

PBN Instruction FOR STUDENTS AND LICENSE HOLDERS – BCAA Requirements

This notice is for information only. It can be used as guidance and/or Awareness.

Applicability:

Licensing	Holders of an IR(A) rating and students IR(A) & ATPL(A)
Medical	Class 1 & 2
Training organisation	All ATO providing instruction for Instrument Rating
FSTD	FNPTII/FSTD

Aircraft Category:

Airplane <input checked="" type="checkbox"/>	Helicopter <input type="checkbox"/>	Sailplane <input type="checkbox"/>	Balloon <input type="checkbox"/>	Airship <input type="checkbox"/>
ULM <input type="checkbox"/>	Paramotor <input type="checkbox"/>	RPAS <input type="checkbox"/>		

1. Introduction

The purpose of this information notice is to provide clear and concise guidelines to holders of an IR(A) rating and students IR(A) and ATPL(A), regarding training, endorsement and legal permission to perform PBN-approaches in General Aviation in Belgian Airspace for fixed wing aircraft wing only (separate documents will be prepared for license holders of fixed wing, and license holders and instructors/examiners of rotary wing aircraft).

2. Guidance and/or Awareness

With the publication of the first PBN-Approach for RWY11 at EBAW, on the 15th of December 2015 and the approval of EU 539/2016, on the 6th of April 2016, a new era in instrument approaches has begun for Belgium. By the end of 2018, Belgocontrol, the Belgian ANSP wishes to install an “overlay” for all existing non-precision approaches on civil controlled airports, after which existing non-precision approaches (using ground-based nav-aids) may be decommissioned rapidly. PBN-approaches are instrument approaches based on GNSS (with/without augmentation) as main/sole reference (lateral/vertical). Belgian PBN-approaches will be non-precision approaches (minima above 200ft), with SBAS (Space Based Augmentation System), based on the European Overlay System EGNOS.

2. Types of PBN-approaches:

There are 4 types of non-precision PBN-approaches defined by ICAO doc 9613:

1. **LNAV** (Lateral Navigation): GNSS-receiver -built into aircraft- positioning. Non-precision Continuous Descent Final Approach (CDFA) profile with the highest minima of all PBN-approaches. No lateral augmentation, no vertical guidance (pilot performs “position vs altitude” computation/check).
2. **LP** (Localizer Performance): LNAV approach with augmentation (SBAS/EGNOS for Belgian approaches). Non-precision Continuous Descent Final Approach profile with equal or lower minima than LNAV, with augmentation (increased lateral accuracy), without vertical guidance. FYI: LP-approaches seem hardly implemented in Europe, nor is there any intention towards implementing LP-approaches in Europe.
3. **LNAV/VNAV** (Lateral Navigation/Vertical Navigation): LNAV-approach with barometric vertical guidance. Non-precision Continuous Descent Final Approach profile with equal or lower minima than LNAV, without augmentation (no increased lateral accuracy), but with vertical guidance provided by barometric inputs (static).
4. **LPV** (Localizer Performance with vertical guidance): LNAV-approach with augmentation (SBAS/EGNOS for Belgian approaches). Non-precision Continuous Descent Final Approach profile with lower minima than LNAV, with augmentation (increased lateral accuracy), and GNSS/SBAS-based vertical guidance.

4. EU 539/2016:

These are the basic principles, to perform PBN-Approaches as set out in EU 539/2016 is that license holders wishing to perform PBN-instrument approaches, as described in EU 539/2016:

1. *Pilots may only fly in accordance with performance-based navigation (“PBN”) procedures after they have been granted PBN privileges as an endorsement to their instrument rating (“IR”).*
2. *A pilot shall be granted PBN privileges where he or she fulfils all of the following requirements:*
 - (a) the pilot has successfully completed a course of theoretical knowledge including PBN, in accordance with FCL.615 of Annex I (Part-FCL);*
 - (b) the pilot has successfully completed flying training including PBN, in accordance with FCL.615 of Annex I (Part-FCL);*
 - (c) the pilot has successfully completed either a skill test in accordance with Appendix 7 to Annex I (Part-FCL) or a skill test or a proficiency check in accordance with Appendix 9 of Annex I (Part-FCL).*
3. *The requirements of paragraph 2(a) and (b) shall be deemed to have been fulfilled where the competent authority considers that the competence acquired, either through training or from familiarity with PBN operations, is equivalent to the competence acquired through the courses referred to in paragraph 2(a) and (b) and the pilot demonstrates such competence to the satisfaction of the examiner at the proficiency check or skill test referred to in paragraph 2(c).*
4. *A record of the successful demonstration of competency in PBN shall, upon completion of the skill test or the proficiency check referred to in paragraph 2(c), be entered in the pilot's logbook or equivalent record and signed by the examiner who conducted the test or check.*
5. *IR pilots without PBN privileges may only fly on routes and approaches that do not require PBN privileges and no PBN items shall be required for the renewal of their IR, until 25 August 2020; after that date, PBN privileges shall be required for every IR.;*

