulate in their Operations Manual the requirement of lighting and marking for precision/APV/non-precision operations by day and night in accordance with relevant regulatory standards. The use of gooseneck flares as main or alternative/standard lighting systems is not authorized. Outages in these lightings and markings are reported through AIS. However, in cases where the outages are reported in terms of number of lights and not complete outage of the system, operators shall use the following to determine availability of lighting systems;

13.1 A lighting system is deemed to be on outage when:

(a) In the case of a lighting system comprising 6 to 13 lights (e.g. threshold lights) more than 2 lights become unserviceable, or 2 adjacent lights become unserviceable.

(b) In the case of a lighting system comprising more than 13 lights, more than 15% of the lights become unserviceable, or two adjacent lights become unserviceable.

13.2 The lighting system for a precision approach runway category II and/or III is deemed to be on outage when;

(a) More than 5 % of the lights are unserviceable in each of the following particular significant elements;

1) precision approach category II or III lighting system, the inner 450 m;
2) runway centre line lights;
3) runway threshold lights; and
4) runway edge lights.

(b) More than 10 % of the lights are unserviceable in the touchdown zone lights;

(c) More than 15 % of the lights are unserviceable in the approach lighting system beyond 450 m; and

(d) More than 25 % of the lights are unserviceable in the runway end lights.

(e) More than two lights, or two adjacent lights of a stop bar are unserviceable.

(f) Two adjacent lights of the taxiway centre line lights are unserviceable.

Note: When any two consecutive lights are unserviceable in any of the significant elements, the system is deemed to be on outage.

14. Table 4: Minima values in table 4 may be RVR/CMV/Visibility. However, for values below 800m the reported value should derived from an instrumented RVR system. In the absence of an instrumented RVR system, human observer RVR system shall be used for minima values less than 800m.

15. Table 5a: Failed or downgraded equipment and the effect on landing minima in Table 5a is to be used when a permanent facility is temporarily downgraded and notified. The table can continue to be used for the period of downgrade.

16. Table 9: Alternate aerodrome operating minima is to be used as a planning tool for dispatch of a flight. After commencement of flight, the authorized DA/H or MDA/H for the approach and associated visibility/RVR may be used.

17. Table 10: Pilot Assessment of equivalent TDZ RVR:
For takeoff circumstances where TDZ RVR is inoperative or is determined by the pilot to be significantly in error (e.g., patchy fog obscuring a transmissometer but not the runway, snow on transmissometer causing erroneous readings), a pilot assessment may be made in lieu of RVR subject to the following;

17.1 To be eligible to use this provision the operator must ensure that each pilot authorized to make this determination has completed approved training addressing pilot procedures to be used for visibility assessment in lieu of RVR, and the pilot can determine the necessary runway markings or runway lighting that must be available to provide an equivalent RVR to that specified to ensure adequate visual reference for the takeoff. Application of pilot assessment of RVR/visibility of the touch-down zone for take off is to be done by a method specified by the operator (such as counting the number of runway edge/centre line lights).

17.2 When any pilot assessment of equivalent RVR is made, the pilot must be able to positively determine position on the airport and correct runway, and positively establish that the aircraft is at the correct position for initiation of takeoff. Typically this equivalent RVR assessment is applicable only at a runway threshold where runway identifying markings and number(s) are visible from the takeoff position (e.g., not applicable to intersection takeoffs).

17.3 When such a pilot RVR assessment is made, the result of the assessment should typically be provided to any pertinent air traffic facility when practical, and may also be provided to the operator (e.g., dispatch) to facilitate other operations and timely distribution of meteorological information. It is not intended to be a verification of minima or limit or restrict minima for the aircraft making the report.

17.4 Pilot assessment of touchdown zone RVR is to be made only when the mid and roll out zone RVR are reported and both these are not less than 200m.

18. Table 10: LVTO pertains to take off when the RVR is below 400 m and is applicable whenever the reported RVR in any zone (touch-down/mid/roll-out). RVR is below 400 m. The facilities and conditions of Table 10 required will be as per the lowest RVR reported in any zone (e.g. if the RVR is 400/300/300 representing the three zones, then the 300 m will be the RVR for reckoning facilities and conditions of Table 10. If the RVR is 300/150/Not Reported, then 150 m will be the reckoning RVR and as the RVR is below 200 m all three RVRs are required).

19. Para 14.2: The operator while considering the requirement of selecting and specifying a take off alternate must consider all situations wherein an aeroplane cannot land at the aerodrome of departure. This includes, but is not limited to weather conditions below CAT I minima, performance limitations, landing minima being higher than reported RVR/visibility. Take off alternate needs to be specified in the ATS flight plan and the OFP. The OFP need not have a detailed navigation log for the take off alternate.

20. Para 14.4: The minimum visibility/RVR for take off table is to be used by scheduled operators using facilities which meet CAR Section 4 Series B Part I provisions. The minimum visibility/RVR for take off by non-scheduled and general aviation operators is 500m.