



Explanatory Note to Decision 2018/013/R

Airspace usage requirements and operating procedures concerning performance-based navigation

RELATED NPA/CRD 2015-01 — OPINION NO 10/2016 — RMT.0639

EXECUTIVE SUMMARY

The objective of this Decision is to provide guidance material (GM) on the matters covered by Commission Implementing Regulation (EU) 2018/1048, which defines the requirements and operating procedures concerning performance-based navigation (PBN). This supporting material aims to facilitate the smooth transition to PBN, based on the use of a set of common PBN specifications and functionalities, as specified in the recently adopted Regulation.

The PBN GM is aimed at providers of ATM/ANS, aerodrome operators and competent authorities so as to assist with the harmonised application of the new regulatory requirements, which support an increase in safety and more efficient operations. This GM provides information and orientation on how to address relevant issues, such as the aspects related to the transition, provision of contingency measures or design and publication of routes and procedures in accordance with a comprehensive set of technical references. In this regard, the relevant International Civil Aviation Organization (ICAO) references have been indicated so as to ensure alignment with the Standards and Recommended Practices (SARPs), as well as with other ICAO supporting documentation.

The GM to Commission Implementing Regulation (EU) 2018/1048 and its Annex has been developed to supplement the acceptable means of compliance (AMC) and GM for common airspace usage requirements and operating procedures 'AMC/GM to AUR' adopted by Decision No 2012/002/R, which supports the application of Part-ACAS of Commission Regulation (EU) No 1332/2011. Given that both regulations lay down airspace usage requirements and operating procedures, AMC/GM to AUR has been restructured accordingly. In addition, the existing AMC on ACAS II training has been updated to refer to the latest ICAO amendments, thereby achieving synchronisation of EU rules with ICAO provisions.

Action area:	PCP/SESAR deployment		
Affected rules:	AMC/GM to AUR		
Affected stakeholders:	competent authorities, providers of ATM/ANS, aerodrome operators, aircraft operators		
Driver:	Efficiency/proportionality	Rulemaking group:	No
Impact assessment:	Full	Rulemaking Procedure:	Standard

● EASA rulemaking process

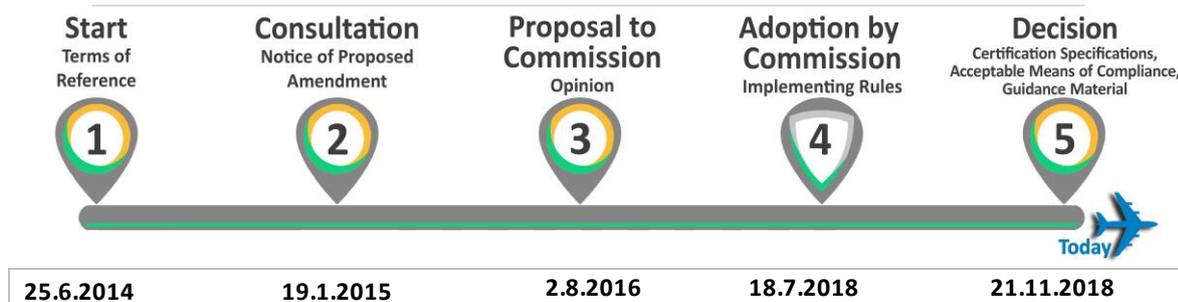


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1. About this Decision

The European Union Aviation Safety Agency (EASA) developed ED Decision 2018/013/R in line with Regulation (EU) 2018/1139¹ (hereinafter referred to as the ‘Basic Regulation’) and the Rulemaking Procedure².

This rulemaking activity is included in the European Plan for Aviation Safety (EPAS)³ under rulemaking task (RMT).0639. The scope and timescales of the task were defined in the related Terms of Reference⁴.

The draft text of this Decision has been developed by EASA. All interested parties were consulted through Notice of Proposed Amendment (NPA) 2015-01⁵.

720 comments were received from all interested parties, including industry, national aviation authorities and EU organisations. The comments received and the EASA responses to them were presented in Comment-Response Document (CRD) 2015-01⁶. Based on the comments received, EASA published Opinion No 10/2016 on 2 August 2016, which was addressed to the European Commission. The related Regulation (Regulation (EU) 2018/1048⁷) was adopted on 18 July 2018.

Taking into account the feedback received during the NPA 2015-01 public consultation as well as the changes introduced to the regulatory text during the committee procedure for the adoption of Commission Implementing Regulation (EU) 2018/1048, EASA identified the need to further develop the acceptable means of compliance and guidance material in coordination with the affected stakeholders and has subsequently consulted its Advisory Bodies on the outcome.

The major milestones of this rulemaking activity are presented on the title page.

¹ Regulation (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018 on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and amending Regulations (EC) No 2111/2005, (EC) No 1008/2008, (EU) No 996/2010, (EU) No 376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament and of the Council, and repealing Regulations (EC) No 552/2004 and (EC) No 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91 (OJ L 212, 22.8.2018, p. 1) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1536149403076&uri=CELEX:32018R1139>)

² EASA is bound to follow a structured rulemaking process as required by Article 115(1) of Regulation (EU) 2018/1139. Such a process has been adopted by the EASA Management Board (MB) and is referred to as the ‘Rulemaking Procedure’. See MB Decision No 18-2015 of 15 December 2015 replacing Decision 01/2012 concerning the procedure to be applied by EASA for the issuing of opinions, certification specifications and guidance material (<http://www.easa.europa.eu/the-agency/management-board/decisions/easa-mb-decision-18-2015-rulemaking-procedure>).

³ https://www.easa.europa.eu/document-library/general-publications?publication_type%5B%5D=2467

⁴ <https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0639>

⁵ In accordance with Article 115 of Regulation (EU) 2018/1139 and Articles 6(3) and 7 of the Rulemaking Procedure.

⁶ https://www.easa.europa.eu/sites/default/files/dfu/CRD%202015-01_0.pdf

⁷ Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018 laying down airspace usage requirements and operating procedures concerning performance-based navigation (OJ L 189, 26.7.2018, p. 3) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1541175347856&uri=CELEX:32018R1048>)

2. In summary — why and what

2.1. Why we need to change AMC & GM to AUR

After the publication of Commission Implementing Regulation (EU) 2018/1048 (hereinafter also referred to as the 'PBN Regulation'), additional GM concerning airspace usage requirements and operating procedures is necessary to ensure the harmonised application of the PBN Regulation. This will assist affected stakeholders in addressing potential implementation difficulties foreseen, especially with regard to the interpretation of those regulatory requirements that entail complex evaluations, planning and technical activities to implement the required PBN routes and approach procedures.

It should be noted that the reason for the adoption of the PBN Regulation is the optimisation of aircraft operations and airspace use, via the use of a common set of navigation specifications and functions, due to the continued growth of air traffic. Hence, it was important to expand the benefits associated with the implementation of PBN beyond what is currently required in Commission Implementing Regulation (EU) 716/2014⁸, thus promoting the use of harmonised PBN applications beyond the high-density terminal control areas (TMAs) listed in point 1.2.1 of the Annex to that Regulation.

Additionally, the references to ICAO PANS-OPS and ICAO PANS-ATM provided in AMC1 AUR.ACAS.1010 (Part-ACAS) need to be updated so as to ensure that the relevant ICAO amendments are taken into account.

2.2. What we want to achieve — objectives

The overall objectives of the EASA system are defined in Article 1 of the Basic Regulation. This proposal will contribute to the achievement of the overall objectives by addressing the issues outlined in Section 2.1.

The specific objective of this proposal is, therefore, to expand and update AMC/GM to AUR, providing stakeholders with supporting material that addresses both ACAS and PBN matters.

The overriding objective of this proposal is to underpin the recently published PBN Regulation with the appropriate GM so as to enable a harmonised, consistent and smooth implementation of air traffic services (ATS) routes and instrument approach procedures as required by the Regulation.

PBN implementation will result in improved safety and capacity, as well as improved flight and environmental efficiency. For instance, all instrument runways will benefit from approach procedures with vertical guidance, thus reducing the likelihood of un-stabilised approaches or controlled flight into terrain. The accuracy and continuous predictability of flight paths will also reduce the need for aircraft vectoring and permit better route placement, resulting in increased fuel efficiency and noise abatement.

Besides increasing operational efficiency, the transition to PBN should lead to a gradual rationalisation of the existing navigation infrastructure, i.e. a progressive decommissioning of ground navigation aids (NAVAIDs) that at present support conventional navigation procedures.

⁸ Commission Implementing Regulation (EU) No 716/2014 of 27 June 2014 on the establishment of the Pilot Common Project supporting the implementation of the European Air Traffic Management Master Plan (OJ L 190, 28.6.2014, p. 19) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1541175587006&uri=CELEX:32014R0716>)

During the transition to exclusive PBN operations and even after the transition due to the need to support contingency operations, PBN and conventional navigation procedures must coexist. This implies that a minimum infrastructure of ground NAVAIDs needs to be retained in support of these operations.

2.3. How we want to achieve it — overview of the supporting material

AMC/GM to AUR has been restructured to provide AMC & GM to the Annex to Regulation (EU) 1332/2011⁹, as well as the PBN Regulation and its Annex. In particular, PBN-related GM has been added, whose contents were significantly developed after the publication of NPA 2015-01 as a result of the comments received, the focused consultation that followed the publication of Opinion No 10/2016, and the amendments introduced during the adoption process. The outcome is based on the inputs and feedback provided. In addition, it should be noted that the committee procedure considerably altered the regulatory proposal presented in said Opinion, resulting in EASA significantly adjusting the associated AMC & GM.

The main requirements for the PBN specifications and functionalities adopted by the Commission are laid down in the Annex to the PBN Regulation. In addition, the articles in the Regulation regulate a number of related matters that are essential to guarantee the successful implementation. The description that follows focuses on the introduction of PBN contents and highlights the main elements of the particular GM that has been added in support of both the articles of and the Annex to the PBN Regulation.

2.3.1 Transitional measures — Article 4

The implementation of the ATS routes and approach procedures requires that a number of measures be taken, including the development of a transition plan and the consultation thereof with the relevant parties before the necessary approval to proceed with its application is granted.

The GM provided explains the benefits of conducting a comprehensive evaluation and planning of the operational environment that will exist during the transition period. This evaluation would need to be completed and updated by working closely with those stakeholders affected by the measures considered in the transition plan. Thus, the main factors that could be taken into account by those involved in the development and implementation of a transition plan are described, e.g. specificities of the traffic operating at the affected aerodromes, supporting infrastructure, and ATS available at every stage during the transition.

The GM also addresses the role played by the competent authority, which is considered essential with a view to coordinating and optimising the transitional measures, especially where several transition plans need to be developed simultaneously by providers of ATM/ANS or aerodrome operators at national level.

Furthermore, there is GM that describes alternatives to support aircraft operations during the transition phase and focuses the attention on non-capable aircraft, i.e. those aircraft that cannot operate on the routes or procedures set out in the PBN Regulation. Other significant aspects

⁹ Commission Regulation (EU) No 1332/2011 of 16 December 2011 laying down common airspace usage requirements and operating procedures for airborne collision avoidance (OJ L 336, 20.12.2011, p. 20) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1541176583197&uri=CELEX:32011R1332>)

addressed are the potential use of reversionary NAVAID infrastructures and the decommissioning of part of the existing ground NAVAIDs.

Finally, it should be noted that CAT II and CAT III approach operations do not fall within the scope of the regulatory requirements, so regulated parties simply need to consider how CAT II/III ground facilities may supplement approach operations predicated on PBN.

2.3.2 Exclusive use of PBN — Article 5

GM is provided to better explain what traditional landing systems (e.g. ILS) are expected to remain in service after the transition to full PBN operations by June 2030. It differentiates between CAT I operations and CAT II/III operations, since the former can, in some cases, be supported by PBN approach procedures, whereas the latter currently can be predicated only on ILS and MLS.