5. BCAA Interpretation of EU 539/2016:

- A. No license holder may perform PBN-approaches in European airspace, without being properly trained and licensed (or endorsed in the logbook) for it. During SAFA, or ramp inspections, or during an occurrence/incidents/accidents investigation the license holder may be inquired about the type of approach performed and the privileges held. A license holder should be able to demonstrate to inspectors via the logbook -with undue delay (as the logbook is not a mandatory document on board of an aircraft)- the competence in a specific PBN-approach. Even if ATC proposes a PBN-approach to a PIC that does not hold the proper PBN-privileges, the PIC should refuse the approach with the phrase: "PBN unable". As of the 8th of April 2018 at the latest, the EASA PBN-training requirements as approved in EU 539/2016 become applicable and replace all previously existing national PBN-training requirements. By lack of a Belgian national approach to PBN-training, Belgium has decided to apply the EASA approach to PBN-approach training, with immediate effect.
- B. A PBN-endorsement requires THEORETICAL TRAINING, PRACTICAL TRAINING AND CHECKING WITH AN INSTRUMENT RATING EXAMINER. The theoretical and practical training must be provided by an ATO, not by an individual training (FCL.615) between instructor and candidate, outside an ATO. BCAA has provided initial theoretical training for the initial PBN-instructors and examiners for general aviation in May and June 2016. All attendants to the BCAA PBN theoretical training, are credited for theoretical PBN-training in an ATO and may act as PBN-theoretical Instructor. The BCAA theoretical courseware is available on the BCAA-website: http://mobilit.belgium.be/fr/transport_aerien/licences/pbn.

Theoretical training at an ATO should be 1 full day. ½ day: GNSS-principles & inherent errors, constellations in use/development, augmentation principles. ½ day: PBN-approach principles, legal requirements and limitations, Standard Operating Procedures PBN, charts, checks during pre-flight and in-flight, including long briefing of the pilot/airplane interface (Garmin, Avidyne, Honeywell, etc.) related to PBN. **The ATO should provide a certificate of attendance in the PBN-theoretical and practical course to each attendant.**

A standard PBN practical training (full scope LNAV-LNAV/VNAV-LP-LPV) for General Aviation pilots (IR-holders, without any prior PBN-experience) should consist of **5 PBN-approaches**, either on airplane, or on an approved simulator (EASA FNPTII minimum), within an ATO, with a PBN-approved instructor. This criterion is also valid for future initial PBN-training, integrated in IR(A)-modular training, or Integrated ATPL(A)-training. Training should focus on the full scope of PBN-approaches, both with autopilot and manually flown, with and without failures/wrong instructions.

These training flight(s) should then be succeeded by 2 PBN-approaches performed with a PBN-examiner, either on airplane, or FNPT II. This may be performed during a separate PBN-check, or combined with a skill-test/proficiency check IR(A). In the latter case, the mandatory non-precision approach may be replaced by a PBN-approach, followed by the second PBN-approach, which will permit revalidation/renewal of the IR(A)-privileges, together with PBN-privileges.

An examiner should always verify that the candidate received PBN-training (theory and practical), prior to the PBN-check and endorsing the candidate for PBN, based on the ATO PBN-certificate. The examiner shall upon passing the PBN check endorse the candidate in the logbook and fill-out the appropriate skill-test, or proficiency check form (see chapter 12). Credits are possible, on the mandatory 5 approaches in PBN-training (for instructors and examiners in instrument rating only) based on prior experienced and elaborated in a separate document.

- C. Upon successful demonstration of competency in PBN, to a BCAA PBN-examiner this should lead to an endorsement in the candidate's logbook:

"PBN-approved" + type of approaches trained/assessed (LNAV/LNAV-VNAV/LP/LPV)

"PBN-instructor approved" + type of approaches trained/assessed (LNAV/LNAV-VNAV/LP/LPV) for holders of an FI-IR(A), IRI(A), or CRI(A) instructor privileges

"PBN-examiner approved" + mention of the type of approaches trained/assessed (LNAV/LNAV-VNAV/LP/LPV) for holders of an IRE(A), or CRE(A) examiner privileges

If the full range of PBN approaches were trained (LP-approaches are hard to find, but training on the use of augmentation and vertical guidance provided by GNSS are mandatory), the PBN-examiner may endorse the full scope of PBN-approaches. Initial BCAA PBN-examiners may endorse PBN-instructor and examiner privileges to other examiners and instructors. PBN-examiner privileges automatically assume instructor privileges, so the mention of both is "PBN-examiner approved" and "PBN-instructor approved", is not necessary: "PBN-examiner approved" in that case is sufficient.

For the initial issuance of an instrument rating with PBN, the mandatory "classic" non-precision approach may be replaced by a PBN-approach, followed by a second PBN-approach. The updated IR(A) checklist (including PBN) is to be used by the examiner. This allows for combined initial issuance of an IR(A), with PBN-privileges.

For revalidation/renewal of PBN-privileges, the mandatory "classic" non-precision approach may be replaced by a PBN-approach. It must not be followed by a second PBN-approach. The same principle applies to each following instrument rating proficiency check.

