

BL 5-60

Regulations on IFR flights with aeroplanes not operated in accordance with commercial air transport rules

Edition 2, 12 December 2008

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In pursuance of § 82 of the Air Navigation Act, cf. Consolidation Act no. 731 of 21 June 2007, the Civil Aviation Administration - Denmark hereby stipulates as follows on the authority of the Ministry of Transport, cf. Order no. 1597 of 18 December 2007 on the Civil Aviation Administration - Denmark's tasks and authorities, on publication of the Regulations issued by the Administration and on the access to complain:

1. Reference documents

1.1 ICAO Annex 2, Rules of the Air, latest edition.

1.2 ICAO Annex 6, Operation of Aircraft, Part II, International General Aviation - Aeroplanes, latest edition.

1.3 Regulation (EC) No 1899/2006 of the European Parliament and of the Council of 12 December 2006 amending Council Regulation (EEC) No 3922/91 on the harmonisation of technical requirements and administrative procedures in the field of civil aviation, cf. Appendix III. In this BL referred to as EU-OPS.

1.4 BL 1-1, Regulations on maintenance and modification of aircraft, latest edition.

1.5 BL 1-12, Regulations on airworthiness certificate and flight permit as well as airworthiness requirements, generally, latest edition.

1.6 BL 5-50, Regulations on approval of operators to carry out commercial air transportation according to JAR-OPS 1 and/or JAR-OPS 3, latest edition.

1.7 BL 5-61, Regulations on flights with aeroplanes not operated in accordance with commercial air transport rules, latest edition.

1.8 BL 7-1, Regulations on air traffic rules, latest edition.

1.9 Aeronautical Information Circular (AIC) A on use of GPS-based RNAV non-precision instrument approach procedures, latest edition.

1.10 The documents mentioned in paragraphs 1.1 and 1.2 are available on the Civil Aviation Administration - Denmark's homepage www.slv.dk and can further be obtained on application to

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1.11 The document mentioned in paragraph 1.3 is available on the Civil Aviation Administration - Denmark's homepage www.slv.dk and on the EU's homepage www.eur-lex.europa.eu.

1.12 The documents mentioned in paragraphs 1.4 - 1.9 are available on the Civil Aviation Administration - Denmark's homepage www.slv.dk and, as regards the documents mentioned in paragraphs 1.4 - 1.8, also on Legal Information's homepage www.retsinformation.dk. Further, the documents can be obtained on application to

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2. Definitions

Aeroplane categories - All Weather Operations:

The criteria to be taken into consideration in connection with classification of aeroplanes in categories are the given speed when passing threshold (V_{at}), which equals the stall speed (V_{SO}) multiplied by 1,3, or V_{S1g} multiplied by 1,23 in landing configuration with maximum certified landing weight. If both V_{SO} and V_{S1g} are known, the higher V_{at} shall be used.

The aeroplane categories corresponding to V_{at} values are mentioned in the below table:

Table 1

Aeroplane category	V_{at} kt
A	< 91
B	91 - 120
C	121 - 140
D	141 - 165
E	166 - 210

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. Alternate aerodromes include the following:

- a. **Take-off alternate:**
An alternate aerodrome at which an aircraft can land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure.
- b. **En-route alternate:**
An alternate aerodrome at which an aircraft can land should an abnormal situation or emergency arise when flying en-route.
- c. **ETOPS (Extended Range Twin Engine Operations) en-route alternate:**
An appropriate and suitable alternative aerodrome at which an aircraft during an ETOPS flight can land after loss of an engine or should an abnormal situation or emergency arise.
- d. **Destination alternate:**
An alternate aerodrome to which an aircraft may proceed 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 destination alternate aerodrome for that flight.

Category I operation:

A precision instrument approach with a decision height not lower than 60 m (200 ft) above

the elevation of the threshold and with a runway visual range not less than 550 m.

Ceiling:

The altitude or height of the lower edge of the lowest cloud layer below 6000 m (20,000 ft) covering more than half of the sky.

Circling:

A manoeuvre with visual reference used after an instrument approach to bring an aircraft in position to land at another runway than the one to which the instrument approach was made.

Decision altitude (DA) or decision height (DH):

A specified altitude over the sea (DA) or height over the ground (DH) in the precision approach at which a missed approach must be initiated if the required visual reference to continue the approach has not been established.

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

Final approach:

The part of an instrument approach procedure starting at the specified final approach point and ending at a point near the aerodrome from which landing can be made, or procedure for abandoned approach is commenced. If no final approach point has been specified, final approach commences

- a. when the last procedure or base turn is finalised, or
- b. at the point where the aircraft commences following the last track specified in the approach procedure.

Final approach fix/final approach point - FAF/FAP:

The point of a non-precision approach or alternatively of a precision approach from where final approach is commenced.

GNSS - Global Navigation Satellite System:

A satellite based navigation system

Holding procedure:

A pre-determined manoeuvre keeping the aircraft within a specified airspace while waiting for further clearance.

Instrument approach procedure:

A series of pre-determined manoeuvres carried using flight instruments. The manoeuvres are protected against obstacles from the approach point or from the commencement of a fixed approach path to a point from which landing can be carried out, and in case landing cannot be carried out, to a position where the criteria for obstacle clearance, circling or stretch flight apply.

Low visibility procedures - LVP:

Procedures applied at an aerodrome for the purpose of ensuring safe operations during Category II and III approaches and Low Visibility Take-offs.

Low Visibility Take-Off - LVTO:

A take-off where the runway visual range (RVR) is less than 400 m.

Meteorological information:

Meteorological reports, analysis, forecasts and any other statement relating to existing or expected meteorological conditions.

Minimum descent altitude/Minimum descent height - MDA/H):

A specified altitude or height in a non-precision approach or circling below which descent must not be made without the required visual reference.

Non-precision approach:

An instrument approach during which one or more radio navigation aids are used which only provide current information on the aircraft's lateral deviations from the intended approach line (NDB, VOR, SRE, ILS without GP, GNSS and similar aids).

Obstacle clearance altitude/height - OCA/OCH):

The lowest altitude above the sea (OCA) 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.

Operator:

A person, organisation or enterprise engaged in or offering to engage in an aircraft operation.

Pilot-in-command:

The pilot designated by the operator or, for private flights, by the owner of the aircraft as being in command and charged with the safe conduct of a flight.

Precision approach:

An instrument approach during which radio aids are used currently giving information about

1. an aircraft's lateral deviations from the intended approach line and
2. its vertical deviations from the intended glide path (ILS or PAR).

QNH:

The atmospheric pressure reduced to mean sea level in accordance with the standard atmosphere.

Runway lights:

Runway lights consist as a minimum of runway edge lights, threshold lights and runway end lights.

Runway visual range - RVR:

The range over which the pilot of an aircraft on the centre line of a runway can see the runway surface markings or the lights delineating the runway or identifying its centre.

Separate runways:

Runways at the same aerodrome is considered to be separate when

- a. they are separate landing strips which intersect in such a way that if one of the runways is blocked, this does not prevent the planned type of operation on the other runway, and
- b. each of the landing strips has an separate approach procedure based on a separate approach aid.

State Minima:

In this BL State Minima shall mean approach and take-off minima for certain aerodromes determined by the state in question.

Vat:

Speed at threshold based on 1.3 times the stalling speed in landing configuration with maximum certified landing weight.

Note: Se also "Aeroplane category".

Vertical visibility:

The vertical distance expressed in units of length at which it is possible, depending on atmospheric circumstances, at daytime to identify conspicuous, not illuminated items and at night conspicuous, illuminated items.

Note: Vertical visibility is only specified when the sky is hidden by fog, fall etc. and it therefore is not possible to identify and report about clouds.

Visibility:

The visibility for aeronautical purposes which according to a. or b. 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: With a given extinction coefficient (an expression for when the light can no longer be observed by the human eye), the two distances have different values measured in air. The distance mentioned in b. varies with the background illumination. The distance mentioned in a. is represented by the meteorological optical range (MOR).

