



Notice of Proposed Amendment 2016-13

Technical requirements and operating procedures for airspace design, including flight procedure design

RMT.0445

EXECUTIVE SUMMARY

This Notice of Proposed Amendment (NPA) addresses a safety and regulatory issue related to airspace design (ASD), including flight procedure design.

The overall objectives of the European Aviation Safety Agency (EASA) are established in Article 2 of Regulation (EC) No 2016/2008 (the EASA Basic Regulation). This proposal will contribute to the achievement thereof.

The specific objectives of the proposal are to:

- ‘promote cost-efficiency in the regulatory and certification processes and to avoid duplication at national and European level’ (Article 2.2(c) of the Basic Regulation);
- facilitate the free movement of airspace users across the European airspace;
- ensure regulatory harmonisation across Europe, while assisting Member States in fulfilling their obligations under the Chicago Convention, by providing a basis for a common interpretation and uniform implementation of its provisions.

These objectives will be achieved through the set-up of safely designed, validated flight procedures and airspace structures that are maintained and reviewed in a coherent manner.

ASD plays a key role in the safety of air operations and is also a key enabler for the implementation of new navigation concepts such as performance-based navigation (PBN). The proposal made in the NPA facilitates the implementation of the Essential Requirements in Chapter 2, point (i) of Annex Vb to the Basic Regulation.

Furthermore, harmonisation of the requirements across the EU would be clearly beneficial and would ensure alignment with ICAO.

Action area:	Safety: Operational issue, CAT by aeroplanes				
Affected rules:	Regulation (EU) 2016/1377; the upcoming related ED Decision				
Affected stakeholders:	Member States, competent authorities, ANSPs, aerodrome operators, air traffic controllers (ATCOs), aircraft operators and GA pilots				
Driver:	Safety	Reference:	Article 8b of Regulation (EC) No 216/2008		
Rulemaking group:	Yes	Impact assessment:	Light	Procedure:	Standard

● EASA rulemaking process



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1. Procedural information

1.1. The rule development procedure

EASA developed this NPA in line with Regulation (EC) No 216/2008¹ and the Rulemaking Procedure².

This rulemaking activity is included in the [EASA Rulemaking Programme 2016-2020](#) under RMT.0445.

The text of this NPA has been developed by EASA based on the input of the Rulemaking Group (RMG) for RMT.0445. It is hereby submitted for consultation of all interested parties³.

1.2. The structure of this NPA

Chapter 1 of this NPA contains the procedural information related to this task.

Chapter 2 (explanatory note) explains the core technical content.

Chapter 3 contains the proposed amendments to Regulation (EU) 2016/1377⁴ as well as the proposed amendments to the associated acceptable means of compliance (AMC) and guidance material (GM).

Chapter 4 contains the regulatory impact assessment (RIA) showing which options were considered and what impacts were identified, thereby providing the detailed justification for this NPA.

1.3. How to comment on this NPA

Please submit your comments using the automated **Comment-Response Tool (CRT)** available at <http://hub.easa.europa.eu/crt/>⁵. Furthermore, it is important to be noted that throughout the explanatory note (Chapter 2) and the RIA (Chapter 4) there are issues where EASA explicitly invites stakeholders to answer to questions and express their opinion. EASA is addressing stakeholders in order to receive further guidance during the consultation of this NPA with a view to gaining additional information and the opinion of a wider audience.

The deadline for submission of comments is **31 January 2017**.

¹ 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 (OJ L 79, 19.3.2008, p. 1) (<http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1467719701894&uri=CELEX:32008R0216>).

² EASA is bound to follow a structured rulemaking process as required by Article 52(1) of the Basic Regulation. 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 In accordance with Article 52 of the Basic Regulation and Articles 6(3) and 7 of the Rulemaking Procedure.

⁴ Commission Implementing Regulation (EU) 2016/1377 of 4 August 2016 laying down common requirements for service providers and the oversight in air traffic management/air navigation services and other air traffic management network functions, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011 and (EU) No 1035/2011 and amending Regulation (EU) No 677/2011 (OJ L 226, 19.8.2016, p. 1) (<http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1473860902125&uri=CELEX:32016R1377>).

⁵ In case of technical problems, please contact the CRT webmaster (crt@easa.europa.eu).



1.4. The next steps in the procedure

Following the closing of the NPA public consultation period, EASA will review all comments and perform a focused consultation which will consist of (a) thematic review meeting(s).

Based on the comments received, EASA will develop an opinion containing the proposed amendments to Regulation (EU) 2016/1377. The opinion will be submitted to the European Commission, which will use it as a technical basis in order to prepare an EU regulation.

Following the adoption of the regulation, EASA will issue a decision containing the related AMC/GM.

The outcome of the NPA public consultation as well as that of the focused consultation will be reflected in the respective comment-response document (CRD) which will be annexed to the opinion.



2. Explanatory note

2.1. Overview of the issues to be addressed

The organisation of airspace has a direct effect on the trajectory followed by aircraft; poor and/or erroneous design of airspace structures and flight procedures (i.e. ASD) would increase the risks of incidents or accidents, as well as prevent the air traffic services from expediting and maintaining an orderly flow of air traffic. The unnecessary complexity of ASD was identified in an EASA study⁶ also as a safety issue that needs to be addressed. Said study identifies as the greatest risk in controlled airspace the airspace infringements by General Aviation (GA) aircraft due to the lack of knowledge by GA pilots of both the complex airspace structure and the services provided in different airspace types. Therefore, ASD plays a key role in the safety of air operations and is also a key enabler for the implementation of new navigation concepts such as PBN. Therefore, consistent ASD (that includes the design of the airspace structures and the design of the flight procedures) contributes in ensuring safe operations within the European airspace.

As regards the legal basis for regulating this area, Article 8b(6)(a) of the Basic Regulation as well as point 2(i) of Annex Vb (Essential Requirements) to said Regulation address the obligation to ensure safe airspace structure and flight procedure design. It is also recognised, however, that ASD is not explicitly falling within 'ATM/ANS' as defined in the Basic Regulation or the single European sky (SES) framework Regulation (Regulation (EC) No 549/2004⁷). Consequently, it may appear disproportionate to regulate all the activities related to ASD as ATM/ANS according to Article 8b of the Basic Regulation, i.e. all areas of ASD activities to be a subject to certification, particularly in reference to the design of airspace structures. Moreover, today no common European rules on ASD are in place⁸. Therefore, this proposal is limited to responding to the safety objectives of the Basic Regulation to pave the way for safely designed, validated, maintained and reviewed flight procedures and airspace structures.

Through this NPA, EASA is proposing implementing measures for ASD respecting fully the principle of proportionality, as a cornerstone of any legislation in the EU and referring to Article 8b(7)(b) of the Basic Regulation requiring the ATM/ANS implementing rules to be 'proportionate to the type and complexity' of the service provided. This proposal also considers the International Civil Aviation Organization (ICAO) Standards and Recommended Practices (SARPs) related to ASD activities and builds on the requirements of the existing SES Regulations⁹, as far as applicable. The implementing measures should also enable new operational concepts that support the continuous development and performance of the European airspace.

