Annex VI to ED Decision 2022/012/R

'AMC & GM to Annex VI (Part-NCC) to Commission Regulation (EU) No 965/2012 — Issue 1, Amendment 16'

The text of the amendment is arranged to show deleted, new or amended text as shown below:

(a) deleted text is ~~struck through~~;

(b) new or amended text is highlighted in blue;

(c) an ellipsis '[…]' indicates that the rest of the text is unchanged.

Note to the reader

In amended, and in particular in existing (that is, unchanged) text, 'Agency' is used interchangeably with 'EASA'. The interchangeable use of these two terms is more apparent in the consolidated versions. Therefore, please note that both terms refer to the 'European Union Aviation Safety Agency (EASA)'.

The Annex to Decision N° 2013/021/R of 23 August 2013 of the Executive Director of the Agency is amended as follows:

GM1 NCC.OP.101 Altimeter check and settings

ALTIMETER SETTING PROCEDURES

The following paragraphs of ICAO Doc 8168 (PANS-OPS), Volume I provide recommended guidance on how to develop the altimeter setting procedure:

(a) 3.2 'Pre-flight operational test';

(b) 3.3 'Take-off and climb';

(c) 3.5 'Approach and landing'.

AMC3 NCC.OP.110 Aerodrome operating minima — general

TAKE-OFF OPERATIONS

(a) General~~:~~

(1) Take-off minima should be expressed as ~~visibility (~~VIS~~)~~ or RVR limits, taking into account all relevant factors for each aerodrome planned to be used and aircraft characteristics and equipment. Where there is a specific need to see and avoid obstacles on departure and/or for a forced landing, additional conditions, e.g. ceiling, should be specified.

(2) The pilot-in-command should not commence take-off unless the weather conditions at the aerodrome of departure are equal to or better than applicable minima for landing at that aerodrome, unless a weather-permissible take-off alternate aerodrome is available.

(3) When the reported ~~meteorological visibility~~ VIS is below that required for take-off and the RVR is not reported, a take-off should only be commenced if the pilot-in-command can determine that the visibility along the take-off runway/area is equal to or better than the required minimum.

(4) When no reported ~~meteorological visibility~~ VIS or RVR is available, a take-off should only be commenced if the pilot-in-command can determine that the visibility ~~RVR/ VIS~~ along the take-off runway/area is equal to or better than the required minimum.

(b) Visual reference~~:~~

(1) The take-off minima should be selected to ensure sufficient guidance to control the aircraft in the event of both a rejected take-off in adverse circumstances and a continued take-off after failure of the critical engine.

(2) For night operations, ~~ground lights should be available to illuminate the runway/final approach and take-off area (FATO) and any obstacles~~ the prescribed runway lights should be in operation to mark the runway and any obstacles.

(c) Required RVR~~/~~ or VIS~~visibility:~~

(1) Aeroplanes~~:~~

~~(i) For aeroplanes, the take-off minima specified by the operator should be expressed as RVR/VIS values not lower than those specified in Table 1.A.~~

~~(ii) When reported RVR or meteorological visibility is not available, the pilot-in-command should not commence take-off unless he/she can determine that the actual conditions satisfy the applicable take-off minima.~~

(i) For multi-engined aeroplanes, with such performance that in the event of a critical engine failure at any point during take-off the aeroplane can either stop or continue the take-off to a height of 1 500 ft above the aerodrome while clearing obstacles by the required margins, the take-off minima specified by the operator should be expressed as RVR or VIS values not lower than those specified in Table 1.

(ii) Multi-engined aeroplanes without the performance to comply with the conditions in (c)(1)(i) in the event of a critical engine failure may need to re-land immediately and to see and avoid obstacles in the take-off area. Such aeroplanes may be operated to the following take-off minima provided that they are able to comply with the applicable obstacle clearance criteria, assuming engine failure at the specified height:

(A) The take-off minima specified by the operator should be based on the height from which the one-engine-inoperative (OEI) net take-off flight path can be constructed.

(B) The RVR minima used should not be lower than either of the values specified in Table 1 or Table 2.

(iii) For single-engined complex aeroplane operations, the take-off minima specified by the operator should be expressed as RVR/CMV values not lower than those specified in Table 1 below.

Unless the operator is using a risk period, whenever the surface in front of the runway does not allow for a safe forced landing, the RVR values should not be lower than 800 m. In this case, the proportion of the flight to be considered starts at the lift-off position and ends when the aeroplane is able to turn back and land on the runway in the opposite direction or glide to the next landing site in case of power loss.

(iv) When the RVR or the VIS is not available, the commander should not commence take-off unless he or she can determine that the actual conditions satisfy the applicable take-off minima.

Table 1~~.A~~

Take-off — aeroplanes (without ~~low visibility take-off (~~LVTO~~)~~ approval)

RVR~~/~~ or VIS

Facilities	**RVR~~/~~ or VIS (m)***
Day only: Nil**	500
Day: at least runway edge lights or runway ~~centreline~~ centre line markings Night: at least runway edge lights or runway ~~centreline~~ centre line lights and runway end lights	400

*: The reported RVR~~/~~ or VIS value representative of the initial part of the take-off run can be replaced by pilot assessment.

**: The pilot is able to continuously identify the take-off surface and maintain directional control.

Table 2

Take-off — aeroplanes (without LVTO approval)

Assumed engine failure height above the runway versus RVR or VIS

Assumed engine failure height above the take-off runway (ft)	**RVR or VIS (m) ***
<50	400
51–100	400
101–150	400
151–200	500
201–300	1 000
>300 or if no positive take-off flight path can be constructed	1 500

*: The reported RVR or VIS value representative of the initial part of the take-off run can be replaced by pilot assessment.

(2) Helicopters~~:~~

(i) For helicopters having a mass where it is possible to reject the take-off and land on the FATO in case of the critical engine failure being recognised at or before the take-off decision point (TDP), the operator should specify an RVR or ~~/~~VIS as take-off minima in accordance with Table 3~~1.H~~.

(ii) For all other cases, the pilot-in-command should operate to take-off minima of 800 m RVR or ~~/~~VIS and remain clear of cloud during the take-off manoeuvre until reaching the performance capabilities of (c)(2)(i).

(iii) For point-in-space (PinS) departures to an initial departure fix (IDF), the take-off minima should be selected to ensure sufficient guidance to see and avoid obstacles and return to the heliport if the flight cannot continue visually to the IDF.

~~(iii) Table 5 for converting reported meteorological visibility to RVR should not be used for calculating take-off minima.~~

Table 3~~1.H~~

Take-off — helicopters (without LVTO approval)

RVR~~/ Visibility~~ or VIS

Onshore aerodromes or operating sites with instrument flight rules (IFR) departure procedures	**RVR~~/~~ or VIS (m)****
No light and no markings (day only)	400 or the rejected take-off distance, whichever is the greater
No markings (night)	800
Runway edge/FATO light and ~~centreline~~ centre line marking	400
Runway edge/FATO light, ~~centreline~~ centre line marking and relevant RVR information	400
Offshore helideck *	
Two-pilot operations	400
Single-pilot operations	500

*: The take-off flight path to be free of obstacles.

** On PinS departures to IDF, VIS should not be less than 800 m and the ceiling should not be less than 250 ft.

AMC4 NCC.OP.110 Aerodrome operating minima — general

~~**CRITERIA FOR ESTABLISHING RVR/CMV**~~

~~(a) In order to qualify for the lowest allowable values of RVR/CMV specified in Table 4.A, the instrument approach should meet at least the following facility requirements and associated conditions:~~

~~(1) Instrument approaches with designated vertical profile up to and including 4.5° for Category A and B aeroplanes, or 3.77° for Category C and D aeroplanes, where the facilities are:~~

~~(i) instrument landing system (ILS)/microwave landing system (MLS)/GBAS landing system (GLS)/precision approach radar (PAR); or~~

~~(ii) approach procedure with vertical guidance (APV); and~~

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

~~(2) Instrument approach operations flown using the CDFA technique with a nominal vertical profile, up to and including 4.5° for Category A and B aeroplanes, or 3.77° for Category C~~

~~and D aeroplanes, where the facilities are non-directional beacon (NDB), NDB/distance measuring equipment (DME), VHF omnidirectional radio range (VOR), VOR/DME, localiser (LOC), LOC/DME, VHF direction finder (VDF), surveillance radar approach (SRA) or global navigation satellite system (GNSS)/lateral navigation (LNAV), with a final approach segment of at least 3 NM, which also fulfil the following criteria:~~

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

~~(ii) the final approach fix (FAF) or another appropriate fix where descent is initiated is available, or distance to threshold (THR) is available by flight management system (FMS)/area navigation (NDB/DME) or DME; and~~

~~(iii) the missed approach point (MAPt) is determined by timing, the distance from FAF to THR is ≤ 8 NM.~~

~~(3) Instrument approaches where the facilities are NDB, NDB/DME, VOR, VOR/DME, LOC, LOC/DME, VDF, SRA or GNSS/LNAV, not fulfilling the criteria in (a)(2), or with an minimum descent height (MDH) ≥ 1 200 ft.~~

~~(b) The missed approach operation, after an approach operation has been flown using the CDFA technique, should be executed when reaching the decision height/altitude (DH/A) or the MAPt, whichever occurs first. The lateral part of the missed approach procedure should be flown via the MAPt unless otherwise stated on the approach chart.~~

DETERMINATION OF DH/MDH FOR INSTRUMENT APPROACH OPERATIONS — AEROPLANES

(a) The decision height (DH) to be used for a 3D approach operation or a 2D approach operation flown using the continuous descent final approach (CDFA) technique should not be lower than the highest of:

(1) the obstacle clearance height (OCH) for the category of aircraft;

(2) the published approach procedure DH or minimum descent height (MDH) where applicable;

(3) the system minima specified in Table 4;

(4) the minimum DH permitted for the runway specified in Table 5; or

(5) the minimum DH specified in the AFM or equivalent document, if stated.

(b) The MDH for a 2D approach operation flown not using the CDFA technique should not be lower than the highest of:

(1) the OCH for the category of aircraft;

(2) the published approach procedure MDH where applicable;

(3) the system minima specified in Table 4;

(4) the lowest MDH permitted for the runway specified in Table 5; or

(5) the lowest MDH specified in the AFM, if stated.

DETERMINATION OF DH/MDH FOR INSTRUMENT APPROACH OPERATIONS — HELICOPTERS

(c) The DH or MDH should not be lower than the highest of:

(1) the OCH for the category of aircraft used;

(2) the published approach procedure DH or MDH where applicable;

(3) the system minima specified in Table 4;

(4) the lowest DH or MDH permitted for the runway/FATO specified in Table 6 if applicable; or

(5) the lowest DH or MDH specified in the AFM, if stated.

Table 4

System minima — all aircraft

Facility	**Lowest DH/MDH (ft)**
ILS/MLS/GLS	200
GNSS/SBAS (LPV)	200*
Precision approach radar (PAR)	200
GNSS/SBAS (LP)	250
GNSS (LNAV)	250
GNSS/Baro VNAV (LNAV/VNAV)	250
Helicopter PinS approach	250**
LOC with or without DME	250
SRA (terminating at ½ NM)	250
SRA (terminating at 1 NM)	300
SRA (terminating at 2 NM or more)	350
VOR	300
VOR/DME	250
NDB	350
NDB/DME	300
VDF	350

* For localiser performance with vertical guidance (LPV), a DH of 200 ft may be used only if the published final approach segment (FAS) datablock sets a vertical alert limit not exceeding 35 m. Otherwise, the DH should not be lower than 250 ft.

** For PinS approaches with instructions to 'proceed VFR' to an undefined or virtual destination, the DH or MDH should be with reference to the ground below the MAPt.

Table 5

Runway type minima — aeroplanes

Runway type	**Lowest DH/MDH (ft)**
Precision approach (PA) runway, category I	200
NPA runway	250
Non-instrument runway	Circling minima as shown in Table 1 in NCC.OP.112

Table 6

Type of runway/FATO versus lowest DH/MDH — helicopters

Type of runway/FATO	**Lowest DH/MDH (ft)**
PA runway, category I NPA runway Non-instrument runway	200
Instrument FATO FATO	200 250

Table 6 does not apply to helicopter PinS approaches with instructions to 'proceed VFR'

AMC5 NCC.OP.110 Aerodrome operating minima

DETERMINATION OF RVR OR VIS ~~RVR/CMV/VISMINIMA FOR NPA, APV, CAT I~~ FOR INSTRUMENT APPROACH OPERATIONS — AEROPLANES

~~(a) The minimum RVR/CMV/VIS should be the highest of the values specified in Table 3 and Table 4.A but not greater than the maximum values specified in Table 4.A, where applicable.~~

~~(b) The values in Table 3 should be derived from the formula below:~~

~~required RVR/VIS (m) = [(DH/MDH (ft) x 0.3048) / tanα] – length of approach lights (m);~~

~~where α is the calculation angle, being a default value of 3.00° increasing in steps of 0.10° for each line in Table 3 up to 3.77° and then remaining constant.~~

~~(c) If the approach is flown with a level flight segment at or above MDA/H, 200 m should be added for Category A and B aeroplanes and 400 m for Category C and D aeroplanes to the minimum RVR/CMV/VIS value resulting from the application of Table 3 and Table 4.A.~~

~~(d) An RVR of less than 750 m as indicated in Table 3 may be used:~~

~~(1) for CAT I operations to runways with full approach lighting system (FALS), runway touchdown zone lights (RTZL) and runway centreline lights (RCLL);~~

~~(2) for CAT I operations to runways without RTZL and RCLL when using an approved head-up guidance landing system (HUDLS), or equivalent approved system, or when conducting a~~

~~coupled approach or flight-director-flown approach to a DH. The ILS should not be published as a restricted facility; and~~

~~(3) for APV operations to runways with FALS, RTZL and RCLL when using an approved head-up display (HUD).~~

~~(e) Lower values than those specified in Table 3 may be used for HUDLS and autoland operations if approved in accordance with Annex V (Part SPA), Subpart E.~~

~~(f) The visual aids should comprise standard runway day markings and approach and runway lights as specified in Table 2. The competent authority may approve that RVR values relevant to a basic approach lighting system (BALS) are used on runways where the approach lights are restricted in length below 210 m due to terrain or water, but where at least one cross-bar is available.~~

~~(g) For night operations or for any operation where credit for runway and approach lights is required, the lights should be on and serviceable, except as provided for in Table 6.~~

~~(h) For single-pilot operations, the minimum RVR/VIS should be calculated in accordance with the following additional criteria:~~

~~(1) an RVR of less than 800 m as indicated in Table 3 may be used for CAT I approaches provided any of the following is used at least down to the applicable DH:~~

~~(i) a suitable autopilot, coupled to an ILS, MLS or GLS that is not published as restricted; or~~

~~(ii) an approved HUDLS, including, where appropriate, enhanced vision system (EVS), or equivalent approved system;~~

~~(2) where RTZL and/or RCLL are not available, the minimum RVR/CMV should not be less than 600 m; and~~

~~(3) an RVR of less than 800 m as indicated in Table 3 may be used for APV operations to runways with FALS, RTZL and RCLL when using an approved HUDLS, or equivalent approved system, or when conducting a coupled approach to a DH equal to or greater than 250 ft.~~

~~**Table 2: Approach lighting systems**~~

~~**Class of lighting facility**~~	~~**Length, configuration and intensity of approach lights**~~
~~FALS~~	~~CAT I lighting system (HIALS ≥ 720 m) distance coded centreline, Barrette centreline~~
~~IALS~~	~~Simple approach lighting system (HIALS 420 – 719 m) single source, Barrette~~
~~BALS~~	~~Any other approach lighting system (HIALS, MIALS or ALS 210 – 419 m)~~
~~NALS~~	~~Any other approach lighting system (HIALS, MIALS or ALS < 210 m) or no approach lights~~

~~Note:~~ ~~HIALS: high intensity approach lighting system;~~
~~MIALS: medium intensity approach lighting system;~~
~~ALS: approach lighting system.~~

~~Table 3: RVR/CMV vs. DH/MDH~~

~~DH or MDH~~			~~Class of lighting facility~~			
			~~FALS~~	~~IALS~~	~~BALS~~	~~NALS~~
			~~See (d), (e), (h) above for RVR < 750/800 m~~			
~~ft~~			~~RVR/CMV (m)~~			
~~200~~	~~-~~	~~210~~	~~550~~	~~750~~	~~1 000~~	~~1 200~~
~~211~~	~~-~~	~~220~~	~~550~~	~~800~~	~~1 000~~	~~1 200~~
~~221~~	~~-~~	~~230~~	~~550~~	~~800~~	~~1 000~~	~~1 200~~
~~231~~	~~-~~	~~240~~	~~550~~	~~800~~	~~1 000~~	~~1 200~~
~~241~~	~~-~~	~~250~~	~~550~~	~~800~~	~~1 000~~	~~1 300~~
~~251~~	~~-~~	~~260~~	~~600~~	~~800~~	~~1 100~~	~~1 300~~
~~261~~	~~-~~	~~280~~	~~600~~	~~900~~	~~1 100~~	~~1 300~~
~~281~~	~~-~~	~~300~~	~~650~~	~~900~~	~~1 200~~	~~1 400~~
~~301~~	~~-~~	~~320~~	~~700~~	~~1 000~~	~~1 200~~	~~1 400~~
~~321~~	~~-~~	~~340~~	~~800~~	~~1 100~~	~~1 300~~	~~1 500~~
~~341~~	~~-~~	~~360~~	~~900~~	~~1 200~~	~~1 400~~	~~1 600~~
~~361~~	~~-~~	~~380~~	~~1 000~~	~~1 300~~	~~1 500~~	~~1 700~~
~~381~~	~~-~~	~~400~~	~~1 100~~	~~1 400~~	~~1 600~~	~~1 800~~
~~401~~	~~-~~	~~420~~	~~1 200~~	~~1 500~~	~~1 700~~	~~1 900~~
~~421~~	~~-~~	~~440~~	~~1 300~~	~~1 600~~	~~1 800~~	~~2 000~~
~~441~~	~~-~~	~~460~~	~~1 400~~	~~1 700~~	~~1 900~~	~~2 100~~
~~461~~	~~-~~	~~480~~	~~1 500~~	~~1 800~~	~~2 000~~	~~2 200~~
~~481~~		~~500~~	~~1 500~~	~~1 800~~	~~2 100~~	~~2 300~~
~~501~~	~~-~~	~~520~~	~~1 600~~	~~1 900~~	~~2 100~~	~~2 400~~
~~521~~	~~-~~	~~540~~	~~1 700~~	~~2 000~~	~~2 200~~	~~2 400~~
~~541~~	~~-~~	~~560~~	~~1 800~~	~~2 100~~	~~2 300~~	~~2 500~~
~~561~~	~~-~~	~~580~~	~~1 900~~	~~2 200~~	~~2 400~~	~~2 600~~
~~581~~	~~-~~	~~600~~	~~2 000~~	~~2 300~~	~~2 500~~	~~2 700~~
~~601~~	~~-~~	~~620~~	~~2 100~~	~~2 400~~	~~2 600~~	~~2 800~~
~~621~~	~~-~~	~~640~~	~~2 200~~	~~2 500~~	~~2 700~~	~~2 900~~
~~641~~	~~-~~	~~660~~	~~2 300~~	~~2 600~~	~~2 800~~	~~3 000~~
~~661~~	~~-~~	~~680~~	~~2 400~~	~~2 700~~	~~2 900~~	~~3 100~~
~~681~~	~~-~~	~~700~~	~~2 500~~	~~2 800~~	~~3 000~~	~~3 200~~
~~701~~	~~-~~	~~720~~	~~2 600~~	~~2 900~~	~~3 100~~	~~3 300~~
~~721~~	~~-~~	~~740~~	~~2 700~~	~~3 000~~	~~3 200~~	~~3 400~~
~~741~~	~~-~~	~~760~~	~~2 700~~	~~3 000~~	~~3 300~~	~~3 500~~
~~761~~	~~-~~	~~800~~	~~2 900~~	~~3 200~~	~~3 400~~	~~3 600~~
~~801~~	~~-~~	~~850~~	~~3 100~~	~~3 400~~	~~3 600~~	~~3 800~~
~~851~~	~~-~~	~~900~~	~~3 300~~	~~3 600~~	~~3 800~~	~~4 000~~
~~901~~	~~-~~	~~950~~	~~3 600~~	~~3 900~~	~~4 100~~	~~4 300~~
~~951~~	~~-~~	~~1 000~~	~~3 800~~	~~4 100~~	~~4 300~~	~~4 500~~
~~1 001~~	~~-~~	~~1 100~~	~~4 100~~	~~4 400~~	~~4 600~~	~~4 900~~
~~1 101~~	~~-~~	~~1 200~~	~~4 600~~	~~4 900~~	~~5 000~~	~~5 000~~
~~1 201 and above~~			~~5 000~~	~~5 000~~	~~5 000~~	~~5 000~~

~~**Table 4.A: CAT I, APV, NPA – aeroplanes**~~

~~**Minimum and maximum applicable RVR/CMV (lower and upper cut-off limits)**~~

~~Facility/conditions~~	~~RVR/CMV (m)~~	~~Aeroplane category~~			
		~~A~~	~~B~~	~~C~~	~~D~~
~~ILS, MLS, GLS, PAR, GNSS/SBAS, GNSS/VNAV~~	~~Min~~	~~According to Table 3~~			
	~~Max~~	~~1 500~~	~~1 500~~	~~2 400~~	~~2 400~~
~~NDB, NDB/DME, VOR, VOR/DME, LOC, LOC/DME, VDF, SRA, GNSS/LNAV with a procedure that fulfils the criteria in AMC4 NCC.OP.110 (a)(2).~~	~~Min~~	~~750~~	~~750~~	~~750~~	~~750~~
	~~Max~~	~~1 500~~	~~1 500~~	~~2 400~~	~~2 400~~
~~For NDB, NDB/DME, VOR, VOR/DME, LOC, LOC/DME, VDF, SRA, GNSS/LNAV:~~ ~~— not fulfilling the criteria in AMC4 NCC.OP.110 (a)(2)., or~~ ~~— with a DH or MDH ≥ 1 200 ft~~	~~Min~~	~~1 000~~	~~1 000~~	~~1 200~~	~~1 200~~
	~~Max~~	~~According to Table 3 if flown using the CDFA technique, otherwise an add-on of 200/400 m applies to the values in Table 3 but not to result in a value exceeding 5 000 m.~~			

(a) The RVR or VIS for straight-in instrument approach operations should not be less than the greatest of the following:

(1) the minimum RVR or VIS for the type of runway used according to Table 7; or

(2) the minimum RVR determined according to the MDH or DH and class of lighting facility according to Table 8; or

(3) the minimum RVR according to the visual and non-visual aids and on-board equipment used according to Table 9.

If the value determined in (1) is a VIS, then the result is a minimum VIS. In all other cases, the result is a minimum RVR.

(b) For Category A and B aeroplanes, if the RVR or VIS determined in accordance with point (a) is greater than 1 500 m, then 1 500 m should be used.

(c) If the approach is flown with a level flight segment at or above the MDA/H, then 200 m should be added to the RVR calculated in accordance with (a) and (b) for Category A and B aeroplanes and 400 m for Category C and D aeroplanes.

(d) The visual aids should comprise standard runway day markings, runway edge lights, threshold lights, runway end lights and approach lights as defined in Table 10.

Table 7

Type of runway versus minimum RVR or VIS — aeroplanes

Type of runway	**Minimum RVR or VIS (m)**
PA runway, category I	RVR 550
NPA runway	RVR 750
Non-instrument runway	VIS according to Table 1 in NCC.OP.112 (Circling minima)

Table 8

RVR versus DH/MDH

DH or MDH (ft)			**Class of lighting facility**			
			FALS	**IALS**	**BALS**	**NALS**
			RVR (m)			
200	-	210	550	750	1 000	1 200
211	-	240	550	800	1 000	1 200
241	-	250	550	800	1 000	1 300
251	-	260	600	800	1 100	1 300
261	-	280	600	900	1 100	1 300
281	-	300	650	900	1 200	1 400
301	-	320	700	1 000	1 200	1 400
321	-	340	800	1 100	1 300	1 500
341	-	360	900	1 200	1 400	1 600
361	-	380	1 000	1 300	1 500	1 700
381	-	400	1 100	1 400	1 600	1 800
401	-	420	1 200	1 500	1 700	1 900
421	-	440	1 300	1 600	1 800	2 000
441	-	460	1 400	1 700	1 900	2 100
461	-	480	1 500	1 800	2 000	2 200
481		500	1 500	1 800	2 100	2 300
501	-	520	1 600	1 900	2 100	2 400
521	-	540	1 700	2 000	2 200	2 400
541	-	560	1 800	2 100	2 300	2 400
561	-	580	1 900	2 200	2 400	2 400
581	-	600	2 000	2 300	2 400	2 400
601	-	620	2 100	2 400	2 400	2 400
621	-	640	2 200	2 400	2 400	2 400
641		660	2 300	2 400	2 400	2 400
661	and above		2 400	2 400	2 400	2 400

Table 9

Visual and non-visual aids and/or on-board equipment versus minimum RVR — multi-pilot operations

Type of approach	Facilities	Lowest RVR	
		Multi-pilot operations	Single-pilot operations
3D operations	runway touchdown zone lights (RTZL) and runway centre line lights (RCLL)	No limitation	
	without RTZL and RCLL but using HUDLS or equivalent system; coupled autopilot or flight director to the DH	No limitation	600
	No RTZL and RCLL, not using HUDLS or equivalent system or autopilot to the DH	750 m	800
2D operations	Final approach track offset ≤15° for category A and B aeroplanes or ≤5° for Category C and D aeroplanes	750 m	2D operations
	Final approach track offset > 15° for Category A and B aeroplanes	1 000 m	1 000
	Final approach track offset > 5° for Category C and D aeroplanes	1 200 m	1 200

Table 10

Approach lighting systems — aeroplanes

Class of lighting facility	Length, configuration and intensity of approach lights
FALS	CAT I lighting system (HIALS ≥720 m) distance coded centre line, barrette centre line
IALS	Simple approach lighting system (HIALS 420–719 m) single source, barrette
BALS	Any other approach lighting system (HIALS, MALS or ALS 210–419 m)
NALS	Any other approach lighting system (HIALS, MALS or ALS <210 m) or no approach lights

(e) For night operations or for any operation where credit for visual aids is required, the lights should be on and serviceable except as provided for in Table 15.

(f) Where any visual or non-visual aid specified for the approach and assumed to be available in the determination of operating minima is unavailable, revised operating minima will need to be determined.

AMC6 NCC.OP.110 Aerodrome operating minima — general

DETERMINATION OF RVR~~/CMV/~~OR VIS ~~MINIMA~~ FOR ~~NPA,~~ TYPE A INSTRUMENT APPROACH AND TYPE B CAT I INSTRUMENT APPROACH OPERATIONS — HELICOPTERS

~~(a) For non-precision approach (NPA) operations the minima specified in Table 4.1.H should apply:~~

~~(1) where the missed approach point is within ½ NM of the landing threshold, the approach minima specified for FALS may be used regardless of the length of approach lights available. However, FATO/runway edge lights, threshold lights, end lights and FATO/runway markings are still required;~~

~~(2) for night operations, ground lights should be available to illuminate the FATO/runway and any obstacles; and~~

~~(3) for single-pilot operations, the minimum RVR is 800 m or the minima in Table 4.2.H, whichever is higher.~~

~~(b) For CAT I operations, the minima specified in Table 4.2.H should apply:~~

~~(1) for night operations, ground light should be available to illuminate the FATO/runway and any obstacles;~~

~~(2) for single-pilot operations, the minimum RVR/VIS should be calculated in accordance with the following additional criteria:~~

~~(i) an RVR of less than 800 m should not be used except when using a suitable autopilot coupled to an ILS, MLS or GLS, in which case normal minima apply; and~~

~~(ii) the DH applied should not be less than 1.25 times the minimum use height for the autopilot.~~

~~Table 4.1.H: Onshore minima~~

~~MDH /DH (ft) *~~	~~Approach lighting systems vs RVR/CMV (m) **, ***~~			
	~~FALS~~	~~IALS~~	~~BALS~~	~~NALS~~
~~250–299~~	~~600~~	~~800~~	~~1 000~~	~~1 000~~
~~300–449~~	~~800~~	~~1 000~~	~~1 000~~	~~1 000~~
~~450 and above~~	~~1 000~~	~~1 000~~	~~1 000~~	~~1 000~~

~~*: 'MDH/DH' refers to the initial calculation of MDH/DH. When selecting the associated RVR, 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/DA.~~

~~**: The tables are only applicable to conventional approaches with a nominal descent slope of not greater than 4°. Greater descent slopes will usually require that visual glideslope guidance (e.g. precision approach path indicator (PAPI)) is also visible at the MDH.~~

~~Table 4.2.H: Onshore CAT I minima~~

~~DH (ft) *~~	~~Approach lighting systems vs RVR/CMV (m) **, ***~~

	~~FALS~~	~~IALS~~	~~BALS~~	~~NALS~~
~~200~~	~~500~~	~~600~~	~~700~~	~~1 000~~
~~201–250~~	~~550~~	~~650~~	~~750~~	~~1 000~~
~~251–300~~	~~600~~	~~700~~	~~800~~	~~1 000~~
~~301 and above~~	~~750~~	~~800~~	~~900~~	~~1 000~~

~~*: 'DH' refers to the initial calculation of DH. When selecting the associated RVR, 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.~~

~~**: The table is applicable to standard approaches with a glide slope up to and including 4°.~~

(a) For IFR operations, the RVR or VIS should not be less than the greatest of:

(1) the minimum RVR or VIS for the type of runway/FATO used according to Table 11;

(2) the minimum RVR determined according to the MDH or DH and class of lighting facility according to Table 12; or

(3) for PinS operations with instructions to 'proceed visually', the distance between the MAPt of the PinS and the FATO or its approach light system.

If the value determined in (1) is a VIS, then the result is a minimum VIS. In all other cases, the result is a minimum RVR.

(b) For PinS operations with instructions to 'proceed VFR', the VIS should be compatible with visual flight rules.

(c) For type A instrument approaches where the MAPt is within ½ NM of the landing threshold, the approach minima specified for FALS may be used regardless of the length of approach lights available. However, FATO/runway edge lights, threshold lights, end lights and FATO/runway markings are still required.

(d) An RVR of less than 800 m should not be used except when using a suitable autopilot coupled to an ILS, MLS, GLS or LPV, in which case normal minima apply.

(e) For night operations, ground lights should be available to illuminate the FATO/runway and any obstacles.

(f) The visual aids should comprise standard runway day markings, runway edge lights, threshold lights and runway end lights and approach lights as specified in Table 13.

(g) For night operations or for any operation where credit for runway and approach lights as defined in Table 13 is required, the lights should be on and serviceable except as provided for in Table 15.

Table 11

Type of runway/FATO versus minimum RVR or VIS — helicopters

Type of runway/FATO	Minimum RVR or VIS
PA runway, category I NPA runway Non-instrument runway	RVR 550 m
Instrument FATO FATO	RVR 550 m RVR or VIS 800 m

Table 12

Onshore helicopter instrument approach minima

DH/MDH (ft)	Facilities versus RVR (m)			
	FALS	IALS	BALS	NALS
200	550	600	700	1 000
201–249	550	650	750	1 000
250–299	600*	700*	800	1 000
300 and above	750*	800	900	1 000

* Minima on 2D approach operations should be no lower than 800 m.

Table 13

Approach lighting systems — helicopters

Class of lighting facility	Length, configuration and intensity of approach lights
FALS	CAT I lighting system (HIALS ≥ 720 m) distance coded centre line, barrette centre line
IALS	Simple approach lighting system (HIALS 420–719 m) single source, barrette
BALS	Any other approach lighting system (HIALS, MALS or ALS 210–419 m)
NALS	Any other approach lighting system (HIALS, MALS or ALS < 210 m) or no approach lights

AMC8 NCC.OP.110 Aerodrome operating minima — general

CONVERSION OF ~~REPORTED METEOROLOGICAL~~ VISIBILITY TO ~~RVR/~~CMV — AEROPLANES

~~(a) A conversion from meteorological visibility to RVR/CMV should not be used:~~

~~(1) when the reported RVR is available;~~

~~(2) for calculating take-off minima; and~~

~~(3) for other RVR minima less than 800 m~~

~~(b) If the RVR is reported as being above the maximum value assessed by the aerodrome operator, e.g. 'RVR more than 1 500 m', it should not be considered as a reported value for (a)(1).~~

~~(c) When converting meteorological visibility to RVR in circumstances other than those in (a), the conversion factors specified in Table 5 should be used.~~

The following conditions should apply to the use of CMV instead of RVR:

(a) If the reported RVR is not available, a CMV may be substituted for the RVR, except:

(1) to satisfy take-off minima; or

(2) for the purpose of continuation of an approach in LVO.

(b) If the minimum RVR for an approach is more than the maximum value assessed by the aerodrome operator, then CMV should be used.

(c) In order to determine CMV from visibility:

(1) for flight planning purposes, a factor of 1.0 should be used;

(2) for purposes other than flight planning, the conversion factors specified in Table 14 should be used.

Table 14~~5~~

Conversion of reported ~~meteorological visibility~~ VIS to ~~RVR/~~CMV

Light elements in operation	**~~RVR/~~CMV = reported VIS x ~~meteorological visibility x~~**	
	Day	**Night**
HI approach and runway lights	1.5	2.0
Any type of light installation other than above	1.0	1.5
No lights	1.0	not applicable

AMC9 NCC.OP.110 Aerodrome operating minima — general

EFFECT ON LANDING MINIMA OF TEMPORARILY FAILED OR DOWNGRADED GROUND EQUIPMENT

(a) General

These instructions are intended for both pre-flight and in-flight use. It is, however, not expected that the pilot-in-command would consult such instructions after passing 1 000 ft above the aerodrome. If failures of ground aids are announced at such a late stage, the approach could be continued at the pilot-in-command's discretion. If failures are announced before such a late stage in the approach, their effect on the approach should be considered as described in Table 15~~6~~ and, if considered necessary, the approach should be abandoned.

(b) Conditions applicable to Table 15~~6~~:

(1) multiple failures of runway/FATO lights other than those indicated in Table 15~~6~~ should not be acceptable;

(2) deficiencies of approach and runway/FATO lights are treated separately; and

(3) failures other than ILS, GLS, or MLS affect the RVR only and not the DH.

Table 15~~6~~

Failed or downgraded equipment — effect on landing minima

Failed or downgraded equipment	Effect on landing minima	
	~~CAT I~~ Type B	**~~APV, NPA~~ Type A**
~~ILS/MLS~~Navaid standby transmitter	No effect	
Outer marker (ILS only)	No effect if ~~replaced by height check at 1 000 ft~~ the required height or glide path can be checked using other means, e.g. DME fix	APV — not applicable NPA with FAF: no effect unless used as FAF If the FAF cannot be identified (e.g. no method available for timing of descent), ~~non-precision~~ NPA operations cannot be conducted
Middle marker (ILS only)	No effect	No effect unless used as MAPt
RVR assessment systems	No effect	
Approach lights	Minima as for NALS	
Approach lights except the last 210 m	Minima as for BALS	
Approach lights except the last 420 m	Minima as for IALS	
Standby power for approach lights	No effect	
Edge lights, threshold lights and runway end lights	Day: no effect Night: not allowed	
~~Centreline~~ Centre line lights	Aeroplanes: No effect if flight director (F/D), HUDLS or autoland; otherwise, RVR 750 m Helicopters: No effect on CAT I and SA CAT I approach operations	No effect
~~Centreline~~ Centre line lights spacing increased to 30 m	No effect	
~~Touchdown zone~~ TDZ lights	Aeroplanes: No effect if F/D, HUDLS or autoland; otherwise, RVR 750 m Helicopters: No effect	No effect
Taxiway lighting system	No effect	

GM1 NCC.OP.110 Aerodrome operating minima — general

AIRCRAFT CATEGORIES

[…]

Table 16~~1~~: Aircraft categories corresponding to V_{AT} values

[…]

GM4 NCC.OP.110 Aerodrome operating minima — general

APPROACH LIGHTING SYSTEMS — ICAO AND FAA SPECIFICATIONS

The following table provides a comparison of the ICAO and FAA specifications.

Table 17

Approach lighting systems — ICAO and FAA specifications

Class of lighting facility	**Length, configuration and intensity of approach lights**
FALS	ICAO: CAT I lighting system (HIALS ≥ 720 m) distance coded centre line, barrette centre line FAA: ALSF1, ALSF2, SSALR, MALSR, high- or medium-intensity and/or flashing lights, 720 m or more
IALS	ICAO: simple approach lighting system (HIALS 420–719 m) single source, barrette FAA: MALSF, MALS, SALS/SALSF, SSALF, SSALS, high- or medium-intensity and/or flashing lights, 420–719 m
BALS	Any other approach lighting system (e.g. HIALS, MALS or ALS 210–419 m) FAA: ODALS, high- or medium-intensity or flashing lights 210–419 m
NALS	Any other approach lighting system (e.g. HIALS, MALS or ALS <210 m) or no approach lights

GM5 NCC.OP.110 Aerodrome operating minima — general

SBAS OPERATIONS

(a) SBAS LPV operations with a DH of 200 ft depend on an SBAS approved for operations down to a DH of 200 ft.

(b) The following systems are in operational use or in a planning phase:

(1) European geostationary navigation overlay service (EGNOS), operational in Europe;

(2) wide area augmentation system (WAAS), operational in the USA;

(3) multi-functional satellite augmentation system (MSAS), operational in Japan;

(4) system of differential correction and monitoring (SDCM), planned by Russia;

(5) GPS-aided geo-augmented navigation (GAGAN) system, planned by India; and

(6) satellite navigation augmentation system (SNAS), planned by China.

GM6 NCC.OP.110 Aerodrome operating minima — general

MEANS TO DETERMINE THE REQUIRED RVR BASED ON DH AND LIGHTING FACILITIES

The values in Table 8 are derived from the formula below:

RVR (m) = [(DH/MDH (ft) x 0.3048)/tanα] — length of approach lights (m),

where α is the calculation angle, being a default value of 3.00° increasing in steps of 0.10° for each line in Table 8 up to 3.77° and then remaining constant. An upper RVR limit of 2 400 m has been applied to the table.

GM7 NCC.OP.110 Aerodrome operating minima — general

USE OF DH FOR NPAs FLOWN USING THE CDFA TECHNIQUE

The safety of the use of MDH as DH in CDFA operations has been verified by at least two independent analyses concluding that a CDFA using MDH as DH without any add-on is safer than the traditional step-down and level flight NPA operation. A comparison was made between the safety level of using MDH as DH without an add-on with the well-established safety level resulting from the ILS collision risk model (CRM). The NPA used was the most demanding, i.e. most tightly designed NPA, which offers the least additional margins. It should be noted that the design limits of the ILS approach design, e.g. the maximum glide path (GP) angle of 3,5 degrees, must be observed for the CDFA in order to keep the validity of the comparison.

There is a wealth of operational experience in Europe confirming the above-mentioned analytical assessments. It cannot be expected that each operator is able to conduct similar safety assessments, and this is not necessary. The safety assessments already performed take into account the most demanding circumstances at hand, like the most tightly designed NPA procedures and other 'worst-case scenarios'. The assessments naturally focus on cases where the controlling obstacle is located in the missed approach area.

However, it is necessary for operators to assess whether their cockpit procedures and training are adequate to ensure minimal height loss in case of a go-around manoeuvre. Suitable topics for the safety assessment required by each operator may include:

— understanding of the CDFA concept including use of the MDA/H as DA/H;

— cockpit procedures that ensure flight on speed, on path and with proper configuration and energy management;

— cockpit procedures that ensure gradual decision-making; and

— identification of cases where an increase of the DA/H may be necessary because of non-standard circumstances, etc.

GM8 NCC.OP.110 Aerodrome operating minima — general

INCREMENTS SPECIFIED BY THE COMPETENT AUTHORITY

Additional increments to the published minima may be specified by the competent authority to take into account certain operations, such as downwind approaches, single-pilot operations or approaches flown not using the CDFA technique.

GM9 NCC.OP.110 Aerodrome operating minima — general

USE OF COMMERCIALLY AVAILABLE INFORMATION

When an operator uses commercially available information to establish aerodrome operating minima, the operator remains responsible for ensuring that the material used is accurate and suitable for its operation, and that the aerodrome operating minima are calculated in accordance with the method specified in Part C of its operations manual and approved by the competent authority.

The operator should apply the procedures in ORO.GEN.205 'Contracted activities'.

GM10 NCC.OP.110(b)(5) Aerodrome operating minima

VISUAL AND NON-VISUAL AIDS AND INFRASTRUCTURE

'Visual and non-visual aids and infrastructure' refers to all equipment and facilities required for the procedure to be used for the intended instrument approach operation. This includes but is not limited to lights, markings, ground- or space-based radio aids, etc.

~~AMC1 NCC.OP.111 Aerodrome operating minima — NPA, APV, CAT I operations~~

~~**NPA FLOWN WITH THE CDFA TECNHIQUE**~~

GM1 NCC.OP.112 Aerodrome operating minima — circling operations with aeroplanes

SUPPLEMENTAL INFORMATION

(a) The purpose of this ~~G~~guidance ~~M~~material is to provide operators with supplemental information regarding the application of aerodrome operating minima in relation to circling approaches.

(b) Conduct of flight — general~~:~~

(1) the MDH and ~~obstacle clearance height (~~OCH~~)~~ included in the procedure are referenced to aerodrome elevation;

(2) the MDA is referenced to mean sea level;

(3) for these procedures, the applicable visibility is the ~~meteorological visibility~~ VIS; and

(4) operators should provide tabular guidance of the relationship between height above threshold and the in-flight visibility required to obtain and sustain visual contact during the circling manoeuvre.

(c) Instrument approach followed by visual manoeuvring (circling) without prescribed tracks~~:~~

(1) When the aeroplane is on the initial instrument approach, before visual reference is stabilised, but not below the MDA/H — the aeroplane should follow the corresponding instrument approach procedure (IAP) until the appropriate instrument MAPt is reached.

(2) At the beginning of the level flight phase at or above the MDA/H, the instrument approach track ~~determined by the radio navigation aids, RNAV, RNP, ILS, MLS or GLS~~ should be maintained until the pilot:

(i) estimates that, in all probability, visual contact with the runway of intended landing or the runway environment will be maintained during the entire circling procedure;

(ii) estimates that the aeroplane is within the circling area before commencing circling; and

(iii) is able to determine the aeroplane's position in relation to the runway of intended landing with the aid of the appropriate ~~external~~ visual references.

(3) If the pilot cannot comply with the conditions in (c)(2) at the MAPt ~~When reaching the published instrument MAPt and the conditions stipulated in (c)(2) are unable to be established by the pilot~~, then a missed approach should be ~~carried out~~executed in accordance with ~~that~~ the ~~instrument approach procedure~~ IAP.

(4) After the aeroplane has left the track of the initial instrument approach, the flight phase outbound from the runway should be limited to an appropriate distance, which is required to align the aeroplane onto the final approach. Such manoeuvres should be conducted to enable the aeroplane to:

(i) ~~to~~ attain a controlled and stable descent path to the intended landing runway; and

(ii) ~~to~~ remain within the circling area and in ~~a~~ such a way that visual contact with the runway of intended landing or runway environment is maintained at all times.

(5) Flight manoeuvres should be carried out at an altitude/height that is not less than the circling MDA/H.

(6) Descent below the MDA/H should not be initiated until the threshold of the runway to be used has been appropriately identified. The aeroplane should be in a position to continue with a normal rate of descent and land within the ~~touchdown zone~~ TDZ.

(d) Instrument approach followed by a visual manoeuvring (circling) with prescribed track~~.~~

(1) The aeroplane should remain on the initial ~~instrument approach procedure~~ IAP until one of the following is reached:

(i) the prescribed divergence point to commence circling on the prescribed track; or

(ii) the MAPt.

(2) The aeroplane should be established on the instrument approach track ~~determined by the radio navigation aids, RNAV, RNP, ILS, MLS or GLS~~ in level flight at or above the MDA/H at or by the circling manoeuvre divergence point.

[…]

(8) Unless otherwise specified in the procedure, final descent should not be commenced from the MDA/H until the threshold of the intended landing runway has been identified and the aeroplane is in a position to continue with a normal rate of descent to land within the ~~touchdown zone~~TDZ.

(e) Missed approach

(1) Missed approach during the instrument procedure prior to circling~~:~~

(i) if the missed approach procedure is required to be flown when the aeroplane is positioned on the instrument approach track ~~defined by radio navigation aids; RNAV, RNP, ILS, MLS or GLS~~and before commencing the circling manoeuvre, the published missed approach for the instrument approach should be followed; or

(ii) if the ~~instrument approach procedure~~ IAP is carried out with the aid of an ILS, an MLS or a stabilised approach (SAp), the MAPt associated with an ILS or an MLS procedure without glide path (GP-out procedure) or the SAp, where applicable, should be used.

[…]

AMC1 NCC.OP.115 Departure and approach procedures

APPROACH FLIGHT TECHNIQUE — AEROPLANES

(a) All approach operations should be flown as SAp operations.

(b) The CDFA technique should be used for NPA procedures.

AMC2 NCC.OP.116 Performance-based navigation – aeroplanes and helicopters

MONITORING AND VERIFICATION

[…]

(d) Altimetry settings for RNP APCH operations using Baro VNAV

[…]

(2) Temperature compensation

(i) For RNP APCH operations to LNAV/VNAV minima using Baro VNAV:

(A) […]

(B) when the temperature is within promulgated limits, the flight crew should not make compensation to the altitude at the FAF ~~and DA/H~~;

[…]

AMC1 NCC.OP.153 Destination aerodromes — instrument approach operations

PBN OPERATIONS

~~The pilot-in-command should only select an aerodrome as a destination alternate aerodrome if an instrument approach procedure that does not rely on GNSS is available either at that aerodrome or at the destination aerodrome.~~

(a) When the operator intends to use PBN, the operator should either:

(1) demonstrate that the GNSS is robust against loss of capability; or

(2) select an aerodrome as a destination alternate aerodrome only if an IAP that does not rely on a GNSS is available either at that aerodrome or at the destination aerodrome.

GNSS ROBUSTNESS AGAINST LOSS OF CAPABILITY — HELICOPTERS

(b) The operator may demonstrate robustness against the loss of capability of the GNSS if all of the following criteria are met:

(1) SBAS or GBAS are available and used.

(2) The failure of a single receiver or system should not compromise the navigation capability required for the intended instrument approach.

(3) The temporary jamming of all GNSS frequencies should not compromise the navigation capability for the intended route. The operator should provide a procedure to deal with such cases unless other sensors are available to continue on the intended route.

(4) The duration of a jamming event should be determined as follows:

(i) Considering the average speed and height of a helicopter flight, the duration of a jamming event may be considered to be less than 2 minutes.

(ii) The time needed for the GNSS system to re-start and provide the aircraft position and navigation guidance should also be considered.

(iii) Based on (i) and (ii) above, the operator should establish the duration of the loss of GNSS navigation data due to jamming. This duration should be no less than 3 minutes, and may be no longer than 4 minutes.

(5) The operator should ensure resilience to jamming for the duration determined in (4) above, as follows:

(i) If the altitude of obstacles on both sides of the flight path are higher than the planned altitude for a given segment of the flight, the operator should ensure that there is no excessive drift on either side by relying on navigation sensors such as a inertial systems with performance in accordance with the intended function.

(ii) If (i) does not apply and the operator cannot rely on sensors other than GNSS, the operator should develop a procedure to ensure that a drift from the intended route during the jamming event has no adverse consequences on the safety of the flight. This procedure may involve air traffic services.

(6) The operator should ensure that no space weather event is predicted to disrupt GNSS reliability and integrity at both the destination and the alternate.

(7) The operator should verify the availability of RAIM for all phases of flight based on GNSS, including navigation to the alternate.

(8) The operator's MEL should reflect the elements in points (b)(1) and (b)(2).

OPERATIONAL CREDITS

(c) To comply with point NCC.OP.153, when the operator intends to use 'operational credits' (e.g. EFVS, SA CAT I, etc.), the operator should select an aerodrome as destination alternate aerodrome only if an approach procedure that does not rely on the same 'operational credit' is available either at that aerodrome or at the destination aerodrome.

GM2 NCC.OP.153 Destination aerodromes — instrument approach operations

GNSS ROBUSTNESS AGAINST LOSS OF CAPABILITY — HELICOPTERS

(a) Redundancy of on-board systems ensures that no single on-board equipment failure (e.g. antenna, GNSS receiver, FMS, or navigation display failure) results in the loss of the GNSS capability.

(b) Any shadowing of the GNSS signal or jamming of all GNSS frequencies from the ground is expected to be of a very short duration and affect a very small area. Additional sensors or functions such as inertial coasting may be used during jamming events. Jamming should be considered on all segments of the intended route, including the approach.

(c) The availability of GNSS signals can be compromised if space weather events cause 'loss of lock' conditions and more than one satellite signal may be lost on a given GNSS frequency. Until space weather forecasts are available, the operator may use 'nowcasts' as short-term predictions for helicopter flights of short duration.

(d) SBAS also contributes to the mitigation of space weather effects, both by providing integrity messages and by correcting ionosphere-induced errors.

(e) Even though SBAS should be available and used, RAIM should remain available autonomously. In case of loss of the SBAS, the route and the approach to the destination or alternate should still be flown with an available RAIM function.

(f) When available, GNSS based on more than one constellation and more than one frequency may provide better integrity and redundancy regarding failures in the space segment of GNSS, jamming, and resilience to space weather events.

AMC1 NCC.OP.230(a) Commencement and continuation of approach

~~VISUAL REFERENCES FOR INSTRUMENT APPROACH OPERATIONS~~ MINIMUM RVR FOR CONTINUATION OF APPROACH — AEROPLANES

~~(a) NPA, APV and CAT I operations~~

~~At DH or MDH, at least one of the visual references specified below should be distinctly visible and identifiable to the pilot:~~

~~(1) elements of the approach lighting system;~~

~~(2) the threshold;~~

~~(3) the threshold markings;~~

~~(4) the threshold lights;~~

~~(5) the threshold identification lights;~~

~~(6) the visual glide slope indicator;~~

~~(7) the touchdown zone or touchdown zone markings;~~

~~(8) the touchdown zone lights;~~

~~(9) FATO/runway edge lights; or~~

~~(10) other visual references specified in the operations manual.~~

~~(b) Lower than standard category I (LTS CAT I) operations~~

~~At DH, the visual references specified below should be distinctly visible and identifiable to the pilot:~~

~~(1) a segment of at least three consecutive lights, being the centreline of the approach lights, or touchdown zone lights, or runway centreline lights, or runway edge lights, or a combination of these; and~~

~~(2) this visual reference should include a lateral element of the ground pattern, such as an approach light crossbar or the landing threshold or a barrette of the touchdown zone light unless the operation is conducted utilising an approved HUDLS usable to at least 150 ft.~~

~~(c) CAT II or OTS CAT II operations~~

~~At DH, the visual references specified below should be distinctly visible and identifiable to the pilot:~~

~~(1) a segment of at least three consecutive lights, being the centreline of the approach lights, or touchdown zone lights, or runway centreline lights, or runway edge lights, or a combination of these; and~~

~~(2) this visual reference should include a lateral element of the ground pattern, such as an approach light crossbar or the landing threshold or a barrette of the touchdown zone light unless the operation is conducted utilising an approved HUDLS to touchdown.~~

~~(d) CAT III operations~~

~~(1) For CAT IIIA operations and for CAT IIIB operations conducted either with fail-passive flight control systems or with the use of an approved HUDLS: at DH, a segment of at least three consecutive lights, being the centreline of the approach lights, or touchdown zone lights, or runway centreline lights, or runway edge lights, or a combination of these is attained and can be maintained by the pilot.~~

~~(2) For CAT IIIB operations conducted either with fail-operational flight control systems or with a fail-operational hybrid landing system using a DH: at DH, at least one centreline light is attained and can be maintained by the pilot.~~

~~(3) For CAT IIIB operations with no DH there is no requirement for visual reference with the runway prior to touchdown.~~

~~(e) Approach operations utilising EVS – CAT I operations~~

~~(1) At DH or MDH, the following visual references should be displayed and identifiable to the pilot on the EVS:~~

~~(i) elements of the approach light; or~~

~~(ii) the runway threshold, identified by at least one of the following:~~

~~(A) the beginning of the runway landing surface,~~

~~(B) the threshold lights, the threshold identification lights; or~~

~~(C) the touchdown zone, identified by at least one of the following: the runway touchdown zone landing surface, the touchdown zone lights, the touchdown zone markings or the runway lights.~~

~~(2) At 100 ft above runway threshold elevation at least one of the visual references specified below should be distinctly visible and identifiable to the pilot without reliance on the EVS:~~

~~(i) the lights or markings of the threshold; or~~

~~(ii) the lights or markings of the touchdown zone.~~

~~(f) Approach operations utilising EVS – APV and NPA operations flown with the CDFA technique~~

~~(1) At DH/MDH, visual references should be displayed and identifiable to the pilot on the EVS image as specified under (a).~~

~~(2) At 200 ft above runway threshold elevation, at least one of the visual references specified under (a) should be distinctly visible and identifiable to the pilot without reliance on the EVS.~~

(a) The touchdown RVR should be the controlling RVR.

(b) If the touchdown RVR is not reported, then the midpoint RVR should be the controlling RVR.

(c) Where the RVR is not available, CMV should be used, except for the purpose of continuation of an approach in LVO in accordance with AMC8 NCC.OP.110.

GM1 NCC.OP.230 Commencement and continuation of approach

APPLICATION OF RVR OR VIS REPORTS — AEROPLANES

(a) There is no prohibition on the commencement of an approach based on the reported RVR or VIS. The restriction in NCC.OP.230 applies only if the RVR or VIS is reported and applies to the continuation of the approach past a point where the aircraft is 1 000 ft above the aerodrome elevation or in the FAS, as applicable.

APPLICATION OF RVR OR VIS REPORTS — HELICOPTERS

(b) There is no prohibition on the commencement of an approach based on the reported RVR. The restriction in NCC.OP.230 applies to the continuation of the approach past a point where the aircraft is 1 000 ft above the aerodrome elevation or in the FAS, as applicable.

The prohibition to continue the approach applies only if the RVR is reported and is below 550 m and is below the operating minima. There is no prohibition based on VIS.

(c) If the reported RVR is 550 m or greater, but it is less than the RVR calculated in accordance with AMC5 CAT.OP.MPA.110, a go-around is likely to be necessary since visual reference may not be established at the DH or MDH. Similarly, in the absence of an RVR report, the reported visibility or a digital image may indicate that a go-around is likely. The pilot-in-command should consider available options, based on a thorough assessment of risk, such as diverting to an alternate, before commencing the approach.

APPLICATION OF RVR OR VIS REPORTS — ALL AIRCRAFT

(d) If a deterioration in the RVR or VIS is reported once the aircraft is below 1 000 ft or in the FAS, as applicable, then there is no requirement for the approach to be discontinued. In this situation, the normal visual reference requirements would apply at the DA/H.

(e) Where additional RVR information is provided (e.g. midpoint and stop end), this is advisory; such information may be useful to the pilot in order to determine whether there will be sufficient visual reference to control the aircraft during roll-out and taxi. For operations where the aircraft will be controlled manually during roll-out, Table 1 in AMC1 SPA.LVO.100(a) provides an indication of the RVR that may be required to allow manual lateral control of the aircraft on the runway.

AMC1 NCC.OP.230(b) Commencement and continuation of approach

MINIMUM RVR FOR CONTINUATION OF APPROACH — HELICOPTERS

(a) The touchdown RVR should be the controlling RVR.

(b) If the touchdown RVR is not reported, then the midpoint RVR should be the controlling RVR.

AMC1 NCC.OP.230(c) Commencement and continuation of approach

VISUAL REFERENCES FOR INSTRUMENT APPROACH OPERATIONS

For instrument approach operations Type A and CAT I instrument approach operations Type B, at least one of the visual references specified below should be distinctly visible and identifiable to the pilot at the MDA/H or the DA/H:

(a) elements of the approach lighting system;

(b) the threshold;

(c) the threshold markings;

(d) the threshold lights;

(e) the threshold identification lights;

(f) the visual glide path indicator;

(g) the TDZ or TDZ markings;

(h) the TDZ lights;

(i) the FATO/runway edge lights;

(j) for helicopter PinS approaches, the identification beacon light and visual ground reference;

(k) for helicopter PinS approaches, the identifiable elements of the environment defined on the instrument chart;

(l) for helicopter PinS approaches with instructions to 'proceed VFR', sufficient visual cues to determine that VFR criteria are met; or

(m) other visual references specified in the operations manual.

GM1 NCC.OP.230(f) Commencement and continuation of approach

APPROACHES WITH NO INTENTION TO LAND

The approach may be continued to the DA/H or the MDA/H regardless of the reported RVR or VIS. Such operations should be coordinated with air traffic services (ATS).

GM1 NCC.OP.235 EFVS 200 operations

GENERAL

(a) EFVS operations exploit the improved visibility provided by the EFVS to extend the visual segment of an instrument approach. EFVSs cannot be used to extend the instrument segment of an approach and thus the DH for EFVS 200 operations is always the same as for the same approach conducted without EFVS.

(b) Equipment for EFVS 200 operations

(1) In order to conduct EFVS 200 operations, a certified EFVS is used (EFVS-A or EFVS-L). An EFVS is an enhanced vision system (EVS) that also incorporates a flight guidance system

and displays the image on a HUD or equivalent display. The flight guidance system will incorporate aircraft flight information and flight symbology.

(2) In multi-pilot operations, a suitable display of EFVS sensory imagery is provided to the pilot monitoring.

(c) Suitable approach procedures

(1) Types of approach operation are specified in AMC1 NCC.OP.235(a)(2).

EFVS 200 operations are used for 3D approach operations. This may include operations based on NPA procedures, approach procedures with vertical guidance and PA procedures including approach operations requiring specific approvals, provided that the operator holds the necessary approvals.

(2) Offset approaches

Refer to AMC1 NCC.OP.235(a)(2).

(3) Circling approaches

EFVSs incorporate a HUD or an equivalent system so that the EFVS image of the scene ahead of the aircraft is visible in the pilot's forward external FOV. Circling operations require the pilot to maintain visual references that may not be directly ahead of the aircraft and may not be aligned with the current flight path. EFVSs cannot therefore be used in place of natural visual reference for circling approaches.

(d) The aerodrome operating minima for EFVS 200 operations are determined in accordance with AMC1 NCC.OP.235(a)(8).

The performance of EFVSs depends on the technology used and weather conditions encountered. Table 1 'Operations utilising EFVS: RVR reduction' has been developed after an operational evaluation of two different EVSs, both using infrared sensors, along with data and support provided by the FAA. Approaches were flown in a variety of conditions including fog, rain and snow showers, as well as at night to aerodromes located in mountainous terrain. Table 1 contains conservative figures to cater for the expected performance of infrared sensors in the variety of conditions that might be encountered. Some systems may have better capability than those used for the evaluation, but credit cannot be taken for such performance in EFVS 200 operations.

(e) The conditions for commencement and continuation of the approach are in accordance with NCC.OP.230.

Pilots conducting EFVS 200 operations may commence an approach and continue that approach below 1 000 ft above the aerodrome or into the FAS if the reported RVR or CMV is equal to or greater than the lowest RVR minima determined in accordance with AMC1 NCC.OP.235(a)(8) and if all the conditions for the conduct of EFVS 200 operations are met.

Should any equipment required for EFVS 200 operations be unserviceable or unavailable, the conditions to conduct EFVS 200 operations would not be satisfied, and the approach should not be commenced. In the event of failure of the equipment required for EFVS 200 operations after the aircraft descends below 1 000 ft above the aerodrome or into the FAS, the conditions of NCC.OP.230 would no longer be satisfied unless the RVR reported prior to commencement of the approach was sufficient for the approach to be flown without the use of EFVS in lieu of natural vision.

(f) The EFVS image requirements at the DA/H are specified in AMC1 NCC.OP.235(a)(4).

The requirements for features to be identifiable on the EFVS image in order to continue approach below the DH are more stringent than the visual reference requirements for the same approach flown without EFVS. The more stringent standard is needed because the EFVS might not display the colour of lights used to identify specific portions of the runway and might not consistently display the runway markings. Any visual approach path indicator using colour-coded lights may be unusable.

(g) Obstacle clearance in the visual segment

The 'visual segment' is the portion of the approach between the DH or the MAPt and the runway threshold. In the case of EFVS 200 operations, this part of the approach may be flown using the EFVS image as the primary reference and obstacles may not always be identifiable on an EFVS image. The operational assessment specified in AMC1 NCC.OP.235(a)(2) is therefore required to ensure obstacle clearance during the visual segment.

(h) Visual reference requirements at 200 ft above the threshold

For EFVS 200 operations, natural visual reference is required by a height of 200 ft above the runway threshold. The objective of this requirement is to ensure that the pilot will have sufficient visual reference to land. The visual reference should be the same as the one required for the same approach flown without the use of EFVS.

Some EFVSs may have additional requirements that have to be fulfilled at this height to allow the approach to continue, such as a requirement to check that elements of the EFVS display remain correctly aligned and scaled to the external view. Any such requirements will be detailed in the AFM and included in the operator's procedures.

(i) Specific approval for EFVS

In order to use an EFVS without natural visual reference below 200 ft above the threshold, the operator needs to hold a specific approval in accordance with Part-SPA.

(j) Go-around

A go-around will be promptly executed if the required visual references are not maintained on the EFVS image at any time after the aircraft has descended below the DA/H or if the required visual references are not distinctly visible and identifiable using natural vision after the aircraft is below 200 ft. It is considered more likely that an EFVS 200 operation could result in the initiation of a go-around below the DA/H than the equivalent approach flown without EFVS, and thus the operational assessment required by AMC1 NCC.OP.235(a)(2) takes into account the possibility of a balked landing.

An obstacle free zone (OFZ) may also be provided for CAT I precision approach (PA) procedures. Where an OFZ is not provided for a CAT I precision approach, this may be indicated on the approach chart. NPA procedures and approach procedures with vertical guidance provide obstacle clearance for the missed approach based on the assumption that a go-around is executed at the MAPt and not below the MDH.

AMC1 NCC.OP.235(a)(1) EFVS 200 operations

EQUIPMENT CERTIFICATION

For EFVS 200 operations, the aircraft should be equipped with an approach system using EFVS-A or a landing system using EFVS-L.

AMC1 NCC.OP.235(a)(2) EFVS 200 operations

AERODROMES AND INSTRUMENT PROCEDURES SUITABLE FOR EFVS 200 OPERATIONS

(a) For EFVS 200 operations, the operator should verify the suitability of a runway before authorising EFVS operations to that runway through an operational assessment taking into account the following elements:

(1) the obstacle situation;

(2) the type of aerodrome lighting;

(3) the available IAPs;

(4) the aerodrome operating minima; and

(5) any non-standard conditions that may affect the operations.

(b) EFVS 200 operations should only be conducted as 3D operations, using an IAP in which the final approach track is offset by a maximum of 3 degrees from the extended centre line of the runway.

(c) The IAP should be designed in accordance with PANS-OPS, Volume I (ICAO Doc 8168) or equivalent criteria.

AMC2 NCC.OP.235(a)(2) EFVS 200 operations

VERIFICATION OF THE SUITABILITY OF RUNWAYS FOR EFVS 200 OPERATIONS

The operational assessment before authorising the use of a runway for EFVS 200 operations may be conducted as follows:

(a) Check whether the runway has been promulgated as suitable for EFVS 200 operations or is certified as a PA category II or III runway by the State of the aerodrome. If this is so, then check whether and where LED lights are installed in order to assess the impact on the EFVS equipment used by the operator.

(b) If the check in point (a) above comes out negative, then proceed as follows:

(1) For straight-in IAPs, US Standard for Terminal Instrument Procedures (TERPS) may be considered to be acceptable as an equivalent to PANS-OPS. If other design criteria than PANS-OPS or US TERPS are used, the operations should not be conducted.

(2) If an OFZ is established, this will ensure adequate obstacle protection from 960 m before the threshold. If an OFZ is not established or if the DH for the approach is above 250 ft, then check whether there is a visual segment surface (VSS).

(3) VSSs are required for procedures published after 15 March 2007, but the existence of the VSS has to be verified through an aeronautical information publication (AIP), operations manual Part C, or direct contact with the aerodrome. Where the VSS is established, it may not be penetrated by obstacles. If the VSS is not established or is penetrated by obstacles and an OFZ is not established, then the operations should not be conducted. Note: obstacles of a height of less than 50 ft above the threshold may be disregarded when assessing the VSS.

(4) Runways with obstacles that require visual identification and avoidance should not be accepted.

(5) For the obstacle protection of a balked landing where an OFZ is not established, the operator may specify that pilots follow a departure procedure in the event of a balked landing, in which case it is necessary to verify that the aircraft will be able to comply with the climb gradients published for the instrument departure procedures for the expected landing conditions.

(c) If the AFM stipulates specific requirements for approach procedures, then the operational assessment should verify that these requirements can be met.

AMC1 NCC.OP.235(a)(3) EFVS 200 operations

INITIAL TRAINING FOR EFVS 200 OPERATIONS

Operators should ensure that flight crew members complete the following conversion training before being authorised to conduct EFVS operations unless credits related to training and checking for previous experience on similar aircraft types are defined in the operational suitability data established in accordance with Regulation (EU) No 748/2012:

(a) A course of ground training including at least the following:

(1) characteristics and limitations of head-up displays (HUDs) or equivalent display systems including information presentation and symbology;

(2) EFVS sensor performance in different weather conditions, sensor limitations, scene interpretation, visual anomalies and other visual effects;

(3) EFVS display, control, modes, features, symbology, annunciations and associated systems and components;

(4) the interpretation of EFVS imagery;

(5) the interpretation of approach and runway lighting systems and display characteristics when using EFVS;

(6) pre-flight planning and selection of suitable aerodromes and approach procedures;

(7) principles of obstacle clearance requirements;

(8) the use and limitations of RVR assessment systems;

(9) normal, abnormal and emergency procedures for EFVS 200 operations;

(10) the effect of specific aircraft/system malfunctions;

(11) human factors aspects of EFVS 200 operations; and

(12) qualification requirements for pilots to obtain and retain approval for EFVS 200 operations.