Note 2: The definition includes observations of visibility in local routine and special reports, observations of prevailing and minimum visibility reported in METAR and SPECI as well as observations of ground visibility.

Visual approach:

An approach in which either part or all of an instrument approach procedure is not completed, and the approach is executed with visual reference to the terrain.

Visual meteorological conditions - VMC:

Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, equal to or better than specified minima.

See also Appendix 2 to this BL.

3. Applicability

3.1 This BL lays down regulations for IFR flights with Danish registered aeroplanes not operated in accordance with commercial air transport rules, including regulations on planning and operational minima for take-off and landing.

3.1.1 When flying IFR with aeroplanes within Danish territory, the provisions in this BL and in BL 5-61 shall be observed.

3.1.2 When flying IFR with aeroplanes over a foreign state's territory, the provisions in this BL and in BL 5-61 shall be observed with any more stringent deviations that may be stipulated for IFR operations by the state in question.

3.1.3 When flying IFR over open sea and areas where no state exercises sovereignty, the provisions in this BL and in BL 5-61 shall be observed with any more stringent deviations that may be stipulated within each flight information region (FIR) for IFR operations by the appropriate ATS authority.

4. Flight planning

4.1 Responsibility of the pilot-in-command

4.1.1 The pilot-in-command shall be responsible for the provisions in this BL being observed.

4.1.2 Before commencement of a flight the pilot-in-command shall learn about the proce-

dures that may be used in connection with take-off, landing and missed approach at the aerodromes mentioned in the operational flight plan, cf. paragraph 4.5.

4.1.2.1 The pilot-in-command shall

- a. establish planning minima, cf. paragraph 4.6, and
- b. establish the operating minima, cf. Part 6, to be applicable when commencing the relevant take-off and approach procedures.

4.1.3 When fixing the aerodrome operational minima, the relevant state's AIP or an acceptable route manual system shall be used.

Note: Information whether a route manual system has been accepted or can be accepted can be obtained from the Civil Aviation Administration - Denmark.

4.2 Minimum flight altitudes

Except when necessary for take-off or landing, or except when specifically authorised by the Civil Aviation Administration - Denmark, an IFR flight shall be flown,

- a. over terrain or in mountainous areas higher than 1800 m (6,000 ft), at a level which is at least 600 m (2,000 ft) above the highest obstacle located within 8 km (4,3 NM) of the estimated position of the aircraft,
- b. elsewhere than as specified in a., at a level which is at least 300 m (1,000 ft) above the highest obstacle located within 8 km (4,3 NM) of the estimated position of the aircraft.

4.3 Aircraft and ground equipment

4.3.1 Radio and navigation equipment

4.3.1.1 The aircraft radio and navigation equipment shall meet the requirements stipulated for the planned flight, cf. BL 1-12.

4.3.1.2 If RNAV non-precision instrument approach procedures are based on GNSS, the guidelines for use of GNSS-based RNAV published at any time shall be followed..

Note: The guidelines for use of GNSS based RNAV are published in AIC Series A, latest edition.

4.3.2 Ground equipment

As regards failed or downgraded ground equipment, see Appendix 3.

4.4 Selection of aerodrome

4.4.1 An IFR flight shall be planned with at least one take-off alternate aerodrome if after departure it would not be possible to return to the aerodrome of departure because of the meteorological conditions or for other reasons.

4.4.2 The take-off alternate aerodrome shall be located less than one hour's flight from the aerodrome of departure.

4.4.2.1 For two-engine aeroplanes the calculation of the distance to the take-off alternate aerodrome shall be based on cruise speed with one engine inoperative at standard atmosphere and at planned take-off mass.

4.4.3 The pilot-in-command shall select at least one destination alternate aerodrome for each IFR flight, unless

- a. the destination aerodrome has an approved standard instrument approach procedure,
- b. the duration of the planned flight from take-off to landing does not exceed 6 hours,
- c. two separate runways are available and usable at the destination, and
- d. the meteorological conditions at the destination are such that the ceiling in the period from two hour before to two hour after the estimated time of arrival to the destination is at least

the circling altitude plus 500 ft or 2000 ft, whichever is the higher, and visibility is at least 5 km.

4.4.3.1 The pilot-in-command shall select two destination alternate aerodromes when

- a. the weather reports or forecasts at the destination or a combination of the reports indicate that the weather conditions for a period starting one hour before and ending one hour after the estimated time of arrival will be below the existing planning minima, or
- b. no meteorological information about the destination aerodrome are available.

4.4.3.2 If an instrument approach to a destination aerodrome can only be made by use of GNSS based RNAV, plans shall be made with at least one alternate aerodrome where another instrument approach procedure than GNSS based RNAV can be made.

4.5 Operational flight plan

4.5.1 An operational flight plan shall be prepared documenting that the flight can be completed as planned.

4.5.2 The operational flight plan shall at least contain the following information:

- a. Aircraft registration.
- b. Aircraft type.
- c. Date of flight.
- d. Name(s) of flight crew member(s).
- e. Aerodrome of departure, destination aerodrome and, if relevant, destination alternate aerodrome(s).
- f. Time of departure.
- g. Route and route sectors with check points, tracks and distances to both

destination and destination alternate aerodromes.

- h. Minimum flight level and planned flight level.
- i. Planned cruising speed and planned flight time between check points.
- j. Fuel calculation.

4.5.3 For local flights in connection with maintenance of licence, training flights and school flights the operational flight plan requirement is considered met if the information in paragraph 4.5.2 a., b., c., d., e., f. and j. appear from the lesson plan or personal log.

4.5.4 During flight the operational flight plan shall continuously be completed with estimated and actual times over check points, and the fuel control made during flight shall also appear from the flight plan.

4.5.4.1 If during flight new planning is made, this shall appear from the flight plan.

4.5.5 Operational flights plans not covered by paragraph 4.5.3 shall be kept for at least 3 months.

4.6 Planning minima for flights

4.6.1 *Destination and destination alternate aerodromes, general*

4.6.1.1 The pilot-in-command should only select destination and/or destination alternate aerodrome(s) where the appropriate weather reports or forecasts, or any combination thereof, indicate that, for the period from one hour before until one hour after the estimated time of arrival at the aerodrome, the weather conditions will be at or above the planning minima given in paragraphs 4.6.2 and 4.6.3.

4.6.1.2 For a non-precision approach or a circling approach, the ceiling should be at or above MDH.

4.6.2 Destination aerodrome

Runway Visual Range (RVR), visibility and, where applicable, ceiling shall be as stated in Table 2a.

Table 2a

Planning minima - destination aerodrome and departure alternate aerodrome		
Type of approach	Planning minima	Limiting parameters
Precision	In accordance with paragraphs 6.3 and 6.8 and appendix 2	RVR/visibility
Non-precision	In accordance with paragraphs 6.2 and 6.8	RVR/visibility and ceiling
Circling	In accordance with paragraph 6.5	RVR/visibility and ceiling

4.6.3 Destination alternate aerodrome

RVR, visibility and, where applicable, ceiling shall be as stated in Table 2b.

Table 2b

Planning minima - destination alternate aerodrome		
Type of approach	Planning minima	Limiting parameters
Category II and III	Category I	RVR/visibility
Category I	Non-precision	RVR/visibility and ceiling
Non-precision	Non-precision plus 1000 m/200 ft	RVR/visibility and ceiling
Circling	Circling	Visibility and ceiling

4.7 Weather conditions

A flight to be operated in known or expected icing conditions shall not be commenced unless the aircraft is adequately equipped to cope with such conditions, or unless the crew will be able to change the planned flight so that such areas are avoided.

5. Execution of flight

5.1 Commencement and continuation of flight

5.1.1 The pilot-in-command shall not commence a flight unless information is available indicating the expected weather conditions at the destination and/or required destination alternate aerodrome(s) will be at or above the applicable planning minima.

5.1.2 The pilot-in-command shall not continue a flight towards the destination aerodrome unless information is available indicating that the expected weather conditions at the destination or, where applicable, at least one destination alternate, will be at or above the applicable aerodrome operating minima.