ASD is an issue that would be most effectively addressed at EU level (not at national level), as the harmonised rules would add value in addressing the identified safety issues and would promote cost-efficiency in the regulatory and certification processes. Otherwise, the national rules would potentially

⁶ EASA Mid-Air Collision/Airprox Study, 2016

⁷ Regulation (EC) No 549/2004 of the European Parliament and of the Council of 10 March 2004 laying down the framework for the creation of the single European sky (the framework Regulation) (OJ L 96, 31.3.2004, p. 1) (<http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1473921399119&uri=CELEX:32004R0549>).

⁸ It is recognised that Regulation (EU) No 677/2011 lays down the European route network design (ERND) function; however, it is also acknowledged that Member States 'remain responsible for the detailed development, approval and establishment of the airspace structures for the airspace under their responsibility'.

⁹ Regulations (EC) Nos 549/2004, 550/2004, 551/2004, and 552/2004.



continue maintaining numerous differences between the Member States and, therefore, the issues identified would not be resolved and could even deteriorate over the years with the increase of traffic and the implementation of new airspace-related solutions such as those stemming from the SESAR programme.

Apart from the potential safety consequences, there are also some negative economic impacts due to the lack of common provisions for ASD. The current model of nationally regulated ASD is less cost-efficient due to the divergent costs applicable in each Member State, thus leading to different financial burden for the air navigation service providers (ANSPs), airspace users (GA pilots, aircraft operators), etc.

The main issues addressed with this NPA are the following:

- Safety: by harmonising at EU level the provisions and providing a common transposition of ICAO Annex 11 requirements related to ASD, those related to the airspace structures and flight procedures requirements. While those requirements exist in the ICAO documentation, their implementation and use across the European Union varies and thus increases the risk of misunderstanding between the different airspace actors, i.e. airspace designers, ANSPs, and airspace users.
- Regulatory harmonisation: the provisions proposed are to large extent contained in the ICAO documentation (ICAO SARPs and documents), but their transposition and implementation by the Member States vary so the implementation of the SES initiative, including functional airspace blocks (FABs), is not supported. Furthermore, it should be highlighted that during the rule development, the rulemaking group duly considered other European activities related to ASD. In addition, the outcome of this NPA consultation process and the input provided by the stakeholders may affect some of the proposed provisions in reference to e.g. ‘flight information zone’ and level of granularity associated with the design of airspace structures activities, in particular to the ‘establishment and identification of significant points’.

2.2. Objectives

The overall objectives of the EASA system are defined in Article 2 of the Basic Regulation. This proposal will contribute to the achievement of the overall objectives by addressing the issues outlined in Section 2.1 of this NPA.

The specific objectives of the proposal are to:

- (a) ‘promote cost-efficiency in the regulatory and certification processes and to avoid duplication at national and European level’ (Article 2.2(c) of the Basic Regulation);
- (b) facilitate the free movement of airspace users across the European airspace; and
- (c) ensure regulatory harmonisation across Europe, while assisting Member States in fulfilling their obligations under the Chicago Convention, by providing a basis for a common interpretation and uniform implementation of its provisions.

These objectives will be achieved through the set-up of safely designed, validated flight procedures and airspace structures that are maintained and reviewed in a coherent manner.



In accordance with the recently adopted Commission Implementing Regulation (EU) 2016/1377, all service providers will be subject to common requirements (Annex III, Part-ATM/ANS.OR) and will be required to hold a certificate as established by Article 8b(2) of the Basic Regulation. Said Annex is followed by separate Annexes (from IV to XII) that include the specific requirements for the provision of each individual service, including Annex XI reserved for the specific requirements for the providers of flight procedure design (Part-ASD). The requirements for the design of airspace structures will be addressed to the Member States and as such placed in the Appendix to the Cover regulation .

In summary, this NPA is proposing a set of rules addressing the organisational and technical aspects of ASD, which will amend Regulation (EU) 2016/1377, in particular:

- Article 3 addressing the responsibilities of the Member States related to the design of airspace structures; and
- Annex XI as regards the specific requirements for the organisations providing the design of flight procedures.

Figure 1 illustrates the structure of Regulation (EU) 2016/1377, highlighting the parts of the rule that are proposed to be amended by this NPA.

