

# Comparison between EASA and TERPS – AOM Tables

(Guidance for EASA AIR OPS operators)

# Sources

- FAA Order 8260.3E “United States Standard for Terminal Instrument Procedures (TERPS) - Effective Date 09/17/2020
- EASA Easy Access Rules for Air Operations (Annex IV Part CAT & Annex V Part SPA) - Acceptable Means of Compliance and related Guidance Material

The comparison took place simply on the table values. OpSpec and additional rules which specify lower or upper limits were not taken into account.

Where metric values are provided within the TERPS tables, the metric values are used for the comparison.

Where metric values are not provided within the TERPS tables, the metric values were calculated by converting the imperial values into meters.

Operators may talk to the competent Authority to find out if the TERPS tables could be accepted as Alternative Means of Compliance for operations within the United States (ARO.GEN.120(b)(c)(d)...).

# CAT III

The FAA normally provides the lowest CAT III RVR on approach procedure source depending on classification of the installed ILS without differentiating between CAT IIIA and CAT IIIB.

On some older procedure sources there are still RVR for CAT IIIB and/or CAT IIIA provided.

The FAA does not provide DH for CAT III operations.

CAT III & ILS classification 10-5-6. (a)(2)	RVR	Simple conversion $RVR (m) = RVR (ft) / 3.28...$	EASA RVR Part SPA: Table 5 CAT III operations minimums
IIIA	700ft (normally published on procedure source)	213m	200m
IIIB	300ft (normally published on procedure source)	91m	150m 125m 75m
III (III/D/3)	$\geq 700ft$	213m	CAT IIIA
III (III/E/3)	$\geq 600ft$	183m	CAT IIIA
III (III/E/4)	$< 600ft$ (300ft normally published on procedure source)	$< 183m$ (91m)	CAT IIIB

**Summary:** EASA AIR OPS approved operators can use their approved CAT III minimums.

# CAT II

The FAA provides CAT II DH and RVR for CAT II operations according to TERPS Table 10-5-1. “Minimum Authorized CAT II RVR”.

DH (ft)	RVR (ft)	Simple conversion RVR (m) = RVR (ft) / 3.28...
100 - 140	1200	366m
141 - 180	1600	488m
181 - 199	1800	549m

The values are compared against EASA AIR OPS Table 3: “CAT II operation minima RVR vs DH”.

DH (ft)	RVR
100 – 120	300m/350m
121 – 140	400m
141 – 199	450m

# CAT II

There is an issue with DH between 121ft and 140ft (including both values). While the EASA AIR OPS table requires an RVR of 400m, the FAA table requires an RVR of 1200ft. Converting 1200ft into a metric value results into 366m, which is 34m too low (but might be tolerable). An RVR of 400m would require a reported RVR of 1300ft (396m).

A review of **all** existing (**January 2021**) CAT II approach procedures in the United States was done for the airports in the Jeppesen Airway Manual.

There was no CAT II approach procedure found which has a DH between 121ft and 140ft (including both values). All the reviewed procedures have a DH of less than 121ft or more than 141ft (KJFK CAT II ILS RWY 13L, KILN CAT II ILS RWY 22L, KMSP CAT II ILS Z RWY 35).

**Summary:** EASA AIR OPS approved operators can use the charted CAT II minimums. To make sure that they do not violate the European Regulation, they may increase the required RVR of 1200ft to 1300ft if the DH is 121ft or above.

# SA CAT II & SA CAT I

Currently the European Regulation does not contain guidance on SA CAT II operations. No EASA AIR OPS approved operator should do SA CAT II operations.

Currently the European Regulation does not contain guidance on SA CAT I operations. No EASA AIR OPS approved operator should do SA CAT I operations.

# CAT I and APV

The FAA provides RVR/VIS values for CAT I and APV operations according to TERPS Table 3-3-1. “Minimum Visibility Values, All Procedures/CATs (except CAT A and B NPA, SA CAT I/II, CAT II/III, and helicopters)” on instrument approach procedure source.

For EASA, only the Table 5 “RVR/CMV vs DH/MDH” is used for comparison without applying the guidance from Table 6.A.