2.3.3 Contingency measures — Article 6

Dedicated GM has been developed to support the preparation of contingency measures that must be applied when, due to degradation of the PBN environment, aircraft cannot navigate along prescribed ATS routes or approach procedures.

It is recommended that contingency measures be evaluated taking into account local considerations, e.g. the robustness of the supporting communications and surveillance systems.

Although said GM primarily pays attention to the provision of alternative means of navigation whenever a contingency occurs, other potential measures, such as aircraft vectoring, would need to be evaluated as well. As regards the performance needed when reverting to an alternative means of navigation, consideration is given to the fact that the assessments conducted should ensure that the ground NAVAID infrastructure is capable of supporting aircraft navigation during the PBN-related failure modes.

2.3.4 Entry into force and application — Article 7

For the sake of clarity, stakeholders are provided with information on the deadlines to implement the main requirements set out in the Annex to the PBN Regulation.

2.3.5 Annex — Subpart PBN — AUR.PBN.2005

AMC & GM to AUR lists a number of relevant ICAO references that should preferably be considered for the implementation of PBN ATS routes and approach procedures. These references address a wide variety of technical matters, including instrument flight procedure and airspace design, publication of aeronautical charts, etc. The use of ICAO references ensures the required harmonisation with best practices applied worldwide.

It should be noted that the inclusion of these technical references is deemed to be an interim measure until Commission Implementing Regulation (EU) 2017/373¹⁰ is amended and enters into force, to

¹⁰ Commission Implementing Regulation (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 (OJ L 62, 8.3.2017, p. 1) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1541179866100&uri=CELEX:32017R0373>)

incorporate the technical requirements and operating procedures for airspace design, including flight procedure design, as contemplated in RMT.0445¹¹.

Other relevant aspects addressed in the provided guidance include PBN approach operations supported by the European satellite-based augmentation system (SBAS), EGNOS¹² and, particularly, the definition and verification of the appropriate EGNOS coverage, which is a prerequisite for the implementation of SBAS approach procedures.

¹¹ <https://www.easa.europa.eu/document-library/rulemaking-subjects/technical-requirements-and-operation-procedures-airspace-design>

¹² European Geostationary Navigation Overlay Service



3. References

3.1. Related regulations

- Commission Implementing Regulation (EU) 2018/1048 of 18 July laying down airspace usage requirements and operating procedures concerning performance-based navigation (OJ L 189, 26.7.2018, p. 3)
- Commission Regulation (EU) No 1332/2011 of 16 December 2011 laying down common airspace usage requirements and operating procedures for airborne collision avoidance (OJ L 336, 20.12.2011, p. 20)
- Commission Implementing Regulation (EU) No 716/2014 of 27 June 2014 on the establishment of the Pilot Common Project supporting the implementation of the European Air Traffic Management Master Plan (OJ L 190, 28.6.2014, p. 19)
- Commission Implementing Regulation (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 (OJ L 62/1, 8.3.2017, p. 1)

3.2. Affected decisions

- Decision N° 2012/002/R of the Executive Director of the Agency of 8th March 2012 on the acceptable means of compliance and guidance material for common airspace usage requirements and operating procedures ‘AMC/GM to AUR’

3.3. Other reference documents

- EASA Opinion No 10/2016 Performance-based navigation implementation in the European air traffic management network. Related NPA/CRD: 2015-01 — RMT.0639 — 28.7.2016
- ICAO Document 9613 AN/937, ‘Performance-based Navigation (PBN) Manual’, 2013, 4th Edition
- ICAO Document 9750 AN/963, ‘2016—2030 Global Air Navigation Plan’, 2016, 5th Edition
- EASA Opinion No 02/2018 Specific requirements for providers of meteorological services, aeronautical information services/aeronautical information management, and flight procedure design services; common rules for airspace structure design – 8.3.2018. Related NPA/CRD: 2016-13 Technical requirements and operating procedures for airspace design, including flight procedure design. RMT.0445 – 25.10.2016