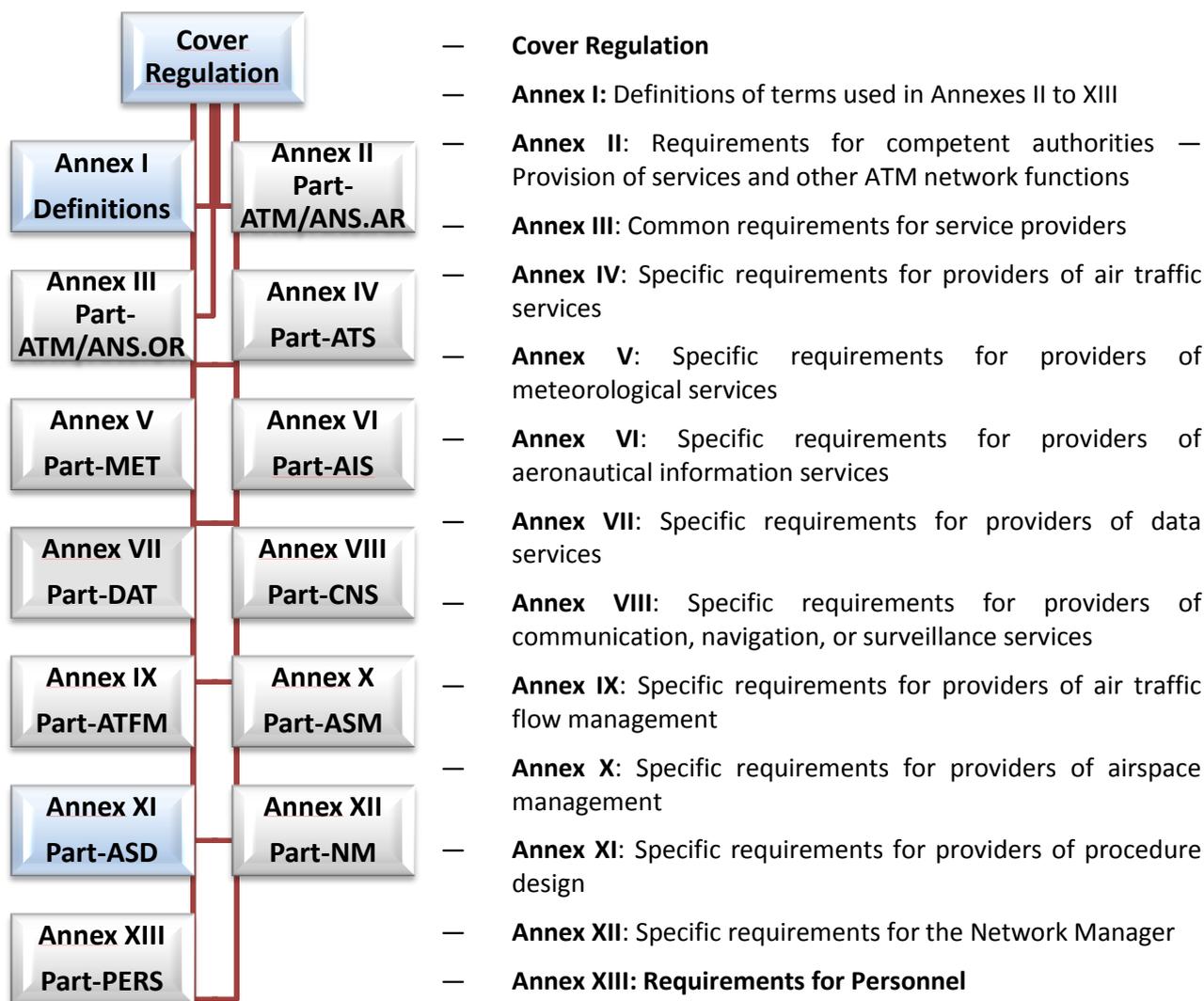


Figure 1



2.3. Summary of the regulatory impact assessment (RIA)

The RIA considers the 3 options described below:

Option No	Short title	Description
0	Do nothing	Lack of EU implementing rules in the context of ASD. Leave the Basic Regulation not implemented. The Member States would need to develop their own national ASD criteria and requirements to fulfil their obligation stemming from the Chicago Convention.
1	Performance-based rules on ASD, especially on the design of airspace structure	The rules avoid a detailed prescription of organisational or ownership models and focus on describing the required output and objectives of the activity itself. Thus, it will be at the discretion of the Member States to employ the most efficient national administrative model in order to assign the roles as regards the airspace structures. In this way, the future rules will allow all Member States' currently existing models to continue to exist (without duplication) and the rule will not prescribe a certain organisational model for airspace structures design. This approach takes duly into account the varying degrees of the Member States, competent authorities' or service providers' involvement.
2	Prescriptive ASD rules	The rules would introduce organisational or ownership models. In this way, the future rule will require adjustments of all currently existing models in the Member States, to the new requirements. This option will not take into account the varying degrees of the Member States', competent authorities' or service providers' involvement. It may request a longer transition period.

It is important to notice that the assessment of the impacts presented in the RIA, Chapter 4 of this NPA, is made in a qualified manner due to lack of available quantifiable data. However, the stakeholders are invited to provide quantified justification elements on the possible social and economic impacts.

Option 1 is the most favourable, because it intends to resolve the safety issue identified above and supports the objective by facilitating the free movement of airspace users. In addition, the costs for the implementation of the option are expected to be low, as the adjustments to the existing systems in the Member States will not be significant. The economic impact of having harmonised requirements will be positive over time and the benefits of coordinated and harmonised rules among the Member States will appear in a long-term perspective. Furthermore, the rules foresee a proportionate application by developing different types of AMC and GM. It is expected that this option has a positive impact as regards the proportionality issues and the better regulation principle.

Option 2 is less favourable due to higher compliance costs for adjustments of the Member States, competent authorities and other affected parties to tailor their existing (national) administrative models to the new one. That option might have a negative impact on proportionality issues as it would propose prescriptive rules on all the areas of ASD, as the rules would introduce organisational or ownership models.



Based on the argumentation in the impact analysis summarised above, Option 1 is selected as the preferred option.

This option does not only aim at resolving the issues identified and at achieving the objectives, but it is also the best option to implement the Essential Requirements in Chapter 2, point (i) of Annex Vb to the Basic Regulation. Additionally, it also aims at harmonising the technical requirements on airspace structure design as well as the organisational and technical requirements for organisations providing service on flight procedure design. In conclusion, the overall result is clearly positive compared to Option 0 and more performance-based (or 'less prescriptive') compared to Option 2. This is, therefore, the option proposed in this NPA.

2.4. Overview of the proposed amendments

During the comitology of Regulation (EU) 2016/1377, a number of stakeholders strongly recommended to EASA when developing the rules on ASD (especially the aspects on airspace structures), to avoid a detailed prescription of organisational or ownership models and to focus on describing the required output and objectives of the activity itself. Thus, it will be at the discretion of the Member States to employ the most efficient national administrative model in order to assign the roles as regards the airspace structures. In this way, the future rules would allow all Member States' currently existing models to exist (without duplication) and the rule will not prescribe a certain organisational model for airspace structure design. At the same time, it was a common understanding that the flight procedure design providers should be required to hold a certificate to offer their services.

Based on this consideration and as explained in Section 2.2, this NPA is proposing a set of rules addressing the organisational and technical aspects of ASD, which will amend Regulation (EU) 2016/1377, in particular:

- Article 3 addressing the responsibilities of the Member States related to the design of airspace structures; and
- Annex XI as regards the specific requirements for the organisations providing the design of flight procedures (Part-FPD).

2.4.1. Cover regulation and associated appendices

Article 1 of the Cover Regulation defines the subject matter and scope of the Regulation, while **Article 2(2)** defines who is a 'service provider'. Thus, said articles are amended to extend the scope to the 'design of airspace structures and flight procedures (ASD)' matter and to address the activities of the 'service provider' providing also functions and/or services of flight procedure design.

For the same reasons, the title of **Article 3** and paragraph (a) thereof are amended. The new element in Article 3 is the introduction of a new provision, which requires the Member State to ensure that the criteria on ASD laid down in Appendices XX and YY are met, without prejudice to the responsibilities of the Member State with regard to airspace structures within the airspace under their jurisdiction. Said Appendices define the technical requirements for airspace structures and flight procedures contained therein and their designation as well as the criteria for designation of the portions of the airspace where air traffic services will be provided. Considering Article 2.2(d) of the Basic Regulation that mandates ICAO provisions to be duly taken into account when establishing implementing rules, said Appendices transpose the provisions relevant to ASD from ICAO Annex 11, including its last



amendment 50. The Appendix to this explanatory note (please refer to Chapter 6 of this NPA) contains the cross references table between said ICAO Annex 11 provisions and the proposed rules.

Section II of Appendix XX addresses the identification of navigation specifications and the identification of ATS routes other than standard departure and arrival routes. When identifying navigation specifications and ATS routes other than standard departure and arrival routes, the designation system used should consider various aspects. In this context, the rule proposes basic ATS route designators to be assigned in accordance with some principles. One amongst them requires that where two or more trunk routes have a common segment, the segment in question shall be assigned to each of the designators of the routes concerned, except where this would present difficulties in the provision of air traffic service, in which case, by common agreement, one designator only shall be assigned. EASA acknowledged that although this provision stems from ICAO standard, the data services (DAT) providers recommend duplication of designators to be avoided where common segments with trunk routes exist.

Stakeholders are invited to comment, put forward alternative proposal(s) and provide justification on this particular provision, i.e.:

Appendix XX, Section II, (c), (7), (ii):

Basic ATS route designators shall be assigned in accordance with the following principles:

(i) (...)