FALS	CAT ABCD	All the metric values from TERPS Table 3-3-1 are equal to or higher than the RVR values from Table 5.
IALS	CAT ABCD	All the metric values from TERPS Table 3-3-1 are equal to or higher than the RVR values from Table 5.
BALS	CAT ABCD	All the metric values from TERPS Table 3-3-1 are equal to or higher than the RVR values from Table 5.
NALS	CAT ABCD	All the metric values from TERPS Table 3-3-1 are equal to or higher than the RVR values from Table 5.

The TERPS table does not use the RVR/VIS values of 1500m (CAT AB) or 2400m (CAT CD) as upper limit, as done by EASA AIR OPS according to table 6.A.

The TERPS table uses similar criteria to allow a lowest RVR of 550m (RVR 1800ft) instead of RVR 750m (RVR 2400ft). In this case an RVR 1800ft is charted, otherwise RVR 2400ft are available.

**Summary:** EASA AIR OPS operators can use the TERPS minimums for CAT I and APV operations as depicted on Approach Charts.

# Non-Precision

The FAA provides RVR/VIS values for non-precision approach operations according to

- TERPS Table 3-3-1. “Minimum Visibility Values, All Procedures/CATs (except CAT A and B NPA, SA CAT I/II, CAT II/III, and helicopters)” for CAT CD aircraft,
- TERPS Table 3-3-3. “CAT A Straight-in NPA, Authorized RVR/Visibility” for CAT A aircraft, and
- TERPS Table 3-3-4. “CAT B Straight-in NPA, Authorized RVR/Visibility” for CAT B aircraft

on instrument approach procedure source.

TERPS Tables 3-3-3 and 3-3-4 are compared against TERPS Table 3-3-1 to provide guidance for CAT A and B aircraft (refer to summary for non-precision approaches).

For EASA, only the Table 5 “RVR/CMV vs DH/MDH” is used for comparison without applying the guidance from Table 6.A.

The TERPS table does not cut the maximum RVR at 1500m/2400m and does not include requirements on applying an add-on in case of non-CDFA operation.



# Non-Precision (NPA) – Full Approach Light System (FALS)

Procedure Type	Aircraft Category (related Table)	Result
NPA (except NDB)	CAT A (Table 3-3-3)	<ul style="list-style-type: none"> <li>- Up to an MDH of 320ft, all the metric values from <b>TERPS Table 3-3-3</b> are higher than the RVR values from <b>EASA Table 5</b>.</li> <li>- From an MDH of 321ft, all the metric values from <b>TERPS Table 3-3-3</b> are lower than the RVR values from <b>EASA Table 5</b>.</li> </ul>
		<ul style="list-style-type: none"> <li>- Up to an MDH of 320ft, all the metric values from <b>TERPS Table 3-3-3</b> are higher than the metric values from <b>TERPS Table 3-3-1</b>.</li> <li>- From an MDH of 321ft, all the metric values from <b>TERPS Table 3-3-3</b> are lower than the metric values from <b>TERPS Table 3-3-1</b>.</li> </ul>
	CAT B (Table 3-3-4)	<ul style="list-style-type: none"> <li>- Up to an MDH of 320ft, all the metric values from <b>TERPS Table 3-3-4</b> are higher than the RVR values from <b>EASA Table 5</b>.</li> <li>- From an MDH of 321ft, all the metric values from <b>TERPS Table 3-3-4</b> are lower than the RVR values from <b>EASA Table 5</b>.</li> </ul>
		<ul style="list-style-type: none"> <li>- Up to an MDH of 320ft, all the metric values from <b>TERPS Table 3-3-4</b> are higher than the metric values from <b>TERPS Table 3-3-1</b>.</li> <li>- From an MDH of 321ft, all the metric values from <b>TERPS Table 3-3-4</b> are lower than the metric values from <b>TERPS Table 3-3-1</b>.</li> </ul>
	CAT CD (Table 3-3-1)	<ul style="list-style-type: none"> <li>- All the metric values from <b>TERPS Table 3-3-1</b> are equal to or higher than the RVR values from <b>EASA Table 5</b>.</li> </ul>

