Terms of Reference

for a rulemaking task

Technical requirements and operation procedures for airspace design (ASD), including procedure design

RMT.0445 — ISSUE 1 — 14.7.2014

Applicability	
Affected regulations and decisions:	Regulation (EU) No 1034/2011 Regulation (EU) No 1035/2011
Affected stakeholders:	Airspace designers; competent authorities
Driver/origin:	Legal obligation
Reference:	N/A

Process map	
Rulemaking lead:	R5
Concept Paper:	No
Rulemaking group:	Yes
RIA type:	Full
Technical consultation during NPA drafting:	TBD
Publication date of the NPA:	2015/Q2
Duration of NPA consultation:	3 months
Review group:	Yes
Focussed consultation:	TBD
Publication date of the Opinion:	2016/Q1
Publication date of the Decision:	2016/Q4

1. Issue and reasoning for regulatory change

As the organisation of the airspace has a direct effect on the trajectory followed by aircraft, poor and/or erroneous designs of airspace structures[1] and flight procedures[2] can increase the risks of incidents or accidents, as well as impede the possibility of air traffic services to expedite and maintain an orderly flow of traffic. The correct and harmonised design of the airspace structures and flight procedures by approved airspace design[3] (ASD) providers should contribute to ensuring safe operations within the European airspace.

Regulation (EC) No 216/2008[4] (hereinafter referred to as the 'Basic Regulation') establishes a comprehensive framework for the definition and implementation of common technical requirements and administrative procedures in the field of civil aviation. In particular, it requires[5] the European Aviation Safety Agency (hereinafter referred to as the 'Agency') to execute certain tasks, such as preparing implementing rules and 'soft law' to regulate the safe provision of ATM/ANS, including the conditions for the provision of ATM/ANS to be in compliance with the Essential Requirements set out in Annex Vb to the Basic Regulation. These measures include the certification of the providers of various services and the oversight of them by competent authorities. Although ASD is not explicitly mentioned in the definition of ATM/ANS in Article 3(q) of the Basic Regulation, it is specifically included as an Essential Requirement in point 2(i) of Annex Vb, which together with point 6(a) of Article 8b provide the legal basis and create the legal obligation to regulate this activity to ensure proper design of airspace.

The Agency has developed an Implementing Rule, as derived from the Essential Requirements of Annex Vb to the Basic Regulation, for the provision of ATM/ANS services and the oversight thereof as proposed in NPA 2013-08 on 'Requirements for ATM/ANS providers and the safety oversight thereof' published on May 10th 2013. This NPA includes common requirements for the provision of ATM/ANS and proposes several Annexes that will cover the specific organisational and technical requirements for the providers of these services. This rulemaking task will assess and develop the regulatory requirements for ASD to be included in the NPA 2013-08 regulatory structure, including the identification of which common requirements, as identified in NPA 2013-08, are applicable to ASD. It is worth noticing that the presence of the airspace design requirements in the Essential Requirements of the Basic Regulation does not automatically imply that organisations undertaking ASD will be subject to certification and the other common requirements provided in Annex I to NPA 2013-08. However, it is fully recognised that ASD is an integral

---

1 'airspace structures' means a specific volume of airspace designed to ensure the safe and optimal operation of aircraft (Commission Regulation (EU) 2150/2005). These include, e.g. ATS routes, ATC sectors, CRDs, danger areas, restricted areas, prohibited areas, Temporary Segregated Areas (TSA). The list is not exhaustive.

2 'flight procedures' means an operational procedure recommended for the guidance of flight operations personnel and flight crew (ICAO PANS-OPS). Among them, Instrument Flight Procedures (IFP), including SIDs and STARs, are of upmost importance. 'IFP' means a description of a series of determined flight manoeuvres by reference to flight instruments, published by electronics or printed means.

3 'Airspace design (ASD)' means the collective set of activities for the design, survey, and validation of airspace structures and flight procedures before being deployed and used by aircraft.

4 Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC, as amended by Commission Regulation (EC) No 690/2009 of 30 July 2009, Regulation (EC) No 1108/2009 of the European Parliament and of the Council of 21 October 2009, and Commission Regulation (EU) No 6/2013 of 8 January 2013 (OJ L 4, 9.1.2013, p. 34).

5 Article 8b point 6 (a) of Regulation (EC) No 216/2008.

supporting activity within the ATM/ANS. This rulemaking task should assess the organisational and technical requirements appropriate to ASD, taking into consideration the risks involved, the principle of proportionality and the complexity of the activity. The assessment should consider a range of regulatory options from a single process different to certification for the ASD to a certification obligation for certain critical ASD activities and a leaner oversight process for other ASD activities.

ASD plays a key role in the safety of air operations and is also a key enabler for the implementation of new operational concepts and Performance-Based Navigation (PBN). The implementation of PBN primarily requires three key enablers;

(a) navigation capabilities and functionality on board the aircraft,

(b) ground/space navigation infrastructure, and

(c) airspace and procedure design matching the navigation specifications.