(ii) *Where two or more trunk routes have a common segment, the segment in question shall be assigned to each of the designators of the routes concerned, except where this would present difficulties in the provision of air traffic service, in which case, by common agreement, one designator only shall be assigned.*

(iii) (...)

As regards Section IV of Appendix XX, EASA proposes two options of setting up the rules on establishment and identification of significant points. Option I was developed by the rulemaking group, while Option II presents EASA's view towards more 'performance-based' rules. In this context,

stakeholders are invited to indicate the preferred option on the EASA proposal for Section IV on 'establishment and identification of significant points' of Appendix XX to Article 3(X) 'Requirements for airspace structures and flight procedures contained therein and their designation' and comment and provide justification therefor.

Section VI of Appendix XX addresses the identification and delineation of prohibited, restricted and danger areas. The associated GM (GM8 Article 3(x) 'Provision of ATM/ANS and ATM network functions') further advises, when establishing the mentioned areas, that the areas should be as small as practicable and be contained within simple geometrical limits, so as to permit ease of reference by all concerned. During the rule development a lot of material has been reviewed and considered. In this context, the use of the term 'Flight planning (FPL) buffer zone (FBZ)', which may be applied to a reserved/restricted airspace, was acknowledged. Furthermore, it defines the lateral and vertical limits for the purpose of submitting a valid IFR FPL when such areas are active or planned to be active. The extent of this buffer is usually determined by the relevant competent authority within the Member State, according to the nature of the activity taking place within the airspace. This may be further



influenced by other considerations aiming at ensuring that the ATS provider is able to provide adequate safety margins.

On another hand, Article 4 of Regulation (EC) No 2150/2005¹⁰ requires Member States to establish criteria and procedures providing for the creation and the use of adjustable lateral and vertical limits of the airspace required for accommodating diverse variations of flight paths and short-term changes of flights.

Stakeholders are invited to comment on the use of term 'buffer zones/areas' and, if the term is used, to provide feedback:

- *are the buffer zones/areas part of the airspace reservations/restrictions; or*
- *are the buffer zones/areas additional to the airspace reservations/restrictions with fixed lateral and vertical limits; or*
- *are the buffer zones/areas additional to the airspace reservations/restrictions with adjustable lateral or vertical limits; or*
- *are the buffer zones/areas used exclusively for the purpose of flight planning.*

Appendix YY to Article 3(X) addresses the designation of the portions of the airspace where air traffic services will be provided. During the rule development, the requirement contained in Article 8(1) of Regulation (EC) No 550/2004¹¹ (service provision Regulation) was taken into account. That provision requires Member States to ensure the provision of air traffic services on an exclusive basis within specific airspace blocks in respect of the airspace under their responsibility. In this context, EASA considers that the provisions proposed in this NPA should duly respect this requirement. Consequently, an extensive discussion took place within the rulemaking group with regard to the (airspace) zones as well as to the non-controlled aerodromes, where AFIS¹² is provided. As no consensus has been reached, it was agreed to pose a question to the stakeholders seeking for wider feedback.

In this respect, Option I proposes that the portions of the airspace where air traffic services will be provided will be nominated as 'flight information regions/zones' or 'control areas/zones' and the particular aerodromes are listed as 'controlled aerodromes' and 'AFIS aerodromes'. Furthermore, associated GM will illustrate the meaning of the requirement, which itself is in line with ICAO Circular 211/AN. Moreover, EASA believes that the proposal will also facilitate the implementation of the requirement contained in said Article 8(1) of Regulation (EC) No 550/2004.

On the contrary, Option II proposes the removal of all references to 'flight information zones' and 'AFIS aerodromes' at the level of the implementing rule and cascading those provisions to the GM. Thus, Option II represents the views and concerns of some rulemaking group members on practical issues of notifying these areas and aerodromes in AIPs and depicting them on aerial charts. The only measures

¹⁰ Commission Regulation (EC) No 2150/2005 of 23 December 2005 laying down common rules for the flexible use of airspace (OJ L 342, 24.12.2005, p. 20) (<http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1473942817310&uri=CELEX:32005R2150>).

¹¹ Regulation (EC) No 550/2004 of the European Parliament and of the Council of 10 March 2004 on the provision of air navigation services in the single European sky (the service provision Regulation) (OJ L 96, 31.3.2004, p. 10) (<http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1473944846848&uri=CELEX:32004R0550>).

¹² In accordance with point 6 of Annex I to Regulation (EU) 2016/1377 'aerodrome flight information service (AFIS)' means flight information service and alerting service for aerodrome traffic at an aerodrome'.



proposed in this respect would be provided in a ‘non-associated’ GM that derives from said ICAO Circular 211/AN on AFIS.

Stakeholders are invited to indicate and provide justifications for the preferred option on the EASA proposals for the term to be used regarding the portions of the airspace zone around aerodromes, where AFIS (i.e. FIS and alerting service for aerodrome traffic at an aerodrome) is provided, and on the reference to AFIS aerodromes, which is stipulated in Appendix YY to Article 3(X), paragraphs (b)(1) (ii) and (c)(2).

The first GM associated with Article 3 provides details on how Member States may organise their processes to address an airspace change and defines the different stages thereof. Following an agreement with the rulemaking group, a wider stakeholders’ feedback is requested whether this provision should remain GM or be elevated to AMC.

Stakeholders are invited to indicate and provide justifications on the preferred option whether GM1 Article 3, paragraphs (a) and (b) should remain GM or be elevated to AMC.

Article 5 ‘Service providers’ specifies which Annex needs to be complied with by each provider. Paragraph (k) of said Article is addressed to ‘providers of procedure design’. To properly address the service providers in question, the proposal refers to the correct service providers, i.e. providers of flight procedure design. Furthermore, it removes the end statement ‘when those requirements are adopted by the Commission’ as those requirements will be proposed for adoption through the EASA Opinion that will be issued following the consultation of this NPA .

2.4.2. Transitional provisions

A proposal for amendment to Article 9 of Regulation (EU) 2016/1377 has not been introduced.

It should be highlighted that the applicability date of said Regulation is 1 January 2019, which was considered as adequate to allow the Member States, competent authorities and providers of flight procedure design (FPD) to adopt their systems to comply with the new requirements proposed in this NPA.

However, adequate transitional provision can only be proposed after the consultation of the relevant rule, and the evaluation of the comments to be received during the subject NPA consultation. It will be proposed in the EASA Opinion to the European Commission, and it will thereafter further discussed during the comitology procedure.

Therefore, to obtain the stakeholders’ views on the subject, EASA, based on the draft rule presented in this NPA and the advice received from the Rulemaking group during the rule development, would like to propose an alternative transitional provision — 24 months adaptation time to allow the regulated parties to ensure compliance with and adapt themselves to the new requirements. Furthermore, it was a common understanding that when a new regulation enters into force, most of the Member States will have to consider changes to the aeronautical information as well as miscellaneous changes. Taking this fact into account, it is acknowledged that the applicability date for this Regulation should coincide with an Aeronautical Information Regulation And Control (AIRAC) effective date and not a calendar date, as published in ICAO Doc 8126.

Stakeholders are invited to comment on the EASA proposal regarding the transitional provision.



2.4.3. Table of contents

To improve the readability of and to ease the detection of the respective Part, Subparts and Sections in Regulation (EU) 2016/1377, EASA believes that a table of contents would be fundamental. Therefore, this NPA contains a proposal of such table of contents.

2.4.4. Definitions

The introduction of Part-FPD leads to the use of new terms. As already mentioned above, Article 2.2(d) of the Basic Regulation mandates the ICAO provisions to be duly taken into account when establishing implementing rules. It is, hence, necessary to introduce new definitions for ‘airspace structure’, ‘airway’, ‘area navigation route’, ‘ATS route’, ‘control area’, ‘control zone’, ‘controlled airspace’, ‘danger area’, ‘flight procedures’, ‘holding procedure’, ‘instrument approach procedure (IAP)’, ‘instrument flight procedure (IFP)’, ‘flight procedure design service’, ‘missed approach procedure’, ‘navigation aid’, ‘flight procedure designer’, ‘prohibited area’, ‘restricted area’, ‘standard instrument arrival (STAR)’, standard instrument departure (SID)’, ‘terminal control area (TMA)’, ‘transponder mandatory zone (TMZ)’; and ‘visual flight rules (VFR)’.

Initially, this proposal with the list of definitions was wider, and included more definitions such as e.g. ‘Aeronautical Information Publication (AIP)’, which were removed considering that they are already proposed for amendments to Regulation (EU) No 2016/1377 via other NPAs, i.e. NPA 2016-02 ‘Technical requirements and operational procedures for aeronautical information services and aeronautical information management’ and NPA 2016-09 ‘Requirements for air traffic services’ or are defined in the Basic Regulation and Regulation (EC) No 549/2004.

2.4.5. Certificate template

Following the certificate template in Regulation (EU) 2016/1377, an amendment to the attachment to the service provider’s certificate is proposed. The type of Service/Function and their scope have been further detailed by EASA after the completion of the work of the rulemaking group.

2.4.6. Annex XI (Part-FPD) — Specific requirements for the providers of flight procedure design

The specific provisions to be complied with by the flight procedure design (FPD) providers, in addition to the common requirements in Annex III to Regulation (EU) 2016/1377, are proposed in Annex XI.

Annex XI is divided into two subparts:

- SUBPART A — Additional organisation requirements for the providers of flight procedure design (FPD.OR); and
- SUBPART B — Technical requirements for the providers of flight procedure design (FPD.TR)

FPD.OR.100 on flight procedure design sets up the objectives and the scope of FPD providers’ activities, i.e. to design, survey and validate flight procedures prior to their approval, publication and use by aircraft. Furthermore, this provision requires the FPD provider to use aeronautical data and information that meet the requirements of accuracy, resolution and integrity as required by the data catalogue. Said data catalogue is part of the NPA 2016-02 proposal. Moreover, FPD.OR.100 addresses also the specific cases if aeronautical data is not provided in the Aeronautical Information Publication (AIP) or by an authoritative source or does not meet the applicable data quality requirements (DQRs).



GM associated with this provision is proposed to underline that the approval of flight procedures by the competent authority and the approval of the change to the functional system of the ATS provider (i.e. flight procedure) are two different processes. Moreover, it is important that the safety assessment is carried out prior to the deployment of a flight procedure.

Since Regulation (EU) 2016/1377 already includes requirements on the management system in its Annex III (Part-ATM/ANS.OR), **FPD.OR.105** and **FPD.OR.110** address the additional specific organisation requirements on the management system and on technical and operational competence and capability applicable only to the FPD providers.

One of the most essential rules, intended to ensure that the SES objectives on interoperability with respect to data are achieved, is provided in **FPD.OR.115** 'Required interfaces' that addresses the responsibility of the FPD provider as an actor in the aeronautical data chain.

FPD.TR.100 stipulates the flight procedures to be designed using design criteria specified by the competent authority so as to ensure safe aircraft operations. The design criteria have to permit the establishment of appropriate obstacle clearance for flight procedures. The associated AMC and GM further support the interpretation of the requirements and illustrate the meaning of the provision.

When developing **FPD.TR.105**, the activities of RMT.0477 resulting in NPA 2016-02 were also considered. Said provision addresses coordinates and aeronautical data in addition to ATM/ANS.OR.A.085 'Common reference systems for air navigation' proposed in NPA 2016-02, and the order of accuracy of the fieldwork and determinations and calculations derived therefrom. It proposes geographical coordinates indicating latitude and longitude to be determined and reported to the aeronautical information services provider(s) in terms of the World Geodetic System — 1984 (WGS-84) geodetic reference datum or equivalent. WGS-84 is a world geodetic system associated with a reference ellipsoid, adopted by ICAO, and usually associated with the global positioning system called GPS. WGS-84 is not fixed to any tectonic plate. Consequently, the position of any point on ground is slightly but continuously drift (approximately 2.5 cm/year in Europe). Geodesic survey used for origination of position data is materialised on ground through a system of measured points (i.e. frame). A reference system which provides data consistent with the WGS-84 within the required accuracy can be considered as its equivalent.



3. Proposed amendments

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

- (a) deleted text is marked with ~~strike through~~;
- (b) new or amended text is highlighted in grey;
- (c) an ellipsis (...) indicates that the remaining text is unchanged in front of or following the reflected amendment.

3.1. Draft regulation (draft EASA opinion)

3.1.1. Proposed amendments to Commission Implementing Regulation (EU) 2016/1377

Article 1

Subject matter and scope

This Regulation lays down common requirements for the provision of air traffic management and air navigation services ('ATM/ANS'), design of airspace structures and flight procedures (airspace design) and other air traffic management ('ATM') network functions for general air traffic, in particular for the legal or natural persons providing those services and functions and for the competent authorities and the qualified entities acting on their behalf which exercise certification, oversight and enforcement tasks in respect of those service providers.

Article 2

Definitions

For the purposes of this Regulation, the definitions in Annex I and the following definitions shall apply:

(...)

2. 'service provider' means any legal or natural person providing functions and/or services of ATM/ANS as defined in Article 3(q) of Regulation (EC) No 216/2008, flight procedure design service and/or other ATM network functions, either individually or bundled for general air traffic;

(...)

Article 3

Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions

(a) Member States shall ensure that the appropriate ATM/ANS, airspace structure, flight procedure design and ATM network functions are provided in accordance with this Regulation in a manner that facilitates general air traffic, while taking into account safety considerations and traffic requirements.

(...)

(x) Without prejudice to the responsibilities of the Member State with regard to airspace structures within the airspace under its jurisdiction, the Member State shall ensure that the criteria on airspace design laid down in Appendices XX and YY to this Article are met.



(...)

Article 5
Service providers

Service providers shall be granted a certificate and be entitled to exercise the privileges granted within the scope of that certificate, where they comply and continue to comply, in addition to the requirements referred to in Article 8b(1) of Regulation (EC) No 216/2008, with the following requirements:

(...)

- (k) for providers of flight procedure design, in addition to the requirements of points (a), (b) and (m), the requirements laid down in Annex XI (Part-FPD), ~~when those requirements are adopted by the Commission;~~

(...)

Appendix XX to Article 3(x)

Requirements for airspace structures and flight procedures contained therein and their designation

SECTION I

Specifications for flight information regions, control areas and control zones

FLIGHT INFORMATION REGIONS

(a) Flight information regions shall :

- (1) be delineated to cover the whole of the air route structure to be served by such regions; and
- (2) include all airspace within its lateral limits, except when limited by an upper flight information region.

(b) When limited by an upper flight information region according to point (a)(2), the lower limit specified for the upper flight information region shall constitute the upper vertical limit of the flight information region and shall coincide with a VFR cruising level of the tables in Appendix 3 to Commission Implementing Regulation (EU) No 923/2012.

CONTROL AREAS

(a) Control areas shall be delineated so as to encompass sufficient airspace to contain the flight paths of those IFR flights or portions thereof to which it is desired to provide the applicable parts of the air traffic control service, taking into account the capabilities of the navigation aids normally used in that area.

(b) An upper limit of a control area shall be established when either:

- (1) air traffic control service will not be provided above such upper limit; or



(2) the control area is situated below an upper control area, in which case the upper limit shall coincide with the lower limit of the upper control area.

(c) When established, the upper limit in (b) shall coincide with a VFR cruising level of the tables in Appendix 3 to Commission Implementing Regulation (EU) No 923/2012.

CONTROL ZONES

(a) The lateral limits of a control zone shall encompass at least those portions of the airspace, which are not within control areas, containing the paths of IFR flights arriving at and departing from aerodromes to be used under instrument meteorological conditions; and

(b) If located within the lateral limits of a control area, the control zone shall extend upwards from the surface of the earth to at least the lower limit of the control area.

SECTION II

Identification of navigation specifications and the identification of ATS routes other than standard departure and arrival routes

(a) When ATS routes are established, a protected airspace along each ATS route and a safe spacing between adjacent ATS routes shall be provided.

(b) ATS routes shall be identified by designators.

(c) When identifying navigation specifications and ATS routes other than standard departure and arrival routes, the designation system used shall:

(1) permit the identification of any ATS route in a simple and unique manner;

(2) avoid redundancy;

(3) be usable by both ground and airborne automation systems;

(4) permit utmost brevity in operational use;

(5) provide sufficient possibility of extension to cater for any future requirements without the need for fundamental changes;

(d) Controlled, advisory and uncontrolled ATS routes, with the exception of standard arrival and departure routes shall be identified as follows:

(1) The ATS route designator shall consist of a basic designator supplemented, if necessary, by:

(i) One prefix; where applicable, one supplementary letter may be added as a prefix to the basic designator in accordance with the following:

(A) 'K' to indicate a low-level route established for use primarily by helicopters;

(B) 'U' to indicate that the route or portion thereof is established in the upper airspace;
and

(C) 'S' to indicate a route established exclusively for use by supersonic aircraft during acceleration, deceleration and while in supersonic flight;



- (ii) One additional letter; When prescribed by the appropriate ATS authority or on the basis of regional air navigation agreements, a supplementary letter may be added after the basic designator of the ATS route in question in order to indicate the type of service provided in accordance with the following:
 - (A) 'F' to indicate that on the route or portion thereof only advisory service is provided;
 - (B) 'G' to indicate that on the route or portion thereof only flight information service is provided.
- (iii) The number of characters required to compose the designator shall not exceed six.
- (iv) The number of characters required to compose the designator should, whenever possible, be kept to a maximum of five.

- (2) The basic designator shall consist of one letter of the alphabet followed by a number from 1 to 999.

Selection of the letter shall be made from those listed hereunder:

- (i) 'A', 'B', 'G', 'R' for routes which form part of the regional networks of ATS routes and are not area navigation routes;
- (ii) 'L', 'M', 'N', 'P' for area navigation routes which form part of the regional networks of ATS routes;
- (iii) 'H', 'J', 'V', 'W' for routes which do not form part of the regional networks of ATS routes and are not area navigation routes; and
- (iv) 'Q', 'T', 'Y', 'Z' for area navigation routes which do not form part of the regional networks of ATS routes.

- (e) Basic ATS route designators shall be assigned in accordance with the following principles:

- (1) The same basic designator shall be assigned to a main trunk route throughout its entire length, irrespective of terminal control areas, States or regions traversed.
- (2) Where two or more trunk routes have a common segment, the segment in question shall be assigned each of the designators of the routes concerned, except where this would present difficulties in the provision of air traffic service, in which case, by common agreement, one designator only shall be assigned.
- (3) A basic designator assigned to one route shall not be assigned to any other route.
- (4) States' requirements for designators shall be notified to the Regional Offices of ICAO for coordination.

SECTION III

Identification of standard departure and arrival routes and associated procedures

- (a) When identifying standard departure and arrival routes and associated procedures, it shall be ensured that:
 - (1) there is a system of designators that:



- (i) permits the identification of each route in a simple and unambiguous manner;
 - (ii) makes a clear distinction between:
 - (A) departure routes and arrival routes;
 - (B) departure or arrival routes and other ATS routes; and
 - (C) routes requiring navigation by reference to ground-based radio aids or self-contained airborne aids, and routes requiring navigation by visual reference to the ground;
 - (iii) is compatible with ATS and aircraft data processing and display requirements;
 - (iv) is of utmost brevity in its operational application;
 - (v) avoids redundancy; and
 - (vi) provides sufficient possibility for extension to cater for any future requirements without the need for fundamental changes.
- (2) Each route shall be identified by a plain language designator and a corresponding coded designator.
- (3) The designators shall, in voice communications, be easily recognisable as relating to a standard departure or arrival route and shall not create any difficulties in pronunciation for pilots and ATS personnel.
- (b) When composing designators for standard departure and arrival routes and associated procedures, the following shall be used:
- (1) a plain language designator of a standard departure or arrival route which shall consist of:
 - (i) a basic indicator;
 - (ii) followed by a validity indicator;
 - (iii) followed by a route indicator, where required;
 - (iv) followed by the word 'departure' or 'arrival';
 - (v) followed by the word 'visual', if the route has been established for use by aircraft operating in accordance with the visual flight rules (VFR).
 - (2) The basic indicator shall be the name or name-code of the significant point where a standard departure route terminates or a standard arrival route begins.
 - (3) The validity indicator shall be a number from 1 to 9.
 - (4) The route indicator shall be one letter of the alphabet. The letters 'I' and 'O' shall not be used.
 - (5) The coded designator of a standard departure or arrival route, instrument or visual, shall consist of:
 - (i) the coded designator or name-code of the significant point described in (b)(1)(i);
 - (ii) followed by the validity indicator in (b)(1)(ii);
 - (iii) followed by the route indicator in (b)(1)(iii); where required.



(c) Assignment of designators

- (1) Each route shall be assigned a separate designator.
- (2) To distinguish between two or more routes which relate to the same significant point (and therefore are assigned the same basic indicator), a separate route indicator as described in (b)(4) shall be assigned to each route.

(d) Assignment of validity indicators

- (1) A validity indicator shall be assigned to each route to identify the route which is currently in effect.
- (2) The first validity indicator to be assigned shall be the number '1'.
- (3) Whenever a route is amended, a new validity indicator, consisting of the next higher number, shall be assigned. The number '9' shall be followed by the number '1'.

SECTION IV**Establishment and identification of significant points****OPTION I**

- (a) The points shall be established for the purpose of defining an ATS route or flight procedure and/or in relation to the requirements of air traffic services for information regarding the progress of aircraft in flight.
- (b) The significant points shall, whenever possible, be established with reference to ground-based or space-based radio navigation aids. Where such ground-based or space-based radio navigation aids do not exist, significant points shall be established at location, which can be determined by self-contained airborne navigation aids, or, where navigation by visual reference to the ground is to be effected, by visual observation. Specific points may be designated as 'transfer of control' points by agreement between adjacent air traffic control units or control positions concerned.
- (c) The significant points shall be identified by a designator. The designator for significant points shall be marked by the site of a radio navigation aid:
 - (1) Plain language name for significant points marked by the site of a radio navigation aid
 - (i) Whenever practicable, significant points shall be named with reference to an identifiable and preferably prominent geographical location.
 - (ii) In selecting a name for the significant point, care shall be taken to ensure that the following conditions are met:
 - (A) the name shall not create difficulties in pronunciation for pilots or ATS personnel when speaking in the language used in ATS communications. Where the name of a geographical location in the national language selected for designating a significant point gives rise to difficulties in pronunciation, an abbreviated or contracted version of this name, which retains as much of its geographical significance as possible, shall be selected;



Example: FUERSTENFELDBRUCK = FURSTY

- (B) the name shall be easily recognisable in voice communications and shall be free of ambiguity with those of other significant points in the same general area. In addition, the name shall not create confusion with respect to other communications exchanged between air traffic services and pilots;
- (C) the name should, if possible, consist of at least six letters and form two syllables and preferably not more than three;
- (D) the selected name shall be the same for both the significant point and the radio navigation aid marking it.

(2) Composition of coded designators for significant points marked by the site of a radio navigation aid

- (i) The coded designator shall be the same as the radio identification of the radio navigation aid. It shall be so composed, if possible, as to facilitate association with the name of the point in plain language.
- (ii) Coded designators shall not be duplicated within 1 100 km (600 NM) of the location of the radio navigation aid concerned, except as noted hereunder.
- (iii) States' requirements for coded designators shall be notified to the Regional Offices of ICAO for coordination.

(d) The designator for significant points not marked by the site of a radio navigation aid

- (1) Where a significant point is required at a position not marked by the site of a radio navigation aid, and is used for ATC purposes, it shall be designated by a unique five-letter pronounceable 'name-code'. This name-code designator then serves both as the name as well as the coded designator of the significant point.
- (2) The name-code designator shall be selected so as to avoid any difficulties in pronunciation by pilots or ATS personnel when speaking in the language used in ATS communications.
Examples: ADOLA, KODAP
- (3) The name-code designator shall be easily recognisable in voice communications and shall be free of ambiguity with those used for other significant points in the same general area.
- (4) The unique five-letter pronounceable name-code designator assigned to a significant point shall not be assigned to any other significant point. When there is a need to relocate a significant point, a new name-code designator shall be chosen. In cases when a State wishes to keep the allocation of specific name-codes for reuse at a different location, such name-codes shall not be used until after a period of at least six months.
- (5) States' requirements for unique five-letter pronounceable name-code designators shall be notified to the Regional Offices of ICAO for coordination.
- (6) In areas where no system of fixed routes is established or where the routes followed by aircraft vary depending on operational considerations, significant points shall be determined and reported in terms of World Geodetic System — 1984 (WGS-84) geographical coordinates, except



that permanently established significant points serving as exit and/or entry points into such areas shall be designated in accordance with the applicable provisions in (b) or (c).

(e) Significant points used for reporting purposes

- (1) In order to permit ATS to obtain information regarding the progress of aircraft in flight, selected significant points may need to be designated as reporting points.
- (2) In establishing such points, consideration shall be given to the following factors:
 - (i) the type of air traffic services provided;
 - (ii) the amount of traffic normally encountered;
 - (iii) the accuracy with which aircraft are capable of adhering to the current flight plan;
 - (iv) the speed of the aircraft;
 - (v) the separation minima applied;
 - (vi) the complexity of the airspace structure;
 - (vii) the control method(s) employed;
 - (viii) the start or end of significant phases of a flight (climb, descent, change of direction, etc.);
 - (ix) transfer of control procedures;
 - (x) safety and search and rescue aspects;
 - (xi) the cockpit and air-ground communication workload.
- (3) Reporting points shall be established either as 'compulsory' or as 'on-request'.
- (4) In establishing 'compulsory' reporting points, the following principles shall apply:
 - (i) compulsory reporting points shall be limited to the minimum necessary for the routine provision of information to air traffic services units on the progress of aircraft in flight, bearing in mind the need to keep cockpit and controller workload and air-ground communications load to a minimum;
 - (ii) the availability of a radio navigation aid at a location should not necessarily determine its designation as a compulsory reporting point;
 - (iii) compulsory reporting points should not necessarily be established at flight information region or control area boundaries.
- (5) The designation of compulsory and on-request reporting points shall be reviewed regularly with a view to keeping the requirements for routine position reporting to the minimum necessary to ensure efficient air traffic services.

OPTION II

- (a) Significant points shall be established for the purpose of defining an ATS route or flight procedure and/or in relation to the requirements of air traffic services for information regarding the progress of aircraft in flight.
- (b) Significant points shall be identified by designators.



AMC1 to Article 3(X), Appendix XX, Section IV ‘Establishment and identification of significant points’**ESTABLISHMENT AND IDENTIFICATION OF SIGNIFICANT POINTS**

- (a) The significant points should, whenever possible, be established with reference to ground-based or space-based radio navigation aids. Where such ground-based or space-based radio navigation aids do not exist, significant points should be established at a location, which can be determined by self-contained airborne navigation aids, or, where navigation by visual reference to the ground is to be effected, by visual observation. Specific points may be designated as ‘transfer of control’ points by agreement between adjacent air traffic control units or control positions concerned.
- (b) The designator for a significant point should be marked by the site of a radio navigation aid
- (1) Plain language name for significant points marked by the site of a radio navigation aid
- (i) Whenever practicable, significant points should be named with reference to an identifiable and preferably prominent geographical location.
- (ii) In selecting a name for the significant point, care should be taken to ensure that the following conditions are met:
- (A) the name should not create difficulties in pronunciation for pilots or ATS personnel when speaking in the language used in ATS communications. Where the name of a geographical location in the national language selected for designating a significant point gives rise to difficulties in pronunciation, an abbreviated or contracted version of this name, which retains as much of its geographical significance as possible, should be selected;
- Example: FUERSTENFELDBRUCK = FURSTY
- (B) the name should be easily recognisable in voice communications and should be free of ambiguity with those of other significant points in the same general area. In addition, the name should not create confusion with respect to other communications exchanged between air traffic services and pilots;
- (C) the name should, if possible, consist of at least six letters and form two syllables and preferably not more than three;
- (D) the selected name should be the same for both the significant point and the radio navigation aid marking it.
- (2) Composition of coded designators for significant points marked by the site of a radio navigation aid
- (i) The coded designator should be the same as the radio identification of the radio navigation aid. It should be so composed, if possible, as to facilitate association with the name of the point in plain language.
- (ii) Coded designators should not be duplicated within 1 100 km (600 NM) of the location of the radio navigation aid concerned, except as noted hereunder.
- (iii) States’ requirements for coded designators should be notified to the Regional Offices of ICAO for coordination.
- (c) The designator for a significant point not marked by the site of a radio navigation aid