- D. By August 25th, 2020, the "classic" IR(A) will no longer exist without PBN-privileges. Holders of IR(A)-privileges, requesting revalidation/renewal beyond this date, will have to demonstrate PBN-privileges objectively, via the PBN-endorsement in the logbook (added by skill-test/prof-check forms, PBN-check form, and/or attendance. From a licensing point of view, the "classic" IR(A) will be grandfathered towards the "post 25/08/2020 IR(A)", without any additional mention of PBN (from then on PBN is assumed included in the EASA IR(A), if the license holder can demonstrate earlier PBN-training and checking. Once the initial PBN-check has been performed, it is requested that each consecutive non-precision approach (part of the IR(A)-skill test, or proficiency check, would be a PBN-approach). The annual endorsement "PBN-approved" in the logbook is not required, unless other types of PBN-approaches are assessed. As soon as a license holder is PBN-approved, it is expected he/she performs 1 PBN approach during the annual IR(A)-proficiency check (instead of the classic IR(A) non-precision approach). IR(A) holders that cannot demonstrate PBN training and checking, after August 25th, 2020 should will no longer be allowed to exercise IR(A) privileges, until PBN training and checking can be demonstrated objectively.

6. License holders:

Holders of a Type Rating with IR(A), may be credited for PBN-training via initial/recurrent training with their operator and PBN-check, via their Type Rating/IR skill-test and/or proficiency check with an operator. A TRI/TRE holding PBN-privileges may endorse pilots in their logbooks after and LPC/OPC, mentioning “PBN-Approved” + type of approaches trained/checked. Endorsements by TRE also count to execute the same type of approaches in General Aviation (for example: A pilot flying the A320 commercially and trained and checked for LNAV/VNAV may perform this type of approach in general aviation, both as PIC, and as instructor/ examiner). The license holder should however have received a long briefing and/or difference training and be proficient in the use of the pilot/airplane interface (Garmin, Avidyne, Honeywell, etc.) related to PBN, of each specific airplane.

TRE are requested to perform the same mention “PBN approved” endorsements in the logbook of holders of a Type Rating, as is requested to IRE/CRE, described in chapter 5.D. TRE may also endorse other TRE and TRI for “PBN Examiner” and “PBN Instructor” in their logbooks.

7. IR(A)-students:

At the latest by August 25th, 2020 all IR-holders must be able to demonstrate PBN-privileges, to keep the instrument rating valid. Students may take a specific PBN-course, like holders of an IR, after completion of their “classic” IR-training (PBN not included), or if the ATO is already approved for PBN, enjoy the course during modular IR, or integrated ATPL-training.

For an initial skill-test IR, as for a revalidation and/or renewal, the PBN-check and classis IR(A)-check may be combined, as of October 1st 2016 in Belgium.

8. Entry into force and cancellation

These requirements are applicable as from October 1st, 2016 and valid until August 25th, 2020, unless modified/updated earlier.

9. Documents and forms:

For theoretical training within an ATO, BCAA refers to its own developed theoretical training material, which may be freely used and distributed: http://mobilit.belgium.be/fr/transport_aerien/licences/pbn ATO may use this as a base to further develop their own and updated theoretical training material.

With the entry of PBN on the October 1st, 2016, a number of skill-test and proficiency check forms will be replaced:

- Checklist IR(A)
- Checklist Single-pilot Aeroplanes except for High performance complex Aeroplanes

Both contain the section PBN. The examiner should fill-in the applicable sections. The mention “if applicable” means the candidate was trained in PBN and the airplane is PBN-able. For the departure phase, for example this is not applicable if a classic SID was flown, using ground-based navigation aids.

As mentioned earlier: if an initial PBN-check is performed (not linked to a proficiency check of the instrument rating privileges), no checklist must be filled in. The ATO attendance certificate is sufficient, together with the PBN-endorsement in the logbook of the candidate. The candidate should be notified by the examiner, that during every next proficiency check in instrument rating, the PBN-privileges must be rechecked annually by replacing the mandatory non-precision approach, by a PBN-approach.

10. Foreign License holders & Mutual recognition:

BCAA Licensing Directorate can accept all endorsements for PBN by European examiners. Third Country endorsements (FAA and other) are rejected by lack of bilateral agreements in this field. BCAA allows its IRE/CRE/TRE to endorse non-Belgian license holders for PBN-approaches, provided the license issuing authority (Competent Authority) of the license holders agrees with this (to be inquired by the individual license holder prior to a PBN-test, or IR(A)-skill test, or proficiency check). BCAA cannot guarantee mutual acceptance by other European Member States of the PBN-endorsement by Belgian examiners.

Third Country license holders may perform PBN-training, in the light of ICAO to EASA License Conversion Training.

11. Revalidation of PBN-privileges:

In order to maintain the PBN-privileges, the mandatory non-precision approach of the instrument rating proficiency check, should be a PBN-approach, from the moment the PBN-privileges are obtained.

12. Time-line:

