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COMMISSION

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ANNEX 1

ANNEX

**to COMMISSION REGULATION (EU) No.../... of XXX
amending COMMISSION REGULATION (EU) No 1178/2011 as regards pilot training,
testing and periodic checking for performance-based navigation**

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ANNEX

to COMMISSION REGULATION (EU) No.../... of XXX amending COMMISSION REGULATION (EU) No 1178/2011 as regards pilot training, testing and periodic checking for performance-based navigation

Regulation (EU) No 1178/2011 is amended as follows:

(1) Annex I is amended as follows:

(a) the following definitions are inserted in paragraph FCL.010:

"‘Angular operation’ means an instrument approach operation in which the maximum tolerable error/deviation from the planned track is expressed in terms of deflection of the needles on the Course Deviation Indicator (CDI) or equivalent display in the cockpit.

‘Linear operation’ means an instrument approach operation in which the maximum tolerable error/deviation from the planned track is expressed in units of length, for instance nautical miles, for cross-track lateral deviation.

‘LNAV’ means Lateral Navigation.

‘LPV’ means Localiser Performance with Vertical Guidance.

‘Performance-Based Navigation (PBN)’ means area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.

‘RNP APCH’ means a PBN specification used for instrument approach operations.

‘RNP APCH operation down to LNAV minima’ means a 2D instrument approach operation for which the lateral guidance is based on GNSS positioning.

‘RNP APCH operation down to LNAV/VNAV minima’ means a 3D instrument approach operation for which the lateral guidance is based on GNSS positioning and the vertical guidance is provided either by the Baro VNAV function or by the GNSS positioning including SBAS.

‘RNP APCH operation down to LPV minima’ means a 3D instrument approach operation for which both lateral and vertical guidance are based on GNSS positioning including SBAS.

‘RNP AR APCH’ means a navigation specification used for instrument approach operations requiring a specific approval.

‘Three-dimensional (3D) instrument approach operation’ means an instrument approach operation using both lateral and vertical navigation guidance.

‘Two-dimensional (2D) instrument approach operation’ means an instrument approach operation using lateral navigation guidance only.

‘VNAV’ means Vertical Navigation.";

(e) FCL.600.IR is replaced by the following:

"Except as provided in FCL.825, operations under IFR on an aeroplane, helicopter, airship or powered-lift aircraft shall only be conducted by holders of:

- (a) a PPL, CPL, MPL and ATPL, and
- (b) except when undergoing skill tests, proficiency checks or when receiving dual instruction, an IR with privileges appropriate to the applicable airspace requirements and to the category of aircraft. ";
- (c) FCL.605.IR (a) is replaced by the following:

“(a) The privileges of a holder of an IR are to fly aircraft under IFR, including PBN operations, with a minimum decision height of no less than 200 feet (60 m)”;
- (d) point (a) of FCL.700 is replaced by the following:

"(a) Holders of a pilot licence shall not act in any capacity as pilots of an aircraft unless they have a valid and appropriate class or type rating, except in any of the following cases:

 - (i) for LAPL, SPL and BPL;
 - (ii) when undergoing skill tests, or proficiency checks for renewal of class or type ratings;
 - (iii) when receiving flight instruction;
 - (iv) when they hold a flight test rating issued in accordance with FCL.820.";
- (f) point (c) of FCL.700 is deleted;
- (g) point (3) of FCL.820(c) is replaced by the following:

"(3) conduct flights without a type or class rating as defined in Subpart H, except that the flight test rating shall not be used for commercial air transport operations.";
- (h) point (2) of Appendix 5 is replaced by the following:

“2. Approval for an MPL training course shall only be given to an ATO that is part of a commercial air transport operator certificated in accordance with Part-ORO or having a specific arrangement with such an operator.”
- (i) Appendix 7 is amended as follows:
 - (i) point 1 is replaced by the following:

“1. An applicant for an IR shall have received instruction on the same class or type of aircraft to be used in the test which shall be appropriately equipped for the training and testing purposes.”,
 - (ii) point 11 is replaced by the following:

"11. The following limits shall apply, corrected to make allowance for turbulent conditions and the handling qualities and performance of the aircraft used:

Height
Generally

± 100 feet

| | |
|--|--|
| Starting a go-around at decision height/altitude | + 50 feet/- 0 feet |
| Minimum descent height/MAP/altitude | + 50 feet/- 0 feet |
| Tracking | |
| On radio aids | ± 5° |
| For angular deviations | Half scale deflection, azimuth and glide path (e.g. LPV, ILS, MLS, GLS) |
| 2D (LNAV) and 3D (LNAV/VNAV) 'linear' lateral deviations | cross-track error/deviation shall normally be limited to ± ½ the RNP value associated with the procedure. Brief deviations from this standard up to a maximum of 1 time the RNP value are allowable. |
| 3D linear vertical deviations (e.g. RNP APCH (LNAV/VNAV) using BaroVNAV) | not more than -75 feet below the vertical profile at any time, and not more than +75 feet above the vertical profile at or below 1 000 feet above aerodrome level. |
| Heading | |
| all engines operating | ± 5° |
| with simulated engine failure | ± 10° |
| Speed | |
| all engines operating | ± 5 knots |
| with simulated engine failure | + 10 knots/- 5 knots", |

CONTENT OF THE TEST

Aeroplanes

| | |
|---|---|
| SECTION 1 — PRE-FLIGHT OPERATIONS AND DEPARTURE | |
| Use of checklist, airmanship, anti-icing/de-icing procedures, etc., apply in all sections | |
| a | Use of flight manual (or equivalent) especially a/c performance calculation, mass and balance |
| b | Use of Air Traffic Services document, weather document |
| c | Preparation of ATC flight plan, IFR flight plan/log |
| d | Identification of the required nav aids for departure, arrival and approach procedures |
| e | Pre-flight inspection |

| | |
|--|--|
| f | Weather Minima |
| g | Taxiing |
| h | PBN departure (if applicable): <ul style="list-style-type: none"> — Check that the correct procedure has been loaded in the navigation system; and — Cross-check between the navigation system display and the departure chart. |
| i | Pre-take-off briefing, Take-off |
| j (°) | Transition to instrument flight |
| k (°) | Instrument departure procedures, including PBN departures, and altimeter setting |
| l (°) | ATC liaison — compliance, R/T procedures |
| SECTION 2 — GENERAL HANDLING(°) | |
| a | Control of the aeroplane by reference solely to instruments, including: level flight at various speeds, trim |
| b | Climbing and descending turns with sustained Rate 1 turn |
| c | Recoveries from unusual attitudes, including sustained 45° bank turns and steep descending turns |
| d(*) | Recovery from approach to stall in level flight, climbing/descending turns and in landing configuration — only applicable to aeroplanes |
| e | Limited panel: stabilised climb or descent, level turns at Rate 1 onto given headings, recovery from unusual attitudes — only applicable to aeroplanes |
| SECTION 3 — EN-ROUTE IFR PROCEDURES(°) | |
| a | Tracking, including interception, e.g. NDB, VOR, or track between waypoints |
| b | Use of navigation system and radio aids |
| c | Level flight, control of heading, altitude and airspeed, power setting, trim technique |
| d | Altimeter settings |
| e | Timing and revision of ETAs (en-route hold, if required) |
| f | Monitoring of flight progress, flight log, fuel usage, systems' management |

| | |
|------------------------------------|---|
| | |
| g | Ice protection procedures, simulated if necessary |
| h | ATC liaison — compliance, R/T procedures |
| SECTION 3a — ARRIVAL PROCEDURES | |
| a | Setting and checking of navigational aids, if applicable |
| b | Arrival procedures, altimeter checks |
| c | Altitude and speed constraints, if applicable |
| d | PBN arrival (if applicable): <ul style="list-style-type: none"> — Check that the correct procedure has been loaded in the navigation system; and — Cross-check between the navigation system display and the arrival chart. |
| SECTION 4 (°) — 3D OPERATIONS (++) | |
| a | Setting and checking of navigational aids Check Vertical Path angle For RNP APCH: <ul style="list-style-type: none"> — Check that the correct procedure has been loaded in the navigation system; and — Cross-check between the navigation system display and the approach chart. |
| b | Approach and landing briefing, including descent/approach/landing checks, including identification of facilities |
| c (+) | Holding procedure |
| d | Compliance with published approach procedure |
| e | Approach timing |
| f | Altitude, speed heading control (stabilised approach) |
| g (+) | Go-around action |

| | |
|---|--|
| h (†) | Missed approach procedure/landing |
| i | ATC liaison — compliance, R/T procedures |
| SECTION 5 (°) — 2D OPERATIONS (++) | |
| a | Setting and checking of navigational aids For RNP APCH: — Check that the correct procedure has been loaded in the navigation system; and —— Cross-check between the navigation system display and the approach chart. |
| b | Approach and landing briefing, including descent/approach/landing checks, including identification of facilities |
| c (†) | Holding procedure |
| d | Compliance with published approach procedure |
| e | Approach timing |
| f | Altitude/Distance to MAPT, speed, heading control (stabilised approach), Stop Down Fixes (SDF(s)), if applicable |
| g (†) | Go-around action |
| h (†) | Missed approach procedure/landing |
| i | ATC liaison — compliance, R/T procedures |
| SECTION 6 — FLIGHT WITH ONE ENGINE INOPERATIVE (multi-engine aeroplanes only) (°) | |
| a | Simulated engine failure after take-off or on go-around |
| b | Approach, go-around and procedural missed approach with one engine inoperative |
| c | Approach and landing with one engine inoperative |
| d | ATC liaison — compliance, R/T procedures |
| (°) Must be performed by sole reference to instruments. | |

(*) May be performed in an FFS, FTD 2/3 or FNPT II.

(+) May be performed in either Section 5 or Section 6.

(++) To establish or maintain PBN privileges One approach in either Section 5-4 or Section 6-5 shall be an RNP APCH. Where an RNP APCH is not practicable, it shall be performed in an appropriately equipped FSTD.

Helicopters

| SECTION 1 — DEPARTURE | |
|---|--|
| Use of checklist, airmanship, anti-icing/de-icing procedures, etc., apply in all sections | |
| a | Use of flight manual (or equivalent) especially aircraft performance calculation; mass and balance |
| b | Use of Air Traffic Services document, weather document |
| c | Preparation of ATC flight plan, IFR flight plan/log |
| d | Identification of the required nav aids for departure, arrival and approach procedures |
| e | Pre-flight inspection |
| f | Weather minima |
| g | Taxiing/Air taxi in compliance with ATC or instructions of instructor |
| h | PBN departure (if applicable): <ul style="list-style-type: none">— Check that the correct procedure has been loaded in the navigation system; and— Cross-check between the navigation system display and the departure chart. |
| i | Pre-take-off briefing, procedures and checks |
| j | Transition to instrument flight |
| k | Instrument departure procedures, including PBN procedures |
| SECTION 2 — GENERAL HANDLING | |

| | |
|-------------------------------------|--|
| a | Control of the helicopter by reference solely to instruments, including: |
| b | Climbing and descending turns with sustained Rate 1 turn |
| c | Recoveries from unusual attitudes, including sustained 30° bank turns and steep descending turns |
| SECTION 3 — EN-ROUTE IFR PROCEDURES | |
| a | Tracking, including interception, e.g. NDB, VOR, RNAV |
| b | Use of radio aids |
| c | Level flight, control of heading, altitude and airspeed, power setting |
| d | Altimeter settings |
| e | Timing and revision of ETAs |
| f | Monitoring of flight progress, flight log, fuel usage, systems management |
| g | Ice protection procedures, simulated if necessary and if applicable |
| h | ATC liaison — compliance, R/T procedures |
| SECTION 3a — ARRIVAL PROCEDURES | |
| a | Setting and checking of navigational aids, if applicable |
| b | Arrival procedures, altimeter checks |
| c | Altitude and speed constraints, if applicable |
| d | PBN arrival (if applicable) <ul style="list-style-type: none"> — Check that the correct procedure has been loaded in the navigation system; and — Cross-check between the navigation system display and the arrival chart. |

| SECTION 4 — 3D OPERATIONS (+) | |
|---|---|
| a | Setting and checking of navigational aids Check Vertical Path angle For RNP APCH: (a) Check that the correct procedure has been loaded in the navigation system; and (b) Cross-check between the navigation system display and the approach chart. |
| b | Approach and landing briefing, including descent/approach/landing checks |
| c (*) | Holding procedure |
| d | Compliance with published approach procedure |
| e | Approach timing |
| f | Altitude, speed, heading control (stabilised approach) |
| g (*) | Go-around action |
| h (*) | Missed approach procedure/landing |
| i | ATC liaison — compliance, R/T procedures |
| (*) To be performed in Section 4 or Section 5. (+) <u>To establish or maintain PBN privileges</u> One approach in either Section 4 or Section 5 shall be an RNP APCH. Where an RNP APCH is not practicable, it shall be performed in an appropriately equipped FSTD. | |
| SECTION 5 — 2D OPERATIONS (+) | |
| a | Setting and checking of navigational aids For RNP APCH: — Check that the correct procedure has been loaded in the navigation system; and — Cross-check between the navigation system display and the approach chart. |
| b | Approach and landing briefing, including descent/approach/landing checks and identification of facilities |

| | |
|---|--|
| c (*) | Holding procedure |
| d | Compliance with published approach procedure |
| e | Approach timing |
| f | Altitude, speed, heading control (stabilised approach) |
| g (*) | Go-around action |
| h (*) | Missed approach procedure (*)/landing |
| i | ATC liaison — compliance, R/T procedures |
| <p>(*) To be performed in Section 4 or Section 5.</p> <p>(+) <u>To establish or maintain PBN privileges</u> One approach in either Section 4 or Section 5 shall be an RNP APCH. Where an RNP APCH is not practicable, it shall be performed in an appropriately equipped FSTD.</p> | |
| <p>SECTION 6 — ABNORMAL AND EMERGENCY PROCEDURES</p> <p>This section may be combined with sections 1 through 5. The test shall have regard to control of the helicopter, identification of the failed engine, immediate actions (touch drills), follow-up actions and checks and flying accuracy, in the following situations:</p> | |
| a | <p>Simulated engine failure after take-off and on/during approach (*) (at a safe altitude unless carried out in an FFS or FNPT II/III, FTD 2,3)</p> <p>(*) Multi-engine helicopter only.</p> |
| b | Failure of stability augmentation devices/hydraulic system (if applicable) |
| c | Limited panel |
| d | Autorotation and recovery to a pre-set altitude |
| e | <p>3D operations manually without flight director (*)</p> <p>3D operations manually with flight director (*)</p> <p>(*) Only one item to be tested.</p> |

”;

(l) Appendix 8 is amended as follows:

(i) the footnote to the table in Section A is replaced by the following:

"* Provided that within the preceding 12 months the applicant has flown at least three IFR departures and approaches exercising PBN privileges, including one RNP APCH approach on a SP class or type of aeroplane in SP operations, or, for multi-engine, other than HP complex aeroplanes, the applicant has passed section 6 of the skill test for SP, other than HP complex aeroplanes flown solely by reference to instruments in SP operations. ",

(ii) the footnote to the table in Section B is replaced by the following:

"*Provided that within the preceding 12 months at least three IFR departures and approaches exercising PBN privileges, including one RNP APCH approach (could be a Point in Space (PinS) approach), have been performed on a SP type of helicopter in SP operations.";

(m) Appendix 9 is amended as follows:

(i) point 4 in Section B is replaced by the following:

"4. The following limits shall apply corrected to make allowance for turbulent conditions and the handling qualities and performance of the aeroplane used:

Height

Generally ± 100 feet

Starting a go-around at decision height $+ 50$ feet/ -0 feet

Minimum descent height/altitude $+ 50$ feet/ -0 feet

Tracking

on radio aids $\pm 5^\circ$

For 'angular' deviations half scale deflection, azimuth and glide path (e.g. LPV, ILS, MLS, GLS).

2D (LNAV) and 3D (LNAV/VNAV) 'linear' deviations Cross track error/deviation shall normally be limited to $\pm \frac{1}{2}$ the RNP value associated with the procedure. Brief deviations from this standard up to a maximum of 1 time the RNP value are allowable.

3D linear vertical deviations (e.g. RNP APCH (LNAV/VNAV) using BaroVNAV) not more than -75 feet below the vertical profile at any time, and not more than $+75$ feet above the vertical profile at or below 1 000 feet above aerodrome level.

Heading

all engines operating $\pm 5^\circ$

with simulated engine failure $\pm 10^\circ$

Speed

all engines operating ± 5 knots

with simulated engine failure

+10 knots/-5 knots”,

(ii) the following point is inserted in point 5 of Section B:

"(h) To establish or maintain PBN privileges one approach shall be an RNP APCH. Where an RNP APCH is not practicable, it shall be performed in an appropriately equipped FSTD."

(iii) rows 3B.4 and 3B.5 of the table in point 5 of Section B are replaced by the following:

"

| | | | | | | |
|--|--|-------|-------|--|---|--|
| 3B.4* 3D operations to DH/A of 200 feet (60 m) or to higher minima if required by the approach procedure (autopilot may be used to the final approach segment vertical path intercept) | | P---> | ----> | | M | |
| 3B.5* 2D operations to MDH/A | | P---> | ----> | | M | |

",

(iv) the following point is inserted in point 6 of Section B:

"(j) To establish or maintain PBN privileges one approach shall be an RNP APCH. Where an RNP APCH is not practicable, it shall be performed in an appropriately equipped FSTD."

(v) row 3.9.3 of the table in point 6 of Section B is replaced by the following:

"

| | | | | | | | | |
|---|--|--|--|--|--|--|--|--|
| 3.9.3* 3D operations to DH/A of 200 feet (60 m) or to higher minima if required by the approach procedure | | | | | | | | |
| Note: According to the AFM, RNP APCH procedures may require the use of autopilot or Flight director. The procedure to be flown manually shall be chosen taking into account such limitations (for example, choose an ILS for 3.9.3.1 in case of such AFM limitation). | | | | | | | | |

",

(vi) rows 3.9.3.4 and 3.9.4 of the table in point 6 of Section B are replaced by the following:

"

| | | | | | | | | |
|--|--|------|----|--|--|---|--|--|
| <p>3.9.3.4* manually, with one engine simulated inoperative; engine failure has to be simulated during final approach before passing 1 000 feet above aerodrome level until touchdown or through the complete missed approach procedure</p> <p>In aeroplanes which are not certificated as transport category aeroplanes (JAR/FAR 25) or as commuter category aeroplanes (SFAR 23), the approach with simulated engine failure and the ensuing go-around shall be initiated in conjunction with the non-precision approach as described in 3.9.4. The go-around shall be initiated when reaching the published obstacle clearance height (OCH/A), however not later than reaching a minimum descent height/altitude (MDH/A) of 500 feet above runway threshold elevation. In aeroplanes having the same performance as a transport category aeroplane regarding take-off mass and density altitude, the instructor may simulate the engine failure in accordance with 3.9.3.4.</p> | | P—> | —> | | | M | | |
| <p>3.9.4* 2D operations down to the MDH/A</p> | | P*—> | —> | | | M | | |

"

(vii) row 4.1 of the table in point 6 of Section B is replaced by the following:

"

| | | | | | | | |
|---|--|--|------|----|--|--|--|
| 4.1 Go-around with all engines operating* during a 3D operation on reaching decision height | | | P*—> | —> | | | |
|---|--|--|------|----|--|--|--|

"

(viii) row 5.1 of the table in point 6 of Section B is replaced by the following:

"

| | | | | | | | |
|--|--|--|---|--|--|--|--|
| 5.1 Normal landings* with visual reference established when reaching DA/H following an instrument approach operation | | | P | | | | |
|--|--|--|---|--|--|--|--|

"

(viii) in row 6.2 of the table in point 6 of Section B the word 'ILS' is replaced by the following: "CAT II/III",

(xviii) point 4(a) of Section C is replaced by the following:

"(a) IFR flight limits.

Height:

Generally

±100 feet

Starting a go-around at decision height/altitude

+50 feet/-0 feet

Minimum descent height/altitude

+50 feet/-0 feet

Tracking:

On radio aids

±5°

3D 'angular' deviations

half scale deflection, azimuth and glide path (e.g. LPV, ILS, MLS, GLS).

2D (LNAV) and 3D (LNAV/VNAV) 'linear' deviation:

cross track error/deviation shall normally be limited to ± ½ the RNP value associated with the procedure. Brief deviations from this standard up to a maximum of 1 times the RNP value are allowable.

3D linear vertical deviations (e.g. RNP APCH (LNAV/VNAV) using BaroVNAV):

not more than -75 feet below the vertical profile at any time, and not more than +75 feet above the vertical profile at or below 1 000 feet above aerodrome level.

Heading:

Normal operations

± 5°

Abnormal operations/emergencies $\pm 10^\circ$

Speed:

Generally ± 10 knots

With simulated engine failure $+ 10$ knots/ $- 5$ knots",

(ixi) rows 5.4, 5.4.1 and 5.4.2 of the table in point 12 of Section C are replaced by the following:

"

| | | | | | | |
|--|----|-----|---------|--|----|--|
| 5.4 3D operations to DH/A of 200 feet (60 m) or to higher minima if required by the approach procedure | P* | —>* | — >* | | | |
| 5.4.1 Manually, without flight director Note: According to the AFM, RNP APCH procedures may require the use of autopilot or Flight director. The procedure to be flown manually shall be chosen taken into account such limitations (example choose an ILS for 5.4.1 in case of such AFM limitation). | P* | —>* | — >* | | M* | |
| 5.4.2 Manually, with Flight Director | P* | —>* | — >* | | M* | |

",

(xii) rows 5.4.4 and 5.5 of the table in point 12 of Section C are replaced by the following:

"

| | | | | | | |
|---|----|-----|---------|--|----|--|
| 5.4.4 Manually, with one engine simulated inoperative; engine failure has to be simulated during final approach before passing 1000 feet above aerodrome level until touchdown or until completion of the missed approach procedure | P* | —>* | — >* | | M* | |
| 5.5 2D operations down to | P* | —>* | — | | M* | |

| | | | | | | |
|---------------------------------------|--|--|----|--|--|--|
| the minimum descent altitude MDA/H | | | >* | | | |
|---------------------------------------|--|--|----|--|--|--|

”

- (2) In Annex VII, point (a) of ORA.ATO.135 is replaced by the following:

“(a) The ATO shall use an adequate fleet of training aircraft or FSTDs appropriately equipped for the training courses provided.”.