

CHART LEGEND - EASA AIR OPS AERODROME OPERATING MINIMUMS (AOM) - EFFECTIVE 30 OCTOBER 2022

The publication of EASA Air Ops landing and take-off minimums on Jeppesen charts does not constitute authority for their use by every operator. Each individual operator is responsible for validating that the appropriate approval has been obtained for their use.

GENERAL

On 5 October 2012 the Commission Regulation (EU) No 965/2012 and related documents were published, laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council.

The European Aviation Safety Agency (EASA) publishes Regulations on Air Operations with the associated Decisions containing Acceptable Means of Compliance (AMC) and Guidance Material (GM).

On JEPPESEN approach and airport charts an inverse printed “**Standard**” label in the upper left corner of the minimums band indicates that the minimums are derived according to the requirements described in EASA Air Operations documents.

From 2020 the “**Standard**” label will be replaced by a “**Std/State**” label to be aligned with the new Jeppesen Standard AOM policy. The label indicates that the minimums are determined according to a State Regulation, which is, in general, similar to the guidance from ICAO Doc 9365.

EASA AIR OPS minimums may be published on minimums listings (indexed as 10-9S, 10-9S1,...) if requested by an operator. As the pages are created especially for EASA AIR OPS operators, an inversely printed “EASA AIR OPS” label is depicted in the upper right corner of this page.

For a detailed excerpt of **latest** EASA AIR OPS minimums refer to Jeppesen ATC-Chapter “AERODROME OPERATING MINIMUMS - EASA AIR OPERATIONS - Effective 30 October 2022” and “HELICOPTER AERODROME OPERATING MINIMUMS – EASA AIR OPS OPERATIONS”.

Jeppesen charted minimums are not below any State-provided minimums. RVR/CMV/VIS values are shown in measuring units as reported by the governing agency.

AOM for take-off and landing are either shown on Jeppesen instrument approach or airport charts or on a separate minimums listing.

Straight-in landing minimums will be shown as RVR with prefix “R”, as provided within the EASA tables. A Visibility, prefixed “V”, will only be charted if a VIS value is published as State minimum. The prefix “VIS” may still be used on older charts.

A Converted Meteorological Visibility, prefixed “C”, will only be charted if a CMV value is published as State minimum. The prefix “CMV” may still be used on older charts.

Circling minimums are always visibilities and depicted with prefix “V”.

Take-off minimums are shown as RVR “R”, as VIS “V” or as RVR/VIS “R/V”. Values which could be either RVR or VIS may be depicted without any prefix on older charts.

A Visibility, prefixed “V”, will only be charted for take-off if a VIS value is published as State minimum.

For separate minimums listings (like 10-9S pages) RVR, CMV and VIS are always abbreviated as “R”, “C” and “V”.

NOTE: Most of the samples in this document are intended to illustrate only the relevant information of the related paragraph. Other sections (like circling minimums) within the samples are intentionally left blank.

TAKE-OFF MINIMUMS

According to AMC2 SPA.LVO.105(c)(b)(7)(ii) low visibility procedures (LVP) are required for LVTO with RVR less than 400m.

Operators need an approval to conduct low visibility take-off operations with an RVR below 400m. Night operations always require runway end lights (RENL). This is not indicated in the take-off minimums box as all runways which are equipped with RL are required to have runway end lights per ICAO Annex 14.

Jeppesen depicts the lowest possible take-off minimums (including Low Visibility Take-off minimums) based on the best runway lighting (RL, TDZ, CL) as the information about LVP is not always available in the AIP. The take-off minimums box does not differentiate between the specific runways unless there are State provided values available which do not depend on the availability of runway lights.

Pilots have to select the lowest RVR for take-off depending on the active runway lighting of the take-off runway.

Jeppesen depicts a take-off RVR of 75m only if the runway is approved for CAT III operations with RVR 75m (no restrictions).