(b) A course of FSTD training and/or flight training in two phases as follows:

(1) Phase one (EFVS 200 operations with aircraft and all equipment serviceable) — objectives:

(i) understand the operation of equipment required for EFVS 200 operations;

(ii) understand operating limitations of the installed EFVS;

(iii) practise the use of HUD or equivalent display systems;

(iv) practise the set-up and adjustment of EFVS equipment in different conditions (e.g. day and night);

(v) practise the monitoring of automatic flight control systems, EFVS information and status annunciators;

(vi) practise the interpretation of EFVS imagery;

(vii) become familiar with the features needed on the EFVS image to continue approach below the DH;

(viii) practise the identification of visual references using natural vision while using EFVS equipment;

(ix) master the manual aircraft handling relevant to EFVS 200 operations including, where appropriate, the use of the flare cue and guidance for landing;

(x) practise coordination with other crew members; and

(xi) become proficient at procedures for EFVS 200 operations.

(2) Phase one of the training should include the following exercises:

(i) the required checks for satisfactory functioning of equipment, both on the ground and in flight;

(ii) the use of HUD or equivalent display systems during all phases of flight;

(iii) approach using the EFVSs installed on the aircraft to the appropriate DH and transition to visual flight and landing;

(iv) approach with all engines operating using the EFVS, down to the appropriate DH followed by a missed approach, all without external visual reference, as appropriate.

(3) Phase two (EFVS 200 operations with aircraft and equipment failures and degradations) — objectives:

(i) understand the effect of known aircraft unserviceabilities including use of the MEL;

(ii) understand the effect of failed or downgraded equipment on aerodrome operating minima;

(iii) understand the actions required in response to failures and changes in the status of the EFVS including HUD or equivalent display systems;

(iv) understand the actions required in response to failures above and below the DH;

(v) practise abnormal operations and incapacitation procedures; and

(vi) become proficient at dealing with failures and abnormal situations during EFVS 200 operations.

(4) Phase two of the training should include the following exercises:

(i) approaches with engine failures at various stages of the approach;

(ii) approaches with failures of the EFVS at various stages of the approach, including failures between the DH and the height below which an approach should not be continued if natural visual reference is not acquired, require either:

(A) reversion to head down displays to control missed approach; or

(B) reversion to flight with downgraded or no guidance to control missed approaches from the DH or below, including those which may result in a touchdown on the runway;

(iii) incapacitation procedures appropriate to EFVS 200 operations;

(iv) failures and procedures applicable to the specific EFVS installation and aircraft type; and

(v) FSTD training, which should include minimum eight approaches.

AMC2 NCC.OP.235(a)(3) EFVS 200 operations

RECURRENT TRAINING AND CHECKING FOR EFVS 200 OPERATIONS

(a) The operator should ensure that the pilots' competence to perform EFVS 200 operations. To do so, pilots should be trained every 6 months by performing at least two approaches on each type of aircraft operated.

(b) The operator should ensure that the pilots' competence to perform EFVS 200 operations is checked at each required demonstration of competence by performing at least two approaches on each type of aircraft operated, of which one should be flown without natural vision to 200 ft.

AMC3 NCC.OP.235(a)(3) EFVS 200 operations

RECENT EXPERIENCE REQUIREMENTS FOR EFVS 200 OPERATIONS

Pilots should complete a minimum of four approaches using the operator's procedures for EFVS 200 operations during the validity period of the periodic demonstration of competence unless credits related to currency are defined in the operational suitability data established in accordance with Regulation (EU) No 748/2012.

AMC4 NCC.OP.235(a)(3) EFVS 200 operations

DIFFERENCES TRAINING FOR EFVS 200 OPERATIONS

(a) The operator should ensure that the flight crew members authorised to conduct EFVS 200 operations are provided with differences training or familiarisation whenever there is a change to any of the following:

- (1) the technology used in the flight guidance and flight control system;
- (2) the HUD or equivalent display systems;
- (3) the operating procedures.

(b) The differences training should:

- (1) meet the objectives of the appropriate initial training course;
- (2) take into account the flight crew members' previous experience; and
- (3) take into account the operational suitability data established in accordance with Regulation (EU) No 748/2012.

AMC5 NCC.OP.235(a)(3) EFVS 200 operations

TRAINING FOR EFVS 200 OPERATIONS

If a flight crew member is to be authorised to operate as pilot flying and pilot monitoring during EFVS 200 operations, then the flight crew member should complete the required FSTD training for each operating capacity.

GM1 NCC.OP.235(a)(3) EFVS 200 operations

RECURRENT CHECKING FOR EFVS 200 OPERATIONS

In order to provide the opportunity to practise decision-making in the event of system failures and failure to acquire natural visual reference, the recurrent training and checking for EFVS 200 operations is recommended to periodically include different combinations of equipment failures, go-around due to loss of visual reference, and landings.

AMC1 NCC.OP.235(a)(4) EFVS 200 operations

OPERATING PROCEDURES FOR EFVS 200 OPERATIONS

(a) For EFVS 200 operations, the following should apply:

- (1) the pilot flying should use the EFVS throughout the approach;
- (2) in multi-pilot operations, a suitable display of EFVS sensory imagery should be provided to the pilot monitoring;
- (3) the approach between the FAF and the DA/H should be flown using vertical flight path guidance;
- (4) the approach may be continued below the DA/H provided that the pilot can identify on the EFVS image either:
  - (i) the approach light system; or
  - (ii) both of the following:
    - (A) the runway threshold identified by the beginning of the runway landing surface, the threshold lights or the runway end identifier lights; and
    - (B) the TDZ identified by the TDZ lights, the TDZ runway markings or the runway lights;
- (5) a missed approach should be executed promptly if the required visual reference is not distinctly visible and identifiable to the pilot without reliance on the EFVS by 200 ft above the threshold.

(b) Operating procedures for EFVS 200 operations should:

- (1) be consistent with the AFM;
- (2) be appropriate to the technology and equipment to be used;
- (3) specify the duties and responsibilities of each flight crew member in each relevant phase of flight;
- (4) ensure that flight crew workload is managed to facilitate effective decision-making and monitoring of the aircraft; and
- (5) deviate to the minimum extent practicable from normal procedures used for routine operations.

(c) Operating procedures should include:

- (1) the required checks for the satisfactory functioning of the aircraft equipment, both before departure and in flight;
- (2) the correct seating and eye position;
- (3) determination of aerodrome operating minima;
- (4) the required visual references at the DH;
- (5) the action to be taken if natural visual reference is not acquired by 200 ft;

(6) the action to be taken in the event of loss of the required visual reference; and

(7) procedures for balked landing.

(d) Operating procedures for EFVS 200 operations should be included in the operations manual.

AMC1 NCC.OP.235(a)(8) EFVS 200 operations

AERODROME OPERATING MINIMA — EFVS 200 OPERATIONS

When conducting EFVS 200 operations:

(a) the DA/H used should be the same as for operations without EFVS;

(b) the lowest RVR minima to be used should be determined by reducing the RVR presented in:

(1) Table 8 in AMC5 NCC.OP.110 in accordance with Table 1 below for aeroplanes;

(2) Table 12 of AMC6 NCC.OP.110 in accordance with Table 1 below for helicopters;

(c) in case of failed or downgraded equipment, Table 15 in AMC9 NCC.OP.110 should apply.

Table 1

Operations utilising EFVS: RVR reduction

RVR (m) presented in Table 8 in AMC5 NCC.OP.110 or in Table 12 of AMC6 NCC.OP.110	RVR (m) for EFVS 200 operations
550	550
600	550
650	550
700	550
750	550
800	550
900	600
1 000	650
1 100	750
1 200	800
1 300	900
1 400	900
1 500	1 000
1 600	1 100
1 700	1 100
1 800	1 200

RVR (m) presented in Table 8 in AMC5 NCC.OP.110 or in Table 12 of AMC6 NCC.OP.110	RVR (m) for EFVS 200 operations
1 900	1 300
2 000	1 300
2 100	1 400
2 200	1 500
2 300	1 500
2 400	1 600

AMC1 NCC.OP.235(c) EFVS 200 operations

EVFS 200 WITH LEGACY SYSTEMS UNDER AN APPROVAL

The EVS should be certified before 1 January 2022 as 'EVS with an operational credit'.

GM1 NCC.OP.235(c) EFVS 200 operations

The competent authority referred to in NCC.OP.235 point (c) is the competent authority for the oversight of the operator, as established in ORO.GEN.105.

AMC1 NCC.IDE.H.120(c) Operations under VFR — flight and navigational instruments and associated equipment

MULTI-PILOT OPERATIONS

Two pilots should be considered to be required by the operation if multi-pilot operations are required by one of the following:

(a) the AFM;

(b) at night, the operations manual.

GM1 NCC.IDE.H.120(c) Operations under VFR — flight and navigational instruments and associated equipment

MULTI-PILOT OPERATIONS ON A VOLUNTARY BASIS — HELICOPTERS OPERATED BY DAY UNDER VFR

If the AFM permits single-pilot operations, and the operator decides that the crew composition is more than one pilot for day VFR operations only, then point NCC.IDE.H.120(c) does not apply. However, additional displays, including those referred to in NCC.IDE.H.120(c), may be required under point NCC.IDE.H.100(e).

AMC1 NCC.IDE.H.125(c) Operations under IFR – flight and navigational instruments and associated equipment

MULTI-PILOT OPERATIONS

Two pilots should be considered to be required by the operation if multi-pilot operations are required by one of the following:

(a) the AFM;

(b) the operations manual.