# Non-Precision (NPA) – Full Approach Light System (FALS)

Procedure Type	Aircraft Category (related Table)	Result
NPA (NDB only)	CAT A (Table 3-3-3)	<ul style="list-style-type: none"> <li>- Up to an MDH of 420ft, all the metric values from <b>TERPS Table 3-3-3</b> are equal to or higher than the RVR values from <b>EASA Table 5</b>.</li> <li>- From an MDH of 421ft, all the metric values from <b>TERPS Table 3-3-3</b> are lower than the RVR values from <b>EASA Table 5</b>.</li> </ul>
		<ul style="list-style-type: none"> <li>- Up to an MDH of 420ft, all the metric values from <b>TERPS Table 3-3-3</b> are equal to or higher than the metric values from <b>TERPS Table 3-3-1</b>.</li> <li>- From an MDH of 421ft, all the metric values from <b>TERPS Table 3-3-3</b> are lower than the metric values from <b>TERPS Table 3-3-1</b>.</li> </ul>
	CAT B (Table 3-3-4)	<ul style="list-style-type: none"> <li>- Up to an MDH of 420ft, all the metric values from <b>TERPS Table 3-3-4</b> are equal to or higher than the RVR values from <b>EASA Table 5</b>.</li> <li>- From an MDH of 421ft, all the metric values from <b>TERPS Table 3-3-4</b> are lower than the RVR values from <b>EASA Table 5</b>.</li> </ul>
		<ul style="list-style-type: none"> <li>- Up to an MDH of 420ft, all the metric values from <b>TERPS Table 3-3-4</b> are equal to or higher than the metric values from <b>TERPS Table 3-3-1</b>.</li> <li>- From an MDH of 421ft, all the metric values from <b>TERPS Table 3-3-4</b> are lower than the metric values from <b>TERPS Table 3-3-1</b>.</li> </ul>
	CAT CD (Table 3-3-1)	<ul style="list-style-type: none"> <li>- All the metric values from <b>TERPS Table 3-3-1</b> are equal to or higher than the RVR values from <b>EASA Table 5</b>.</li> </ul>

# Non-Precision (NPA) – Intermediate Approach Light System (IALS)

Procedure Type	Aircraft Category (related Table)	Result
NPA	CATA (Table 3-3-3)	- Up to an MDH of 360ft, all the metric values from <b>TERPS Table 3-3-3</b> are equal to or higher than the RVR values from <b>EASA Table 5</b> .
		- From an MDH of 361ft, all the metric values from <b>TERPS Table 3-3-3</b> are lower than the RVR values from <b>EASA Table 5</b> .
	CAT B (Table 3-3-4)	- Up to an MDH of 360ft, all the metric values from <b>TERPS Table 3-3-3</b> are equal to or higher than the metric values from <b>TERPS Table 3-3-1</b> .
		- From an MDH of 361ft, all the metric values from <b>TERPS Table 3-3-3</b> are lower than the metric values from <b>TERPS Table 3-3-1</b> .
	CAT CD (Table 3-3-1)	- Up to an MDH of 360ft, all the metric values from <b>TERPS Table 3-3-4</b> are equal to or higher than the RVR values from <b>EASA Table 5</b> .
		- From an MDH of 361ft, all the metric values from <b>TERPS Table 3-3-4</b> are lower than the RVR values from <b>EASA Table 5</b> .
		- Up to an MDH of 360ft, all the metric values from <b>TERPS Table 3-3-4</b> are equal to or higher than the metric values from <b>TERPS Table 3-3-1</b> .
		- From an MDH of 361ft, all the metric values from <b>TERPS Table 3-3-4</b> are lower than the metric values from <b>TERPS Table 3-3-1</b> .
		- All the metric values from <b>TERPS Table 3-3-1</b> are equal to or higher than the RVR values from <b>EASA Table 5</b> .