Take-off minimums below 400m are depicted as RVR. This is independent of the availability of transmissometers because the pilot can determine the RVR at the beginning of the take-off roll by counting visible lamps of RL or TDZ.

Only if there is a clear statement within the AIP that LVP are not available for the specific airport, the take-off minimum will be “R400m” or the State provided minimum (e.g. R550m or R550m/V800m).

According to AMC1 SPA.LVO.100(a)(c), the minimum RVR should be achieved for all reporting points representative of the parts of the runway from the point at which the aircraft commences the take-off until the calculated accelerate-stop distance from that point.

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Std/State		TAKE-OFF					
Low Visibility Procedures required				RCLM or RL or CL	RL or CL	Adequate Vis Ref	
Approval for Low Visibility Take-off required							
RCLM & RL & CL (spacing 15m or less) & RVR	RCLM & RL & CL & RVR	RCLM & RL & RVR	RCLM & RVR & RL or CL	DAY	NIGHT	DAY	NIGHT
		DAY	NIGHT				
■ R125m	R150m	R300m		R/V400m		R/V500m	NA
■ RWY xx: R75m with approved lateral guidance system.							

CIRCLING MINIMUMS

Circling minimums are only shown if a circling OCA(H), MDA(H) or circling minimums are provided by the procedure source. Otherwise, the circling box is removed. If circling is not authorized by the procedure source, it will be noted in the Briefing Strip header. Where straight-in minimums are higher than circling minimums (DH/MDH or RVR/VIS), a note is added to remind the pilot that the higher straight-in minimums have to be used.

CIRCLE-TO-LAND		
Max Kts	MDA(H)	
100	690' (575')	V1500m
135	690' (575')	V1600m
180	870' (755')	V2400m
205	870' (755')	V3600m

NON-PRECISION APPROACH MINIMUMS AND CHART PROFILE VIEW

According to the EASA AIR OPS CAT.OP.MPA.115(b)(1) requirement for Commercial Air Transport Operations (Part CAT), non-precision approaches shall be flown using the continuous descent final approach (CDFA) technique. Not applying the CDFA technique may result into higher minimums.

The lowest non-precision approach minimums (R550m or R750m) depend on type of operation, two dimensional (2D) or three-dimensional (3D). In both cases, a CDFA label in the minimums box and a "DA/MDA(H)" will be depicted.

This label is intended to remind pilots to use the MDA(H) to determine the VNAV DA(H). Jeppesen does not depict it as DA(H) as operators may have to apply different methods to determine VNAV DA(H) according to State regulations.

If a descent angle is depicted in the profile view, the minimums are based on the rules for 3D operations. Without a descent angle in the profile view, or with an "MDA(H)" label in the minimums box the minimums are based on the rules for 2D operations.

The NPA minimums for CDFA 2D and CDFA 3D are identical for DH/MDH above 320'. The higher CDFA 2D RVR of 750m for DH/MDH at or below 320' will be indicated by a note at the bottom of the minimums box.

There will be no CDFA label if the minimums are based on a different flight technique. On older charts this is indicated by a "non-CDFA" label.

A "non-CDFA" label will only be depicted if this condition is provided by source. The add-on of 200m (CAT A & B) or 400m (CAT C & D) is only incorporated if there is the "non-CDFA" label depicted in the minimums box. In all other cases the add-on is not included.

Approach Type	Flight Technique	Descent Limit Label	Type of Operation
Non-precision	CDFA (onboard equipment) Descent angle depicted in profile view	DA/MDA(H)	3D, type A
Non-precision	CDFA (manual calculation) No Descent angle depicted in profile view	DA/MDA(H) or MDA(H)	2D, type A
Non-precision	Other than CDFA	MDA(H)	2D, type A
Non-precision	Non-CDFA (per source or on older charts)	MDA(H)	2D, type A

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Sample of Non-precision Minimums (CDFA, 3D, FALS+TDZ+CL)

Std/State		STRAIGHT-IN LANDING	
		XXX CDFA 1 DA/MDA(H) XXX'(xxx')	
		TDZ or CL out	ALS out
A			
B			
C	3 Rxxxxm	2 3 Rxxxxm	Rxxxxm
D			

1 VNAV DA(H) in lieu of MDA(H) depends on operator policy.
 2 R750m when a Flight Director or Autopilot or HUDLS to DA is not used.
 3 R750m for CDFA 2D operations.

The note "R750m when a Flight Director or Autopilot or HUDLS to DA is not used." indicates that the use of flight director or autopilot or HUDLS is required if TDZ and/or CL are not available. Otherwise the RVR is 750m. The note "R750m for CDFA 2D operations." indicates the RVR is 750m if the type of oper-

ation is 2D (CDFA with manual calculation of the required rate of descent). The "VNAV DA(H)..." note is a reminder to determine the VNAV DA(H) from MDA(H) according to the operator specific requirements.

Sample of Non-precision Minimums (CDFA, 2D)

Std/State		STRAIGHT-IN LANDING	
		XXX CDFA 1 DA/MDA(H) XXX'(xxx')	
		ALS out	
A			
B			
C	Rxxxxm	Rxxxxm	
D			

1 VNAV DA(H) in lieu of MDA(H) depends on operator policy.

The "VNAV DA(H)..." note is a reminder to determine the VNAV DA(H) from MDA(H) according to the operator specific requirements.

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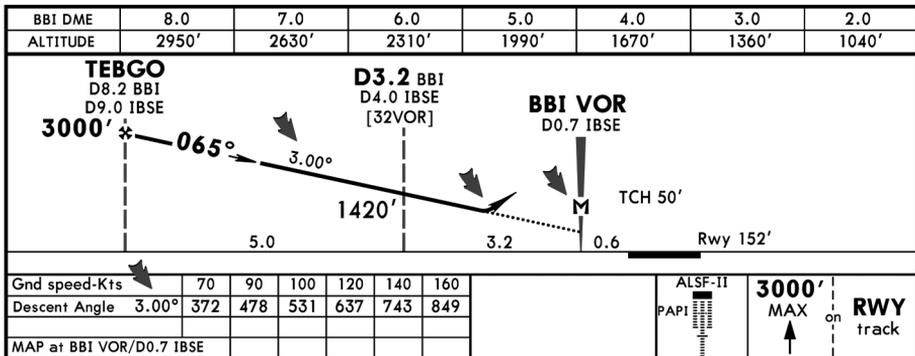
Sample of Non-precision Minimums (other than CDFA, 2D)

Std/State		STRAIGHT-IN LANDING	
		XXX	
		MDA(H) XXX' (xxx')	
		ALS out	
A	Rxxxm	Rxxxm	
B			
C			
D			

The profile depiction is modified to show the continuous descent track on final approach. Source published minimum altitudes are shown as segment minimum altitudes in the profile (grey shaded box). These minimum altitudes are typically provided for obstacle clearance and must not be violated to remain clear of obstacles or terrain. If not published by the procedure source, a table depicting distance

vs altitude or DME vs altitude information will be calculated by Jeppesen and shown above the profile view.

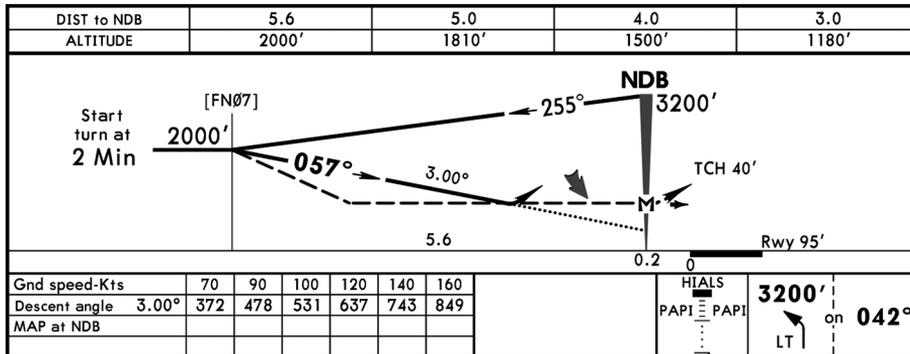
The missed approach pull-up arrow is shown at the point where the decision height is reached (not to scale). There is no level segment depicted prior to the MAP, the MAP symbol "M" is shown at the same position as published by the procedure source.



In exceptional cases it may be necessary to include both, CDFA and non-CDFA/other than CDFA flight path. In this case, a level segment is shown prior to the missed approach point and the pull-up arrow is shown at the MAP to depict the non-CDFA/other than CDFA procedure.

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CDFA 3D together with non-CDFA/other than CDFA



CAT I PRECISION APPROACH AND APV MINIMUMS

The minimums for CAT I Precision approaches and for APV are determined according to the rules for 3D operations and depend on available approach and runway lighting.

CAT I (ILS, GLS, PAR, LPV) or APV (LPV, LNAV/VNAV) with FALS+TDZ+CL

Std/State	STRAIGHT-IN LANDING	
	XXX	
	DA(H) XXX'(200')	
	TDZ or CL out	ALS out
A		
B	Rxxxxm	Rxxxxm
C		
D		

1 R750m when a Flight Director or Autopilot or HUDLS to DA is not used.

The note "R750m when a Flight Director or Autopilot or HUDLS to DA is not used." indicates that the use of flight director or autopilot or HUDLS is required if TDZ and/or CL are not available. Otherwise the RVR is 750m.

"LPV (VAL 35m)" is only depicted if required according to the FAS datablock of the related LPV procedure (type A or B). The first column depicts the minimums with all approach and runway lights operating. The term "FULL" will no longer be used on ILS procedures and will be removed.

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CAT I (ILS, GLS, PAR, LPV) or APV (LPV, LNAV/VNAV) without TDZ and/or CL

Std/State		STRAIGHT-IN LANDING	
		XXX	
		DA(H) XXX' (xxx')	
			ALS out
A			
B			
C	1 Rxxxm	Rxxxm	
D			
1 R750m when a Flight Director or Autopilot or HUDLS to DA is not used.			

The note “R750m when a Flight Director or Autopilot or HUDLS to DA is not used.” indicates that the use of flight director or autopilot or HUDLS is required. Otherwise the RVR is 750m.

350m for CAT D aircraft not using autoland and not using HUDLS is depicted as note unless the required RVR is already higher than 350m.

CAT II PRECISION APPROACH MINIMUMS

CAT II minimums will be provided if a CAT II instrument approach procedure source is officially published by the State.

If not source provided, the RA will be determined according to the data on the Precision Approach Terrain Chart (PATC). If a PATC is not available, the RA cannot be charted and a note will indicate this situation.

The radio altitude (RA) is based on the decision height and takes the underlying terrain into account. The RVR is based on the decision height. The RVR

The operator is responsible to provide guidance to the pilots on how the RA has to be substituted (refer to GM10 SPA.LVO.110).

Std/State		STRAIGHT-IN LANDING CAT II ILS	
		RA 100'	
		DA(H) 179' (100')	
			1 R300m
1 CAT D requires autoland or HUDLS, otherwise: R350m.			

CAT III PRECISION APPROACH MINIMUMS

CAT III minimums will be provided if a CAT III instrument approach procedure source is officially published by the State.

A decision height (or RA) will only be depicted if it is required by the State source. The pilots have to use the DH which they are approved for unless they are approved to operate with no DH.

Only the lowest CAT III RVR of 75m is depicted because EASA does no longer refer to CAT IIIA and CAT IIIB. The pilots have to compare the RVR which they are approved for against the RVR in the minimums box and have to use the higher of both.