Adequate knowledge of PBN requirements is key to an appropriate airspace design, thus, the provisions for ASD should initially include specific requirements in relation to the PBN implementation as defined by RMT.0639 on 'Performance-Based Navigation (PBN) implementation in the European Air Traffic Management Network (EATMN)'.

Another aspect to consider in the regulation of ASD is its relation to the aeronautical data information chain. Airspace designers are also key players in data origination within the aeronautical data and information chain, whose outcome will be ultimately used by ATS providers and aircraft operators. ASD should be performed taking into account the requirements not only related to aeronautical data, in terms of quality and integrity, but also related to other technical aspects. Therefore, when developing the subject implementing measures, consideration should be given to the outcome of RMT.0477 dealing with 'Aeronautical Information Services (AIS) and Aeronautical Information Management (AIM)' and of RMT.0593 dealing with 'Data services providers (DAT)', in order to avoid any duplication of requirements, to ensure consistency of them and to establish clear roles and responsibilities.

In summary, with this task, the Agency intends to develop appropriate organisational and technical requirements on airspace design provision, thus, ensuring that the relevant safety objectives of the Basic Regulation are met. Initially, the scope of the task should establish the requirements for the design of flight procedures and ATS routes, to support the implementation of PBN operations, and evaluate the appropriateness of extension to other airspace structures and flight procedures designs, without overlapping with the requirements of current regulations[6]. This will include an analysis of the need for a certification scheme. The task should also assess what certification scheme, if any, is the most appropriate for the ASD providers' risks.

2. Objectives

The objective is to ensure that flight procedures and airspace structures are safely designed, validated and surveyed in a harmonised and consistent manner.

[6] For example, Commission Regulation (EC) No 677/2011 of 7 July 2011 laying down detailed rules for the implementation of air traffic management (ATM) network functions and amending Regulation (EC) No 691/2010 (OJ L 185, 15.7.2011, p.1).

3. Activities

During the development of the draft provisions and the Regulatory Impact Assessment (RIA), the following subtasks will be considered:

Subtask a): Setting the approach. Given the objects to be designed and activities covered by the ASD, this initial step will evaluate the most appropriate approach to develop the organisation and technical requirements, from transposing to referencing technical standards. This may result in a stepwise development approach of the regulatory material, as this task is the initial step of the regulatory development. In particular, the following elements will be considered, taking due account of the civil-military dimension, as relevant:

— Objects to be designed: the ASD activity should cover the design of flight procedures (for both conventional and PBN operations) including SIDs and STARs and airspace structures such as ATS routes or ATC sectors.

— Activities covered by the ASD activity: the airspace design encompasses activities from surveying terrain and obstacles to actual design of flight procedures, possibly supported by simulations, flight and ground validation of the design, as appropriate.

— Requirements to develop: Two types of requirements need to be developed. On the one hand, technical requirements that ASD providers should comply with to ensure airspace structures and flight procedures are adequately designed. On the other hand, the organisation requirements, including personnel requirements, specific to ASD providers. The task should also explore if specific authority provisions are needed in addition to those requirements already described in NPA 2013-08.

Subtask b): Setting the organisation requirements. This subtask will assess the applicability of the common requirements, as laid down in NPA 2013-08, to ASD and develop any specific additional requirements and responsibilities applicable to ASD. In particular, it will address what is the most appropriate framework to define the conditions and the means to discharge the responsibilities in the case of ASD providers. This subtask will review existing provisions of ICAO materials, EU regulations and international standards in order to identify the necessary organisation and personnel competence requirements for ASD provision.

Subtask c): Setting the technical requirements. The range of options to develop technical requirements can vary from the recognition of international standards or ICAO PANS in AMC/GM material to transposition of ICAO SARPS (e.g. provisions from ICAO Annex 11) in the Implementing Rule or a combination of both. This subtask will review the existing ICAO provisions, EU regulations and international standards in order to identify technical requirements for safe and efficient airspace design. In particular, the Rulemaking group should identify the requirements from ICAO annexes or recommendations (e.g. PANS) to be transposed in the IR or included in AMC/GM.

4. Deliverables

(a) An Agency Opinion on technical requirements and operation procedures for airspace design (ASD) including procedure design; and

(b) an Agency Decision on technical requirements and operation procedures for airspace design (ASD) including procedure design.

5. Interface issues

(a) The draft regulatory provisions will take into due consideration the EASA draft rules stemming from NPA 2013-08 on 'Requirements for ATM/ANS providers and the safety oversight thereof', as it contains common requirements for service providers.

(b) The draft regulatory provisions will take into due consideration the other RMTs related to airspace design, notably the provisions to be developed with regard to AIS/AIM (RMT.0477), navigation data providers (RMT.0593*)*, and tasks related to the implementation of PBN (RMT.0519).

(c) The draft regulatory provisions will take into due consideration the provisions contained in Regulation (EU) No 139/2014[7], as it contains requirements on aerodrome operators to provide data related to obstacles and terrain in the vicinity of aerodromes.

(d) The draft regulatory provisions will take due consideration of the provisions contained in Regulation (EU) No 677/2011, as it contains requirements related to the NM function to design the European route network and laid down airspace design principles.

Out of scope of this RMT is the development of any provisions related to Airspace Management (ASM), as the latter does not deal with design of airspace structures, but only with activation, de-activation and reconfiguration of them.

6. Focussed consultation

Focussed consultation may be organised, prior to the publication of the NPA and during the review of the comments to the NPA. This will be determined during the drafting phase and may include:

(a) meetings with stakeholders,

(b) workshop, and

(c) RAG/TAGs and SSCC consultation (written or face-to-face meetings).

7. Profile and contribution of the rulemaking group

A rulemaking group will be established to support the Agency for all subtasks of this RMT. The profile of the rulemaking group and its potential members is as follows:

(a) The group should:

— be composed of 8 to 10 experts representing competent authorities, ANSPs, airspace designers, airport operators and pilots;

— hold five to seven meetings between 2014/Q3 and 2015/Q2.

(b) The members of the rulemaking group should have knowledge of and experience in designing and validating airspace structures, and flight procedures and procedures for the approval of these airspace designs.

[7] Commission Regulation (EU) No 139/2014 of 12 February 2014 laying down requirements and administrative procedures related to aerodromes pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 44, 14.2.2014, p. 1).

8. Annex I: Reference documents

8.1. Affected regulations

— Commission Implementing Regulation (EC) No 1035/2011 of 17 October 2011 laying down common requirements for the provision of air navigation services and amending Regulations (EC) No 482/2008 and (EC) No 691/2010 (OJ L 271, 18.10.2011, p. 23)

— Commission Implementing Regulation (EC) No 1034/2011 of 17 October 2011 on safety oversight in air traffic management and air navigation services and amending Regulation (EC) No 691/2010 (OJ L 271, 18.10.2011, p. 15)

8.2. Affected decisions

— N/A

8.3. Reference documents

— Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC, as last amended by Commission Regulation (EU) No 6/2013 of 8 January 2013 (OJ L 4, 9.1.2013, p. 34)

— Commission Regulation (EC) No 677/2011 of 7 July 2011 laying down detailed rules for the implementation of air traffic management (ATM) network functions and amending Regulation (EC) No 691/2010 (OJ L 185, 15.7.2011, p.1).

— Commission Regulation (EU) No 139/2014 of 12 February 2014 laying down requirements and administrative procedures related to aerodromes pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 44, 14.2.2014, p.1).

— EASA NPA 2013-08, 'Requirements for ATM/ANS providers and the safety oversight thereof', 10th May 2013.

— ICAO Annex 4, 'Aeronautical Charts', 2009, 11th Edition.

— ICAO Annex 10, 'Aeronautical Telecommunications'.

— ICAO Annex 11, 'Air Traffic Services', 2001, 13th Edition.

— ICAO Annex 14 Aerodromes - Volume I – Aerodrome Design and Operations,

— ICAO Document 9992 AN/494, 'Manual on the Use of PBN in Airspace Design', 2012, unedited edition.

— ICAO Document 8168 OPS/611 'Procedures for Air Navigation Services: Aircraft Operations' (PANS-OPS), 2006, 5th Edition.

— ICAO Document 4444 ATM\501, 'Procedures for Air Navigation Services: Air Traffic Management' (PANS-ATM), 2007, 15th Edition.

— ICAO Document 9426 AN\924, 'Air Traffic Services Planning Manual', 1984, 1st Edition.

— ICAO Document 9613, 'PBN Manual', 2013, 4TH Edition.

— ICAO Document 9906 AN/472 'Quality Assurance Manual for Flight Procedure Design', Volumes 1 to 6, 2012, 1st Edition.

— ICAO Document 9905 AN\471, 'RNP AR procedure design', 2009, 1st Edition.

— ICAO Document 9689 AN\953, 'Manual on Airspace Planning Methodology for determination of separation minima', 1998, 1st Edition.

— ICAO Document 8071, 'Manual on the Testing of Radio Navigation Aids'.

— ICAO Document 9931, 'Continuous Descent Operations (CDO) Manual'.

— ICAO Document 9993, 'Continuous Climb Operations (CCO) Manual'.

— EUROCONTROL, 'European Route Network Plan. Framework Document', 2012.

— EUROCONTROL, 'European Route Network Plan. Part 1-European Airspace Design Methodology – Guidelines', 2012.

— EUROCONTROL, 'European Airspace Concept handbook for PBN Implementation', Edition 3.0, 2013.