5.1.3 When no aerodrome forecast is available, the aerodrome shall be considered to be below minima as regards planning. If the flight time does not exceed one hour, the flight planning may, however, be based on actual weather reports from the destination aerodrome.

Note: Such planning requires careful consideration of all relevant data, such as the general weather situation and its expected development, aspects determined by the time of the year and of the day etc.

5.2 Commencement and continuation of approach

5.2.1 The pilot-in-command shall not commence an approach if the nominal descent slope for the approach exceeds 4.5°, corresponding to 7.8% glide path gradient, unless authorised by the Civil Aviation Administration - Denmark.

5.2.2 The pilot-in-command may commence an instrument approach regardless of the reported RVR/visibility, but the approach should not be continued past outer marker or corresponding position if the reported RVR/visibility is less than the applicable minima.

Note: The above-mentioned corresponding position may be determined by use of a DME distance, a suitably located NDB or VOR, SRE or PAR bearing or other suitable bearing which independently establishes the position of the aeroplane.

5.2.3 Where RVR is not available, an RVR value may be derived by converting the reported visibility in accordance with paragraph 6.9.

5.2.4 Even though, after passing outer marker or corresponding position mentioned in paragraph 5.2.2, the reported RVR/visibility drops to below the applicable minimum, approach may be continued to decision altitude/height (DA/H) or minimum descent altitude/height (MDA/H).

5.2.5 If there is no outer marker or corresponding position, the pilot-in-command shall decide whether the flight should be continued or whether approach should be missed before descent to below 1000 ft above the aerodrome on final approach. If MDA/H is equal to or above 1000 ft above the aerodrome, the operator shall determine a level for each approach procedure during which the approach must not be continued if RVR/visibility is below the applicable minima.

5.2.6 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.

5.2.7 RVR for touch down zone shall always be controlling. If RVR for mid point and stop end is reported and relevant, these shall also be controlling. Minimum value for RVR for mid point is 125 m or the RVR required for the touchdown zone, if the latter is lower, and 74 m for stop end. For aeroplanes equipped with "roll out" guidance or control system, minimum value for RVR for mid point is 75 m.

Note: "Relevant" in this paragraph shall mean the part of the runway used in the high-speed phase of the landing down to a speed of approximately 60 kts.

5.3 Procedure for conversion to VFR after cloud passage on descent

5.3.1 The following procedure for descending through clouds may be used:

- a. Obtain QNH from the air traffic control (ATC),
- b. descend to minimum flight level as stated in paragraph 4.5.2 h. in coordination with the air traffic control service,
- c. when conversion is made to visual meteorological conditions (VMC) below clouds, cancel IFR flight plan at the air traffic control service, and
- d. continue in accordance with the visual flight rules (VFR).

5.3.2 Descent to lower levels than stated in paragraph 5.3.1 b. requires permission from the Civil Aviation Administration - Denmark.

6. Operating minima for take-off and approach

6.1 Take-off minima

6.1.1 Take-off minima, general

6.1.1.1 The values for ceiling and RVR for take-offs from an airport not equipped for IFR flights shall be such that climb can be per-

formed in observance of the VFR rules in BL 5-61.

6.1.1.2 When the reported meteorological visibility is below that required for take-off and RVR is not reported, a take-off must not be commenced unless the pilot-in-command can determine that the RVR/visibility for the take-off runway is equal to or better than the required minimum.

6.1.1.3 When no reported meteorological visibility or RVR is available, a take-off must

not be commenced unless the pilot-in-command can determine that the RVR/visibility for the take-off runway is equal to or better than the required minimum.

6.1.2 Required RVR/visibility

6.1.2.1 The pilot-in-command must not commence a take-off if the RVR/visibility is less than the values given in Table 3.

Table 3

Minimum RVR/visibility for take-off	
RVR/visibility (notes 1 and 6)	Facilities
500 m	Nil (day only)
250/300 m (notes 2, 3, and 5)	Runway edge lighting and/or centreline marking
200/250 m (note 3)	Runway edge and centreline lighting (lights must be on)
150/200 m (notes 3 and 4)	Runway edge and centreline lighting (lights must be on) and multiple RVR information

Note 1: The reported RVR/visibility value representative of the initial part of the take-off run can be replaced by pilot assessment.

Note 2: For night operations at least runway edge and end lights are required, and the lights must be on.

Note 3: The higher values apply to Category D and E aeroplanes.

Note 4: The required RVR value should be achieved for all of the relevant RVR reporting points with the exception given in Note 1.

Note 5: For take-off with RVR less than 400 m, aerodrome low visibility procedures (LVPs) should be in force.

Note 6: For multi-engine aeroplanes whose performance is not sufficient to clear all obstacles in the event of a critical power unit failure, there may be a need to see and avoid obstacles in the take-off area in order to re-land immediately or to manoeuvre past the obstacles by visual reference. In such a case

the visibility should be increased in relation to the performance available and obstacle situation. Consideration should also be given to increasing the RVR and/or determining a ceiling in order to comply with the obstacle clearance criteria or to achieve a safe forced landing.

6.1.2.2 For take-off with RVR values less than the ones stated in Table 3, appendix 2 shall apply.

6.2 Non-precision approach

6.2.1 Minimum descent height

The pilot-in-command shall ensure that the minimum descent height for non-precision approach is not lower than either

- a. the obstacle clearance height (OCH) for the category of aeroplane, or
- b. the system minimum according to Table 4.

Table 4

System minima for non-precision approach aids	
Facilities	Lowest MDH
ILS with no glidepath (LLZ)	250 ft
SRA (terminating at ½ NM)	250 ft
SRA (terminating at 1 NM)	300 ft
SRA (terminating at 2 NM)	350 ft
VOR	300 ft
VOR/DME	250 ft
NDB	300 ft
VDF (QDM and QDR)	300 ft
RNAV (GPS)	250 ft

6.2.2 Visual reference

The approach must not be continued 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 for 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, or
- j. other visual references accepted by the Civil Aviation Administration - Denmark.

6.2.3 Visual aids for non-precision approach

The visual aids related to determination of minimum RVR for a non-precision approach are classified as Full, Intermediate, Basic and Nil in accordance with Table 5.

Table 5

Visual aids for determination of RVR for non-precision and Category I precision approaches			
Class of facility	Length of approach lights (m)	Components included	Remarks
Full	720 or more	HI/MI approach lights, runway marking, runway edge, threshold and end lights	Lights must be on
Intermediate	420 - 719		
Basic	<420		
	Any length	LI approach lights, runway marking, runway edge, threshold and end lights	
Nil	None	Runway markings, runway edge, threshold end and end lights or no lights	Lights must be on for night operations

6.2.4 Required RVR

6.2.4.1 The lowest minima to be used by an operator for non-precision approaches are:

Table 6a

Non-precision approach minima -Full facilities (See table 5) Notes 1 and 2				
MDH (FT)	RVR/aeroplane category (m)			
	A	B	C	D
250 - 299	800	800	800	1200
300 - 449	900	1000	1000	1400
450 - 649	1000	1200	1200	1600
650 and above	1200	1400	1400	1800

Table 6b

Non-precision approach minima - Intermediate facilities (See table 5) Notes 1 and 2				
MDH (FT)	RVR/aeroplane category (m)			
	A	B	C	D
250 - 299	1000	1100	1200	1400
300 - 449	1200	1300	1400	1600
450 - 649	1400	1500	1600	1800
650 and above	1500	1500	1800	2000

Table 6c

Non-precision approach minima - Basic facilities (See table 5) Notes 1 and 2				
MDH (FT)	RVR/aeroplane category (m)			
	A	B	C	D
250 - 299	1200	1300	1400	1600
300 - 449	1300	1400	1600	1800
450 - 649	1500	1500	1800	2000
650 and above	1500	1500	2000	2000

Table 6d

Non-precision approach minima - Nil facilities (See table 5) Notes 1 and 2				
MDH (FT)	RVR/aeroplane category (m)			
	A	B	C	D
250 - 299	1500	1500	1600	1800
300 - 449	1500	1500	1800	2000
450 - 649	1500	1500	2000	2000
650 and above	1500	1500	2000	2000

Note 1: The tables are only applicable to conventional flights with a nominal descent slope of not greater than 4°. Greater descent slopes will usually require that visual glide slope guidance (e.g. PAPI) is also visible at the minimum descent height (MDH).

Note 2: The above figures are either reported RVR or meteorological visibility converted to RVR as in paragraph 6.9 below.

6.2.4.2 When selecting an RVR associated with a particular MDH, there is no need to take account of a rounding up to the nearest 10 FT, which may be done for operational purposes, e.g. conversion to MDA.

6.3 Precision approach - Category I

6.3.1 General

A Category I operation is a precision instrument approach and landing using ILS, MLS or PAR with a decision height not lower than 200 FT and with a runway visual range not less than 550 m.

6.3.2 Decision height

6.3.2.1 The pilot-in-command shall ensure that the decision height to be used for a Category I precision approach is not lower than

- a. the minimum height to which the precision aid can be used without the required visual reference,
- b. obstacle clearance height (OCH) for the category of aeroplane, or
- c. 200 FT.

6.3.3 Visual aids for Category I precision approaches

The visual aids related to the determination of minimum RVR for a Category I precision approach are classified as Full, Intermediate, Basic and Nil in accordance with Table 5.

6.3.4 Visual reference

The approach must not be continued below the Category I decision height, determined in accordance with paragraph 6.3.2, 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, or
- i. the runway edge lights

6.3.5 Required RVR

6.3.5.1 The lowest minima to be used by an operator for Category I operations are stated in Table 7.

Table 7

Decision height (DH) FTt)	Facilities/RVR (m) (See Table 5)			
	Full (Table 5)	Intermediate (Table 5)	Basic (Table 5)	Nil (Table 5)
200	550	700	800	1000
201-250	600	700	800	1000
251-300	650	800	900	1200
301 and above	800	900	1000	1200

Note 1: The Table is applicable to conventional approaches with a glide slope angle up to and including 4°.

Note 2: The above figures are either reported RVR or meteorological visibility converted to RVR in accordance with paragraph 6.9.

6.3.5.2 When selecting an RVR associated with a particular DH, there is no need to take account of a rounding up to the nearest 10 FT, which may be done for operational purposes, e.g. conversion to DA.

6.3.5.3 If a Category I precision approach shall be carried out with an aeroplane where the crew consists of one pilot, the reported RVR shall be at least 800 m, unless the runway in question is equipped with centreline and touchdown zone lights, or if an autopilot is used that is fitted up to operate the instrument approach procedure to the DA and that during flight is coupled to the aid. Requirements for minimum RVR as stated in Table 7 shall always be met.

6.3.5.3.1 If the aircraft is fitted with autopilot coupled to the aid (ILS/MLS), the lowest DH must not be lower than the lowest declutching height stated in the flight manual. For autopilots where "minimum use height" is stated, DH shall be at least 1.25 times this value.

6.4 Precision approach - Category II and III

Precision approach and landing where DH and RVR are lower than the values stated in paragraph 6.3.1 must only be carried out by operators approved to do so by the Civil Aviation Administration - Denmark. For such operations Appendix 2 shall apply.

6.5 Circling

6.5.1 General

The established procedures for circling and missed approach shall be complied with.

6.5.2 Minimum descent height (MDH) for circling

6.5.2.1 Minimum descent height (MDH) for circling must not be determined lower than the minimum circling height or OCH for the category of aeroplane published by the appropriate civil aviation authority.

6.5.2.2 Minimum descent height (MDH) must never be determined lower than the values in the below-mentioned Table where visibility (VIS) is related to the category of aeroplane.

Table 8

Visibility and minimum descent height (MDH) for circling vs. aeroplane category				
	Aeroplane category			
	A	B	C	D
Minimum descent height (MDH) (FT)	400	500	600	700
Minimum meteorological visibility (m)	1500	1600	2400	3600

6.5.3 Missed approach

If the visual reference to the runway, runway light systems or any circling aids specifically specified by the authority is lost during a circling manoeuvre, a pre-determined procedure for missed approach shall be commenced.

6.6 Visual manoeuvring with prescribed tracks

6.6.1 In those locations where clearly defined visual features permit, and if it is operationally desirable, the national civil aviation authority may prescribe a specific track for visual manoeuvring in addition to the circling area.

6.6.2 This procedure shall be described for each aircraft category or groups of categories (e.g. A and B) on a special chart on which the visual features used to define the track or other characteristic features near the track are shown.

Note 1: Navigation is primarily by visual reference and any radio navigation information presented is advisory only.

Note 2: Missed approach for normal approach procedure applies, but the prescribed tracks provide for manoeuvring to allow for a go-around and to achieve a safe altitude/height thereafter joining the downwind leg of the prescribed track procedure or the missed approach trajectory.

6.6.3 Since visual manoeuvring with prescribed track is intended for use where special terrain features warrant such a procedure, it is necessary for the flight crew to be

familiar with the terrain and visual cues to be used in weather conditions above the aerodrome operational minima prescribed for this procedure.

6.7 Visual approach

Minimum RVR for performing a visual approach is 800 m.

6.8 State Minima

For aerodromes for which State Minima have been stated, approach and take-off must not be commenced unless the values given for ceiling and visibility are also equal to or greater than the State Minima fixed by the appropriate aerodrome.

Note: In Denmark State Minima have at present only been fixed for aerodromes in the Faeroe Islands and in Greenland.

6.9 Conversion of meteorological visibility to RVR

6.9.1 The pilot-in-command shall ensure that a meteorological visibility to RVR conversion is not used for calculating take-off minima, Category II or III minima, when a reported RVR is available or when State Minima have been fixed.

6.9.2 When converting meteorological visibility to RVR in all other circumstances than those in paragraph 6.9.1, the pilot-in-command shall ensure that the conversion factor in Table 9 is used, i.e. the calculated

RVR equals meteorological visibility multiplied by the conversion factor.

Table 9

Conversion of visibility to RVR		
Lighting system in operation	Conversion factor	
	Day	Night
High intensity approach and runway lighting	1.5	2.0
Any other type of lighting than above	1.0	1.5
No lighting	1.0	Not allowed

Note: Night is the period from sunset to sunrise or any other period of time stated by the appropriate authority.

7. Fuel planning

7.1 Fuel supply

7.1.1 Sufficient usable fuel and oil shall be carried to cover the planned consumption from take-off to the destination aerodrome and further to the destination alternate aerodrome situated furthest away from the destination aerodrome, and usable fuel and oil for further

- a. 45 minutes' flight at 1,500 FT above the surface of the earth for aircraft with piston engine(s), and
- b. 30 minutes' flight at 1,500 FT above the surface of the earth for aircraft with turbine(s).

7.1.2 If an IFR-flight can be carried out without alternate aerodrome, cf. paragraph 4.4.3, sufficient usable fuel and oil shall be carried to cover the planned consumption from take-off to the destination aerodrome, and fuel and oil for further

- a. 60 minutes' flight at 1,500 FT above the surface of the earth at the destination aerodrome for aircraft with piston engines, and
- b. 45 minutes' flight at 1,500 FT above the surface of the earth at the destination aerodrome for aircraft with turbines.

7.1.3 If during flight the pilot-in-command decides to continue to another destination aerodrome than the one originally planned, he shall ensure that there is usable fuel and oil on board to cover the planned consumption to the new destination aerodrome and further on to any destination alternate aerodrome, and usable fuel and oil for further

- a. 45 minutes' flight at 1,500 FT above the surface of the earth for aircraft with piston engine(s), and
- b. 30 minutes' flight at 1,500 FT above the surface of the earth for aircraft with turbine(s).

7.1.4 During flight the pilot-in-command shall regularly, however at least once an hour, check the fuel consumption in relation to the planned consumption.

8. Exemption

The Civil Aviation Administration - Denmark may in particularly exceptional cases grant exemption from the regulations in this BL when it is deemed compatible with the considerations on which the regulations in question are based.

9. Punishment

A pilot-in-command violating the regulations in Parts 4 - 7 in this BL will be punished with fine or imprisonment for up to 2 years in pursuance of § 149 (8) of the Air Navigation Act.

10. Implementation

10.1 This BL comes into force on 15 January 2009.

10.2 At the same time BL 5-60, 1 edition of 9 December 2003 is repealed.

Civil Aviation Administration - Denmark, 12 December 2008

Kurt Lykstoft Larsen

/ Per Veingberg

Application of aerodrome forecasts

APPLICATION OF AERODROME WEATHER (TAF & TREND) TO PRE-FLIGHT PLANNING (ICAO Annex 3 refers)

1. APPLICATION OF INITIAL PART OF TAF

- a) **Applicable time period:** From the start of the TAF validity period up to the time is applicability of the first subsequent "FM...*" or "BECMG" or, if no "FM" or "BECMG" is given, up to the end of the validity period of the TAF.
- b) **Application of forecast:** The prevailing weather conditions forecast in the initial part of the TAF should be fully applied with the exception of note 3 below.

2. APPLICATION OF FORECASTS FOLLOWING CHANGE INDICATIONS IN TAF AND TREND

TAF or TREND for aerodrome planned as:	FM (alone) and BECMG AT in case of: Deterioration and improvement	BECMG (alone), BECMG FM, BECMG TL , BECMG FM ...* TL, in case of:		TEMPO (alone), TEMPO FM, TEMPO TL, TEMPO FM ...* TL, PROB30/40 (alone)			PROB TEMPO Deterioration and improvement
		Deterioration	Improvement	Deterioration			
				Transient/showery conditions in connection with short-lived weather phenomena, e.g. thunderstorms, showers	Persistent conditions in connection with e.g. haze, mist, fog, dust/sandstorm, continuous precipitation	Improvement In all cases	
Destination at ETA ±1 hour	Applicable from the start of the change	Applicable from the time of start of the change	Applicable from the time of end of the change	Not applicable	Applicable		Deterioration may be disregarded
Take-off alternate at ETA ± 1 hour	Mean wind: Should be within required limits	Mean wind: Should be within required limits	Mean wind: Should be within required limits	Mean wind and gust exceeding required limits may be disregarded	Mean wind: Should be within required limits	Should be disregarded	Improvement should be disregarded, including mean wind and gusts
Destination alternate at ETA ± 1 hour	Gusts: May be disregarded	Gusts: May be disregarded	Gusts: May be disregarded		Gusts: May be disregarded		

Note 1: "Required limits" are those contained in the aeroplane manual

Note 2: If promulgated aerodrome forecasts do not comply with the requirements of ICAO Annex 3, the pilot-in-command should ensure that guidance is given in the application of these reports is provided.

Note 3: Application of wind: **Mean wind:** Should be within required limits. **Gusts:** May be disregarded. This may, however, be overruled temporarily by a "TEMPO" or "PROB30/40, if applicable according to the table above.

*The space following "FM" should always include a time group, e.g. "FM1030".

Low Visibility Take-Off with RVR less than 150 m (200 m Cat D and E aeroplanes) and Category II/III Operations

- PART 0 Selected definitions**
- PART 1 Approval for LVTO with RVR less than 150 m (200 m Cat D and E aeroplanes) and Cat II/III operations**
- PART 2 Low visibility operations - General operating rules**
- PART 3 Low visibility operations - Aerodrome considerations**
- PART 4 Low visibility operations - Operating Procedures**
- PART 5 Low visibility operations - Minimum equipment**
- PART 6 Low Visibility Operations - Training & Qualifications**
- PART 7 Low Visibility take-off with less than 150 m RVR (200 m Cat D and E aeroplanes)**
- PART 8 Precision approach - Category II operations**
- PART 9 Precision approach - Category III operations**
- PART 10 Recurrent training and checking- Low Visibility Operations**
- PART 11 Recent experience - Low Visibility Operations**
- PART 12 Continuous monitoring - Low visibility operations**

PART 0 Selected definitions

Alert Height. The alert height is a specified radio height, based on the characteristics of the aeroplane and its failoperational landing system. In operational use, if a failure occurred above the alert height in one of the required redundant operational systems in the aeroplane (including, where appropriate, ground roll guidance and the reversionary mode in a hybrid system), the approach would be discontinued and a go-around executed unless reversion to a higher decision height is possible. If a failure in one of the required redundant operational systems occurred below the alert height, it would be ignored and the approach continued.

Commander. The term Commander is used in this document in order to align it with EU-OPS 1 as far as possible. This term is used in EU-OPS 1 to address the one person with the overall responsibility for the safety of a flight. This might otherwise become ambiguous in those cases where an augmented flight crew is used which may consist of more than one person who is qualified in accordance with JAR-FCL, or applicable national regulations, to act as Pilot-in-Command. In most cases the Commander will be synonymous with Pilot-in-Command.

Low Visibility Procedures (LVP). Procedures applied at an aerodrome for the purpose of ensuring safe operations during Category II and III approaches and Low Visibility Take-offs.

Low Visibility Take-Off (LVTO). A take-off where the Runway Visual Range (RVR) is less than 400 m.

Flight control system. A system which includes an automatic landing system and/or a hybrid landing system.

Fail-Passive flight control system. A flight control system is fail-passive if, in the event of a failure, there is no significant out-of-trim condition or deviation of flight path or attitude but the landing is not completed automatically. For a fail-passive automatic flight control system the pilot assumes control of the aeroplane after a failure.

Fail-Operational flight control system. A flight control system is fail-operational if, in the event of a failure below alert height, the approach, flare and landing can be completed automatically. In the event of a failure, the automatic landing system will operate as a fail-passive system.

Fail-operational hybrid landing system. A system which consists of a primary fail-passive automatic landing system and a secondary independent guidance system enabling the pilot to complete a landing manually after failure of the primary system.

Note: A typical secondary independent guidance system consists of a monitored head-up display providing guidance which normally takes the form of command information but it may, alternatively, be situation (or deviation) information.

Category II (CAT II) operation. A precision instrument approach and landing with 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.

Category IIIA (CAT IIIA) operation. A precision instrument approach and landing with

- a. a decision height lower than 30 m (100 ft) or no decision height, and
- b. a runway visual range not less than 200 m.

Category IIIB (CAT IIIB) operation. A precision instrument approach and landing with

- a. a decision height lower than 15 m (50 ft) or no decision height, and
- b. a runway visual range less than 200 m but not less than 75 m.

Note: Where decision height (DH) and runway visual range (RVR) fall into different categories of operation, the instrument approach and landing 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).

Decision altitude (DA) or decision height (DH). A specified altitude or height in the precision approach or approach with vertical guidance 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”.

Operator. A person, organisation or enterprise engaged in or offering to engage in an aircraft operation.

PART 1 Approval for LVTO with RVR less than 150 m (200 m Cat D and E aeroplanes) and Cat II/III operations

- 1.1 LVTO with RVR less than 150 m (200 m Cat D and E aeroplanes) and Cat II/III operations shall only be conducted by an operator nominating a person or persons responsible for flight operations and maintenance. Such operations will require appropriate operational and maintenance procedures to be established. These operations shall be subject to acceptance by the Civil Aviation Administration - Denmark, which may be in the form of a Declaration of Competency.
- 1.2 An operator shall not conduct Category II or III operations unless each aeroplane concerned is certificated for operations with decision heights below 200 ft, or no decision

height, and equipped in accordance with JAR-AWO or an equivalent standard accepted by the Civil Aviation Administration - Denmark,

PART 2 Low visibility operations - General operating rules

- 2.1 An operator shall not conduct Category II or III operations unless
- a. each aeroplane concerned is certificated for operations with decision heights below 200 ft, or no decision height, and equipped in accordance with JAR-AWO or an equivalent standard accepted by the Civil Aviation Administration - Denmark,
 - b. 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,
 - c. the operations are approved by the Civil Aviation Administration - Denmark,
 - d. the flight crew consists of at least 2 pilots, and
 - e. Decision Height is determined by means of a radio altimeter.
- 2.2 An operator shall not conduct low visibility take-offs in less than 150 m RVR (Category A, B and C aeroplanes) or 200 m RVR (Category D aeroplanes) unless approved by the Civil Aviation Administration - Denmark.

PART 3 Low visibility operations - Aerodrome considerations

- 3.1 A commander shall not use an aerodrome for Category II or III operations unless the aerodrome is approved for such operations by the State in which the aerodrome is located.
- 3.2 A commander shall verify that Low Visibility Procedures (LVP) have been established, when planning a flight to an aerodrome where low visibility operations can be expected.

PART 4 Low visibility operations - Operating Procedures

- 4.1 A pilot must follow procedures and instructions to be used for Low Visibility Take-Off and Category II and III operations. These procedures shall contain the duties of flight crew members during taxing, take-off, approach, flare, landing, roll-out and missed approach as appropriate.
- 4.2 The commander shall satisfy himself that
- a. the status of the visual and non-visual facilities is sufficient prior to commencing a Low Visibility Take-Off or a 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 or a Category II or III approach, and

- c. the flight crew members are properly qualified prior to commencing a Low Visibility Take-off in an RVR of less than 150 m (200 m Category D and E aeroplanes) or a Category II or III approach.

4.3 When determining the RVR requirement for a Category II and III approach the following applies:

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 75 m for the stop-end. For aeroplanes equipped with a roll-out guidance or control system, the minimum RVR value of the mid-point is 75 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.

4.4 A commander must ensure that a meteorological visibility to RVR conversion according to paragraph 6.8 of BL 5-60 is not used for calculating take-off minima, or Category II and Category III minima.

PART 5 Low visibility operations - Minimum equipment

5.1 The commander shall have an approved list of minimum equipment that has to be serviceable at the commencement of a Low Visibility Take-off or a Category II or III approach.

5.2 The commander shall satisfy himself that the status of the aeroplane and of the relevant airborne systems is appropriate for the specific operation to be conducted.

5.3 For failed or downgraded ground equipment refer to annex 3.

PART 6 Low Visibility Operations - Training & Qualifications

6.1 General

6.1.1 The operator shall ensure that, prior to conducting Low Visibility Take-off in RVRs below 150 m (below 200 m for Category D and E aeroplanes) or Category II and III operations:

6.1.1.1 Each flight crew member

- a. completes the training and checking requirements described in this Annex including Flight Simulator training in operating to the limiting values of RVR and Decision Height appropriate to the operator's Category II/III approval, and

- b. is qualified in accordance with this Annex .

6.1.1.2 The flight crew qualification is specific to the operation and the aeroplane type.

6.2 Training programmes

- 6.2.1 Flight crew member training programmes for Low Visibility Operations shall include structured courses of ground, Flight Simulator and/or flight training.
- 6.2.2 Flight crew members with no Category II or Category III experience shall complete the full training programme described in paragraphs 6.3, 6.4, and 6.5.
- 6.2.3 Flight crew members with Category II or Category III experience with another operator may undertake an abbreviated ground training course.
- 6.2.4 Flight crew members with Category II or Category III experience with the operator may undertake an abbreviated ground, Flight Simulator and/or flight training course. The abbreviated course shall include at least the requirements of paragraphs 6.3, 6.5.3 a. or 6.5.3 b. as appropriate and 6.6.2.

6.3 Ground Training

Initial ground training course for Low Visibility Operations shall cover at least

- a. the characteristics and limitations of the ILS and/or MLS,
- b. the characteristics of the visual aids,
- c. the characteristics of fog,
- d. the operational capabilities and limitations of the particular airborne system,
- e. the effects of precipitation, ice accretion, low level wind shear and turbulence,
- f. the effect of specific aeroplane malfunctions,
- g. the use and limitations of RVR assessment systems,
- h. the principles of obstacle clearance requirements,
- i. recognition of and action to be taken in the event of failure of ground equipment,
- j. the procedures and precautions to be followed with regard to surface movement during operations when the RVR is 400 m or less and any additional procedures required for take-off in conditions below 150 m RVR (200 m for Category D and E aeroplanes),
- k. the significance of decision heights based upon radio altimeters and the effect of terrain profile in the approach area on radio altimeter readings and on the automatic approach/landing systems,
- l. the importance and significance of Alert Height if applicable and the action in the event of any failure above and below the Alert Height,
- m. the qualification requirements for pilots to obtain and retain approval to conduct Low Visibility Takeoffs and Category II or III operations, and

- n. the importance of correct seating and eye position.

6.4 Flight Simulator training and/or flight training

6.4.1 Flight Simulator and/or flight training for Low Visibility Operations shall include

- a. checks of satisfactory functioning of equipment, both on the ground and in flight,
- b. effect on minima caused by changes in the status of ground installations,
- c. monitoring of automatic flight control systems and autoland status annunciators with emphasis on the action to be taken in the event of failures of such systems,
- d. actions to be taken in the event of failures such as engines, electrical systems, hydraulics or flight control systems,
- e. the effect of known unserviceabilities and use of minimum equipment lists,
- f. operating limitations resulting from airworthiness certification,
- g. guidance on the visual cues required at decision height together with information on maximum deviation allowed from glidepath or localiser, and
- h. the importance and significance of Alert Height if applicable and the action in the event of any failure above and below the Alert Height.

6.4.2 Each flight crew member shall be trained to carry out his duties and instructed on the co-ordination required with other crew members. Maximum use should be made of suitably equipped Flight simulators for this purpose.

6.4.3 Training shall be divided into phases covering normal operation with no aeroplane or equipment failures but including all weather conditions which may be encountered and detailed scenarios of aeroplane and equipment failure which could affect Category II or III operations. If the aeroplane system involves the use of hybrid or other special systems (such as head up displays or enhanced vision equipment) then flight crew members shall practise the use of these systems in normal and abnormal modes during the Flight Simulator phase of training.

6.4.4 Incapacitation procedures appropriate to Low Visibility Take-offs and Category II and III operations shall be practised.

6.4.5 Training for LVP should preferably be conducted in an approved Flight Simulator.

6.4.5.1 For aeroplanes with no type specific Flight Simulator, the flight training phase specific to the visual scenarios of Category II operations shall be conducted in a Flight Simulator approved for that purpose by the Civil Aviation Administration - Denmark. Such training shall include a minimum of 4 approaches. The training and procedures that are type specific shall be practised in the aeroplane.

6.4.6 Category II and III training shall include at least the following exercises without failures:

- a. Approach using the appropriate flight guidance, autopilots and control systems installed in the aeroplane, to the appropriate decision height and to include transition to visual flight and landing,
- b. approach with all engines operating using the appropriate flight guidance systems, autopilots and control systems installed in the aeroplane down to the appropriate decision height followed by missed approach, all without external visual reference,
- c. where appropriate, approaches utilising automatic flight systems to provide automatic flare, landing and roll-out, and
- d. normal operation of the applicable system both with and without acquisition of visual cues at decision height.

6.4.7 Subsequent phases of training shall include at least the following failure conditions:

- a. Approaches with engine failure at various stages on the approach,
- b. approaches with critical equipment failures (e.g. electrical systems, autoflight systems, ground and/or airborne ILS/MLS systems and status monitors),
- c. approaches where failures of autoflight equipment at low level require either,
 - i. reversion to manual flight to control flare, landing and roll out or missed approach, or
 - ii. reversion to manual flight or a downgraded automatic mode to control missed approaches from, at or below decision height including those which may result in a touchdown on the runway,
- d. failures of the systems which will result in excessive localiser and/or glideslope deviation, both above and below decision height, in the minimum visual conditions authorised for the operation. In addition, a continuation to a manual landing shall be practised if a head-up display forms a downgraded mode of the automatic system or the head-up display forms the only flare mode, and
- e. failures and procedures specific to aeroplane type or variant.