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Std/State	STRAIGHT-IN LANDING	
	CAT III ILS	
	R75m	

If the State source still differentiates between CAT IIIA and CAT IIIB, the minimums box will depict CAT IIIA and CAT IIIB minimums. Eff 30 October 2022,

the lowest minimums values for CAT IIIA are RVR 175m and DH 50'. These are the same values as for "CAT III" without a roll-out control/guidance system.

Std/State	STRAIGHT-IN LANDING	
	CAT IIIB ILS	CAT IIIA ILS
		DH 50'
	R75m	R175m

SPECIAL AUTHORIZATION CAT I (SA CAT I) MINIMUMS

SA CAT I minimums will only be provided on request for approved operators unless an SA CAT I instrument approach procedure source is officially published by the State.

The depiction of minimums depends on operator requirements and guidance. A decision height below 200' requires the use of a radio altimeter or other device capable of providing equivalent performance. Source providers normally do not publish a precision approach terrain chart (PATC) for a CAT I precision approach runway, but a PATC would be needed to determine the radio altitude (RA).

SPECIAL AUTHORIZATION CAT II (SA CAT II) MINIMUMS

SA CAT II minimums will only be provided on request for approved operators unless an SA CAT II instrument approach procedure source is officially published by the State.

It is expected that the current Other Than Standard CAT II procedures will be converted into SA CAT II by the source provider.

The radio altitude (RA) is based on the decision height and takes the underlying terrain into account. The RVR depends on the decision height.

Std/State	STRAIGHT-IN LANDING	
	SA CAT II ILS	
	RA 112' DA(H) 1293' (100')	
	R350m	
	R400m if CL out.	

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PLANNING MINIMUMS

Planning minimums will not be depicted on Jeppesen Standard charts. Planning minimums can be provided on request and require guidance from the requesting operator.

MINIMUMS LISTING (10-9S)

On customer request, the EASA AIR OPS minimums can be made available for airports outside of the EASA AIR OPS application area on a minimums listing page.

The listings are indexed as 10-9S/10-9S1, 20-9S/20-9S1, etc.

The pages depict the descent limit and visibilities for every procedure. The minimums are determined according to the EASA AIR OPS rules and take State provided values into account.

Because of applying different rules to determine aerodrome operating minimums, the minimums on 10-9S pages might be equal to, higher or lower than the minimums on Jeppesen Standard Airport or Instrument Approach Procedure charts.

TERPS change 20 was harmonized with the EASA minimum tables for CAT I, APV and NPA (CAT C and D aircraft only). Those procedures with the TERPS label on the approach procedure chart are therefore EASA AIR OPS compliant because the minimums are not lower than EASA AIR OPS minimums and a 10-9S page is normally not required.

For non-precision approaches with a TERPS label on the approach procedure chart, CAT A or B aircraft operators should compare the charted CAT A or B minimums against the charted CAT C minimums. By selecting the higher of both, the operator meets the TERPS and the EASA AIR OPS minimum RVR and VIS values.

DEPICTION OF EASA AIR OPS AOM IN CASE OF EXISTING STATE MINIMUMS

If State minimums are officially published, the depiction of AOM may differ from the standard depiction. The RVR or VIS values which are reported by ATC have to be equal to or higher than the RVR or VIS values which are depicted in the minimums box.

- a. If RVR and VIS are charted together, the RVR value is compulsory. If RVR is not reported by ATC, the reported VIS has to be used. Conversion of reported VIS into CMV is not allowed. (e.g. R550m V800m, old format: RVR 550m VIS 800m)
- b. The "R/V" prefix is used if RVR and VIS is identical. The reported RVR is compulsory. If RVR is not reported by ATC, the reported VIS has to be used. Conversion of reported VIS into CMV is not allowed. (e.g. R/V1200m, old format: 1200m)
- c. If only VIS is charted, the reported VIS has to be used. (e.g. V2500m, old format: 2500m)
- d. If CMV is charted, the pilot converts a reported VIS and compare this value against the charted CMV. (e.g. C2500m, old format: CMV 2500m)