# Non-Precision (NPA) – Basic Approach Light System (BALS)

Procedure Type	Aircraft Category (related Table)	Result
NPA	CATA (Table 3-3-3)	Up to an MDH of 320ft, all the metric values from <b>TERPS Table 3-3-3</b> are equal to or higher than the RVR values from <b>EASA Table 5</b> . From an MDH of 321ft, all the metric values from <b>TERPS Table 3-3-3</b> are lower than the RVR values from <b>EASA Table 5</b> .
		Up to an MDH of 320ft, all the metric values from <b>TERPS Table 3-3-3</b> are equal to or higher than the RVR values from <b>TERPS Table 3-3-1</b> . From an MDH of 321ft, all the metric values from <b>TERPS Table 3-3-3</b> are lower than the RVR values from <b>EASA TERPS Table 3-3-1</b> .
	CAT B (Table 3-3-4)	Up to an MDH of 320ft, all the metric values from <b>TERPS Table 3-3-4</b> are equal to or higher than the RVR values from <b>EASA Table 5</b> . From an MDH of 321ft, all the metric values from <b>TERPS Table 3-3-4</b> are lower than the RVR values from <b>EASA Table 5</b> .
		Up to an MDH of 320ft, all the metric values from <b>TERPS Table 3-3-4</b> are equal to or higher than the RVR values from <b>TERPS Table 3-3-1</b> . From an MDH of 321ft, all the metric values from <b>TERPS Table 3-3-4</b> are lower than the RVR values from <b>EASA TERPS Table 3-3-1</b> .
	CAT CD (Table 3-3-1)	- All the metric values from <b>TERPS Table 3-3-1</b> are equal to or higher than the RVR values from <b>EASA Table 5</b> .

# Non-Precision (NPA) – No Approach Light System (**NALS**)

Procedure Type	Aircraft Category (related Table)	Result
NPA	CATA (Table 3-3-3)	Up to an MDH of 360ft, all the metric values from <b>TERPS Table 3-3-3</b> are equal to or higher than the RVR values from <b>EASA Table 5</b> . From an MDH of 361ft, all the metric values from <b>TERPS Table 3-3-3</b> are lower than the RVR values from <b>EASA Table 5</b> .
		Up to an MDH of 360ft, all the metric values from <b>TERPS Table 3-3-3</b> are equal to or higher than the RVR values from <b>TERPS Table 3-3-1</b> . From an MDH of 361ft, all the metric values from <b>TERPS Table 3-3-3</b> are lower than the RVR values from <b>EASA TERPS Table 3-3-1</b> .
	CAT B (Table 3-3-4)	Up to an MDH of 360ft, all the metric values from <b>TERPS Table 3-3-4</b> are equal to or higher than the RVR values from <b>EASA Table 5</b> . From an MDH of 361ft, all the metric values from <b>TERPS Table 3-3-4</b> are lower than the RVR values from <b>EASA Table 5</b> .
		Up to an MDH of 360ft, all the metric values from <b>TERPS Table 3-3-4</b> are equal to or higher than the RVR values from <b>TERPS Table 3-3-1</b> . From an MDH of 361ft, all the metric values from <b>TERPS Table 3-3-4</b> are lower than the RVR values from <b>EASA TERPS Table 3-3-1</b> .
	CAT CD (Table 3-3-1)	- All the metric values from <b>TERPS Table 3-3-1</b> are equal to or higher than the RVR values from <b>EASA Table 5</b> .

# Non-Precision

## Summary:

EASA AIR OPS CAT CD operators can use the TERPS minimums for NPA operations as depicted on Approach Charts.

EASA AIR OPS **CAT AB** operators have to use the higher of CAT AB and CAT CD TERPS minimums for NPA operations as depicted on Approach Charts.

If the CAT AB minimums are higher than CAT CD minimums, the use of CAT AB minimums makes sure to not violate the U.S. State minimums, which are in this case also higher than EASA AIR OPS minimums.

If the CAT CD minimums are higher than CAT AB minimums, the use of CAT CD minimums makes sure to not violate EASA AIR OPS minimums.

# Circle-to-land (Circling)

EASA AIR OPS provides Table 7 “Circling – aeroplanes MDH and minimum visibility vs aeroplane category”.

The metric values from TERPS Table 3-3-7. “Authorized Circling Visibility Minimums” are used for comparison.

CAT →	A		B		C		D		E	
HAA	SM	M	SM	M	SM	M	SM	M	SM	M
350 - 449	1	1600								
450 - 549	1	1600	1	1600	1 1/2	2400				
550 - 600	1	1600	1	1600	1 1/2	2400	2	3200	2	3200
601 - 670	1	1600	1	1600	1 3/4	2800	2	3200	2 1/4	3600
671 – 740	1	1600	1	1600	2	3200	2 1/4	3600	2 1/2	4000
741 - 810	1	1600	1	1600	2 1/4	3600	2 1/2	4000	2 3/4	4400
811 - 880	1 1/4	2000	1 1/4	2000	2 1/2	4000	2 3/4	4400	3	4800
881 - 950	1 1/4	2000	1 1/4	2000	2 3/4	4400	3	4800	3	4800
951 and above	1 1/4	2000	1 1/2	2400	3	4800	3	4800	3	4800

# Circle-to-land (Circling)

## EASA AIR OPS

CAT A: MDH 400ft VIS 1500m

CAT B: MDH 500ft VIS 1600m

CAT C: MDH 600ft VIS 2400m

CAT D: MDH 700ft VIS 3600m

CAT A	MDH	The TERPS MDH could be as low as 350ft, while EASA requires 400ft.
	VIS	The TERPS VIS is always higher than the EASA VIS.
CAT B	MDH	The TERPS MDH could be as low as 450ft, while EASA requires 500ft.
	VIS	The TERPS VIS is always equal to or higher than the EASA VIS.
CAT C	MDH	The TERPS MDH could be as low as 450ft, while EASA requires 600ft.
	VIS	The TERPS VIS is always equal to or higher than the EASA VIS.
CAT D	MDH	The TERPS MDH could be as low as 550ft, while EASA requires 700ft.
	VIS	The TERPS VIS is lower than the EASA VIS for an MDH between 550ft and 670ft (including). The TERPS VIS is equal to or higher than the EASA VIS for MDH of 671ft or above.



# Circle-to-land (Circling)

A review on airports (169) in the United States with a minimum RWY length of 10000ft/3050m was done.

There is a small number of airports with an MDH below the EASA requirements.

**Summary:** EASA AIR OPS approved operators have to increase the MDH to 400ft/500ft/600ft/700ft (CAT A/B/C/D) if the circling MDH on instrument approach chart is lower.

EASA AIR OPS approved operators can normally use the depicted circling visibility. The only exception is for CAT D circling with an MDH below 700ft. While raising the MDH to 700ft, EASA AIR OPS approved operators have to use a circling visibility of 2 ¼ sm. EASA AIR OPS approved operators can use the charted circling VIS for all MDHs above 700ft.

# Take-off

The 1 sm and ½ sm Civil Standard Take-off Minimums according to TERPS Table 3-5-1 are well above the EASA requirements.

Lower than standard take-off minimums are published in the Jeppesen Airway Manual for FAA approved airports according to OpSpec C078 and they have procedures similar to the Low Visibility Procedures which are required for EASA AIR OPS operators.

Visibility	Requirements and Criteria	EASA
<b>RVR 16 or ¼</b> (~RVR 488m / VIS 402m)	Adequate Visual Reference or CL or RCLM or HIRL	Adequate Vis Ref (500m) RCLM or RL (400m)
<b>TDZ RVR 10 / Rollout RVR 10</b> (~RVR 305m)	CL, or HIRL & RCLM, 2 RVRs operating	RL & RCLM (Day), RL or CL (Night) (RVR 300m)
<b>RVR 5</b> (~RVR 153m)	CL & HIRL, 2 RVRs operating	HIRL & CL & RVR (RVR 125m)
<b>RVR 3</b> (~RVR 92m)	HUD & CL & HIRL, 2 RVRs operating	HIRL & CL & RVR and approved lateral guidance system or HUD/HUDLS (RVR 75m)

**Summary:** EASA AIR OPS approved operators can use the depicted take-off minimums and conditions.