6.4.8 The training programme shall provide practice in handling faults which require a reversion to higher minima.

6.4.9 The training programme shall include the handling of the aeroplane when, during a fail passive Category III approach, the fault causes the autopilot to disconnect at or below decision height when the last reported RVR is 300 m or less.

6.4.10 Where take-offs are conducted in RVRs of less than 400 m and below, training shall be established to cover systems failures and engine failure resulting in continued as well as rejected take-offs.

6.5 Low visibility Conversion Training

- 6.5.1 To conduct Low Visibility Take-off and Category II and III Operations, each flight crew member shall complete the following Low Visibility Procedures training if converting to a new type or variant of aeroplane in which Low Visibility Take-off and Category II or III Operations will be conducted. A flight crew member with previous experience may undertake an abbreviated course as described in paragraphs 6.2.3 and 6.2.4 above:
- 6.5.2 Ground Training shall include the appropriate requirements described in paragraph 6.3 above, taking into account the flight crew member's Category II and Category III training and experience.
- 6.5.3 Flight Simulator Training and/or Flight training shall be performed as follows:
- a. A minimum of 8 approaches and/or landings in a Flight Simulator approved for the purpose.
 - b. Where no type-specific Flight Simulator is available, a minimum of 3 approaches including at least 1 go-around in the aeroplane.
 - c. Appropriate additional training if any special equipment is required such as head-up displays or enhanced vision equipment is to be used.

6.6 Flight Crew Qualification

- 6.6.1 The flight crew qualification requirements are specific to the operator and the type of aeroplane operated.
- 6.6.2 The operator shall ensure that each flight crew member completes a check before conducting Category II or III operations.
- 6.6.3 The check described in paragraph 6.6.2 above may be replaced by successful completion of the Flight Simulator and/or flight training described in paragraph 6.5.3 above.

6.7 Line Flying under Supervision

An operator must ensure that each flight crew member undergoes the following line flying under supervision:

- a. For Category II when a manual landing is required, a minimum of 3 landings from autopilot disconnect.
- b. For Category III, a minimum of 3 autolands except that only 1 autoland is required when the training required in subparagraph 6.5.3 above has been carried out in a Flight Simulator usable for zero flight time conversion.

6.8 Type and command experience

- 6.8.1 The following additional requirements are applicable to commanders who are new to the aeroplane type:

- a. Before performing any Category II or Category III operation he shall have accumulated 50 hours or 20 sectors as commander, including line flying under supervision, on the type, and
- b. 100 m shall be added to the applicable Category II or Category III RVR minima until the commander has accumulated 100 hours or 40 sectors as commander on the type, including line flying under supervision. This does not apply if the commander previously has been adequately qualified for Category II or III operations.

6.8.2 The Civil Aviation Administration - Denmark may authorise a reduction in the above command experience requirements for flight crew members who have Category II or Category III command experience.

PART 7 Low Visibility Take-Off with RVR less than 150 m (200 m Cat D and E aeroplanes)

7.1 An operator must ensure that prior to authorisation to conduct take-offs in RVRs below 150 m (below 200 m for Category D and E aeroplanes) the following training is carried out:

- a. Normal take-off in minimum authorised RVR conditions,
- b. take-off in minimum authorised RVR conditions with an engine failure between V1 and V2, or as soon as safety considerations permit, and
- c. take-off in minimum authorised RVR conditions with an engine failure before V1 resulting in a rejected take-off.

7.1.1 The training required by paragraph 7.1 above shall be carried out in an approved Flight Simulator. This training shall include the use of any special procedures and equipment.

Where no approved Flight Simulator exists, the Civil Aviation Administration - Denmark may approve such training in an aeroplane without the requirement for minimum RVR conditions.

7.1.2 A commander shall complete a check before conducting low visibility take-offs in RVRs of less than 150 m (less than 200 m for Category D and E aeroplanes).

The check may only be replaced by successful completion of the Flight Simulator and/or flight training prescribed in paragraph 7.1 on conversion to an aeroplane type.

7.2 A commander shall not commence a take-off if the RVR/Visibility is less than the values given in Table 1 below, unless approved according to paragraph 7.4.

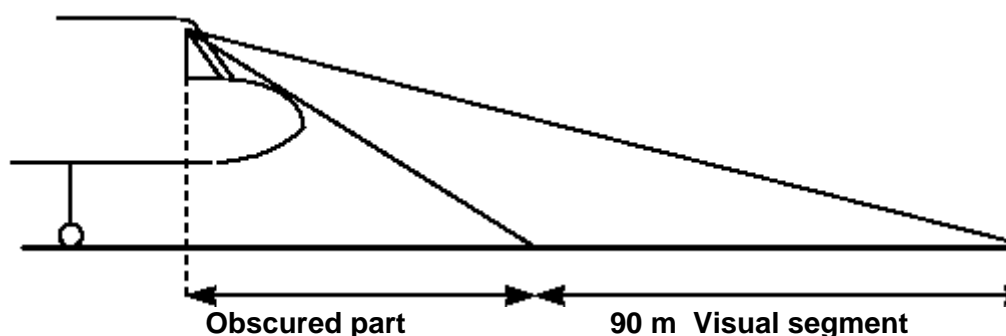
Table 1

Minimum RVR/Visibility for take-off	
RVR/Visibility (Notes 1 & 4)	Facilities
125/150 (Notes 2, 3, 5 & 6)	Runway edge and centerline lighting with a maximum spacing of 15 m and multiple RVR information.

- Note 1: *The reported RVR/Visibility value representative of the initial part of the take-off run can be replaced by pilot assessment.*
- Note 2: *The higher values apply to Category D and E aeroplanes.*
- Note 3: *The required RVR value shall be achieved for all of the relevant RVR reporting points with the exception given in Note 1 above.*
- Note 4: *For any multi-engine aeroplane whose performance is not sufficient to clear all obstacles in the event of a critical power unit failure, there may be a need to see and avoid obstacles in the take-off area in order to re-land immediately or to manoeuvre past the obstacles by visual reference. In such a case the visibility shall be increased in relation to the performance available and obstacle situation. Consideration shall also be given to increasing the RVR and/or determining a ceiling in order to comply with the obstacle clearance criteria or to achieve a safe forced landing.*
- Note 5: *A 90 m visual segment shall be available from the cockpit at the start of the take-off run (see paragraph 7.3 below).*
- Note 6: *Flight crew members shall have satisfactorily completed training in a Flight Simulator approved for this procedure.*

7.3 Visual segment (See Table 1, note 5)

The visual segment, of a minimum of 90 m, should be understood in accordance with the figure below.



(Not to scale)

7.4 Exemptions to Table 1 above

Subject to the acceptance by the Civil Aviation Administration - Denmark, the take-off minima may be reduced to an RVR less than 125 m (150 m Category D and E aeroplanes) but not lower than 75 m if an aeroplane with an approved lateral guidance system is used and runway protection and facilities equivalent to Category III landing operations are available.

PART 8 Precision approach - Category II operations

8.1 General

A Category II operation is a precision instrument approach and landing using ILS or MLS 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.

8.2 Decision Height

An operator shall ensure that the decision height for a Category II operation is not lower than

- a. the minimum decision height specified in the AFM, if stated,
- b. the minimum height to which the precision approach aid can be used without the required visual reference,
- c. the OCH for the category of aeroplane,
- d. the decision height to which the flight crew is authorised to operate, or
- e. 100 ft.

8.3 Visual reference

The approach shall not be continued below the Category II decision height determined in accordance with paragraph 8.2 above unless visual reference containing a segment of at least 3 consecutive lights being the centreline of the approach lights, or touch-down zone lights, or runway centreline lights, or runway edge lights, or a combination of these is attained and can be maintained. This visual reference shall 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.

8.4 Required RVR

The lowest minima to be used for Category II operations are:

Table 2

Category II minima		
Auto-coupled to below DH (See Note 1)		
Decision Height (ft)	Minimum RVR (m)	
	Aeroplane Category A, B & C	Aeroplane Category D
100 -120	300	300 (Note 2)/350
121 - 140	400	400
141 and above	450	450

Note 1: The reference to "auto-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% 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: 300 m may be used for a Category D aeroplane conducting an autoland.

PART 9 Precision approach - Category III operations

9.1 General

Category III operations are subdivided as follows:

- a. Category III A operations. A precision instrument approach and landing using ILS or MLS with
 - i. a decision height lower than 100 ft, and
 - ii. a runway visual range not less than 200 m.
- b. Category III B operations. A precision instrument approach and landing using ILS or MLS with
 - i. a decision height lower than 50 ft, or no decision height, and
 - ii. a runway visual range lower than 200 m but not less than 75 m.

9.2 Decision Height

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

- a. the minimum decision height specified in the AFM, if stated,
- b. the minimum height to which the precision approach aid can be used without the required visual reference, or

- c. the decision height to which the flight crew is authorised to operate.

9.3 No Decision Height Operations

Operations with no decision height shall only be conducted if

- a. the operation with no decision height is authorised in the AFM,
- b. the approach aid and the aerodrome facilities can support operations with no decision height, and
- c. an approval for CAT III operations with no decision height has been delivered.

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.

9.4 Visual reference

- 9.4.1 For Category IIIA operations, an approach shall not be continued below the decision height determined in accordance with paragraph 9.2 above unless a visual reference containing a segment of at least 3 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.
- 9.4.2 For Category IIIB operations with a decision height an approach shall not be continued below the Decision Height, determined in accordance with paragraph 9.2 above, unless a visual reference containing at least one centreline light is attained and can be maintained.
- 9.4.3 For Category III operations with no decision height there is no requirement for visual contact with the runway prior to touchdown.

9.5 Required RVR

The lowest minima to be used for Category III operations are:

Table 3

Category III minima			
Approach Category	Minimum Decision Height (ft)	Roll-out Control/Guidance System	Minimum RVR (m)
IIIA	Less than 100ft.	Not required	200 m (note)
IIIB	Less than 50ft.	Fail-passive	125 m
IIIB	Less than 50ft. or No Decision Height	Fail-operational	75 m

Note: For operations to actual RVR values less than 300 m, a go-around is assumed in the event of an autopilot failure at or below DH.

PART 10 Recurrent Training and Checking - Low Visibility Operations

An operator must ensure that

- a. in conjunction with the normal proficiency checks according to JAR-FCL, a pilot's knowledge and ability to perform the tasks associated with the particular category of operation for which he is authorised is checked,
- b. the required number of approaches to be conducted during such recurrent training shall be a minimum of two, one of which shall be a missed approach, and at least two low visibility take-off's to the lowest applicable minima shall be performed,
- c. the period of validity for this check shall be 12 months including the remainder of the month of issue, and
- d. for Category III operations an operator shall use a Flight Simulator approved for Category III training.

PART 11 Recent experience - Low Visibility Operations

An operator shall ensure that

- a. a commander does not execute a category II approach unless he has carried out at least three actual or simulated category II approaches as pilot flying, in an aeroplane of the same type/class or in a flight simulator approved for that purpose, in the preceding 6 calendar months,
- b. a commander does not execute a category III approach unless he has carried out at least three category III approaches - one of which may be substituted by an approach and landing in the aeroplane of the same type/class, using approved Category III procedures - as pilot flying, in the preceding 6 calendar months,
- c. for Category III operations an operator shall use a Flight Simulator approved for Category III training,

Note: Recency for LVTO with RVR less than 150 m (200 m for category D and E aeroplanes) is maintained by the recurrent training and checking as prescribed in Part 10.

- d. for Category III operations on aeroplanes with a fail passive flight control system, a missed approach is completed at least once over the period of two consecutive proficiency checks as the result of an autopilot failure at or below decision height when the last reported RVR was 300 m or less.

PART 12 Continuous monitoring - Low visibility operations

- 12.1 After obtaining the initial authorisation, the operations shall be continuously monitored to detect any undesirable trends before they become hazardous. Flight crew reports may be used to achieve this.

12.1.1 An operator shall ensure that any unsatisfactory approaches and/or automatic landings are reported and retained for a period of 12 months, by aerodrome and aeroplane registration, in the following categories:

- a. Airborne equipment faults,
- b. ground facility difficulties,
- c. missed approaches because of ATC instructions, or
- d. other reasons.

12.2 Maintenance of Category II, Category III and LVTO equipment

Maintenance instructions for the on-board guidance systems shall be established by the operator, in liaison with the manufacturer, and included in the operator's aeroplane maintenance programme.

Effect on landing minima of temporarily failed or downgraded ground equipment

1. Introduction

1.1 This Appendix provides operators with instructions for flight crews on the effects on landing minima of temporary failures or downgrading of ground equipment.

1.2 Aerodrome facilities are expected to be installed and maintained to the standards prescribed in ICAO Annexes 10 and 14. Any deficiencies are expected to be repaired without unnecessary delay.

2. General

These instructions are intended for use both pre-flight and in-flight. It is not expected however that the pilot-in-command would consult such instructions after passing the outer marker or equivalent position. If failures of ground aids are announced at such a late stage, the approach could be continued at the pilot-in-command's discretion. If, however, failures are announced before such a late stage in the approach, their effect on the approach should be considered as described in Table 1, and the approach may have to be abandoned to allow this to happen.

3. Operations with no decision height (DH)

3.1 The pilot-in-command shall ensure that, for aeroplanes authorised to conduct no DH operations with the lowest RVR limitations, the following applies in addition to the content of Table 1:

- i. RVR. At least one RVR value must be available at the aerodrome.
- ii. Runway lights.
 - a. No runway edge lights, or no centre lights: Day - RVR 200 m
Night - Not allowed
 - b. No TDZ lights - No restrictions.
 - c. No standby power to runway lights: Day - RVR 200 m
Night - Not allowed

4. Conditions applicable to Table 1

- i. Multiple failures of runway lights other than indicated in Table 1 are not acceptable.
- ii. Deficiencies of approach and runway lights are treated separately.
- iii. Category II or III operations. A combination of deficiencies in runway lights and RVR assessment equipment is not allowed.
- iv. Failures other than ILS affect RVR only and not DH.

Table 1

FAILED OR DOWNGRADED EQUIPMENT	EFFECT ON LANDING MINIMA				
	CAT III (Note 1)	CAT III A	CAT II	CAT I	NON-PRECISION
ILS stand-by transmitter	Not allowed		No effect		
Outer marker	No effect if replaced by published equivalent position				Not applicable
Middle marker	No effect				No effect unless used as MAPT
Touch Down Zone RVR assessment system	May be temporarily replaced with midpoint RVR if approved by the State of the aerodrome. RVR may be reported by human observation			No effect	
Midpoint or stopend RVR	No effect				
Anemometer for runway in use	No effect if other ground source available				
Celiometer	No effect				
Approach lights	Not allowed for operations with DH > 50 ft		Not allowed	Minima as for nil facilities	
Approach lights except the last 210 m	No effect		Not allowed	Minima as for nil facilities	
Approach lights except the last 420 m	No effect			Minima as for intermediate facilities	
Standby power for approach lights	No effect		RVR as for CAT I basic facilities		No effect
Whole runway system	Not allowed			Day - Minima as for nil facilities Night - Not allowed	
Edge lights	Day only; Night - not allowed				
Centreline lights	Day - RVR 300 m Night - not allowed		Day - RVR 300 m Night - RVR 550 m		No effect
Centreline lights spacing increased to 30 m	RVR 150 m	No effect			
Touchdown zone lights	Day - RVR 200 m Night - RVR 300 m	Day - RVR 300 m Night - RVR 550 m		No effect	
Standby power for runway lights	Not allowed			No effect	
Taxiway light system	No effect - except delays due to reduced movement rate				

Note 1: For Cat III B operations with no DH, see also paragraph 3 above.