- (1) Where a significant point is required at a position not marked by the site of a radio navigation aid, and is used for ATC purposes, it should be designated by a unique five-letter pronounceable 'name-code'. This name-code designator then serves both as the name as well as the coded designator of the significant point.
- (2) The name-code designator should be selected so as to avoid any difficulties in pronunciation by pilots or ATS personnel when speaking in the language used in ATS communications.
Examples: ADOLA, KODAP
- (3) The name-code designator should be easily recognisable in voice communications and should be free of ambiguity with those used for other significant points in the same general area.
- (4) The unique five-letter pronounceable name-code designator assigned to a significant point should not be assigned to any other significant point. When there is a need to relocate a significant point, a new name-code designator should be chosen. In cases when a State wishes to keep the allocation of specific name-codes for reuse at a different location, such name-codes should not be used until after a period of at least six months.
- (5) States' requirements for unique five-letter pronounceable name-code designators should be notified to the Regional Offices of ICAO for coordination.
- (6) In areas where no system of fixed routes is established or where the routes followed by aircraft vary depending on operational considerations, significant points should be determined and reported in terms of World Geodetic System — 1984 (WGS-84) geographical coordinates, except that permanently established significant points serving as exit and/or entry points into such areas should be designated.

(d) The significant points are used for reporting purposes

- (1) In order to permit ATS to obtain information regarding the progress of aircraft in flight, selected significant points may need to be designated as reporting points.
- (2) In establishing such points, consideration should be given to the following factors:
 - (i) the type of air traffic services provided;
 - (ii) the amount of traffic normally encountered;
 - (iii) the accuracy with which aircraft are capable of adhering to the current flight plan;
 - (iv) the speed of the aircraft;
 - (v) the separation minima applied;
 - (vi) the complexity of the airspace structure;
 - (vii) the control method(s) employed;
 - (viii) the start or end of significant phases of a flight (climb, descent, change of direction, etc.);
 - (ix) transfer of control procedures;
 - (x) safety and search and rescue aspects;
 - (xi) the cockpit and air-ground communication workload.



- (3) Reporting points should be established either as 'compulsory' or as 'on-request'.
- (4) In establishing 'compulsory' reporting points, the following principles should apply:
 - (i) compulsory reporting points should be limited to the minimum necessary for the routine provision of information to air traffic services units on the progress of aircraft in flight, bearing in mind the need to keep cockpit and controller workload and air-ground communications load to a minimum;
 - (ii) the availability of a radio navigation aid at a location should not necessarily determine its designation as a compulsory reporting point;
 - (iii) compulsory reporting points should not necessarily be established at flight information region or control area boundaries.
- (5) The designation of compulsory and on-request reporting points shall be reviewed regularly with a view to keeping the requirements for routine position reporting to the minimum necessary to ensure efficient air traffic services.

Stakeholders are invited to indicate the preferred option on the EASA proposal for Section IV on 'establishment and identification of significant points' of Appendix XX to Article 3(X) 'Establishment and identification of significant points' and comment and provide justification therefor.

In this context, the stakeholders are also invited to indicate their views on the possibility to apply Option II approach to Section II and Section III as well.

SECTION V

Minimum flight altitudes

Minimum flight altitudes shall be determined for each ATS route and control area and shall be provided for promulgation. These minimum flight altitudes shall provide a minimum clearance above the controlling obstacle located within the areas concerned.

SECTION VI

Identification and delineation of prohibited, restricted and danger areas

When prohibited areas, restricted areas or danger areas are established, they shall, upon initial establishment, be given an identification and full details shall be provided for promulgation as follows:

- (a) The identification shall be used to identify the area in all subsequent notifications pertaining to that area.
- (b) The identification shall be composed of a group of letters and figures as follows:
 - (1) nationality letters for location indicators assigned to the State or territory which has established the airspace;
 - (2) the letter 'P' for prohibited area, the letter 'R' for restricted area, and the letter 'D' for danger area as appropriate;



- (3) a number, unduplicated within the State or territory concerned.
- (c) To avoid confusion, identification numbers shall not be reused for a period of at least one year after cancellation of the area to which they refer.

Appendix YY to Article 3(x)

Designation of the portions of the airspace where air traffic services will be provided

- (a) When it has been determined that air traffic services will be provided in particular portions of the airspace or at particular aerodromes in accordance with Article 3(1), then those portions of the airspace or those aerodromes shall be designated in relation to the air traffic services that are to be provided.
- (b) The designation of the particular portions of the airspace shall be as follows:
- (1) Flight information regions and flight information zones
- (i) Those portions of the airspace where it is determined that flight information service and alerting service will be provided shall be designated as flight information regions.

OPTION I

- (ii) Those portions of the airspace where it is determined that flight information service and alerting service for aerodrome traffic at an aerodrome will be provided shall be designated as flight information zones .

GM1 Article 3(X)

APPENDIX YY(b)(1)(ii) DESIGNATION OF THE PORTIONS OF THE AIRSPACE WHERE AIR TRAFFIC SERVICES WILL BE PROVIDED — FLIGHT INFORMATION ZONE

A flight information zone should have its lateral and vertical limits specified. The dimensions of the flight information zone should coincide with those of the aerodrome traffic zone, where established, or they should be increased to provide added safeguards.

OPTION II

Any provision in the implementing rule with reference to 'flight information zone' and 'AFIS aerodrome' (i.e. paragraphs (b)(1)(ii) and (c)(2)) to be removed from the IR and referred to in GM1 Article 3, Appendix YY(b)(1)(ii) only.

Stakeholders are invited to indicate and provide justifications for the preferred option on the EASA proposals for the term to be used regarding the portions of the airspace zone around aerodromes, where AFIS (i.e. FIS and alerting service for aerodrome traffic at an aerodrome) is provided and on the reference to AFIS aerodromes, which is stipulated in Appendix YY to Article 3(X), paragraphs (b)(1)(ii) and (c)(2).

- (2) Control areas and control zones
- (i) Those portions of the airspace where it is determined that air traffic control service will be provided to IFR flights shall be designated as control areas or control zones.
- (ii) Control areas and control zones shall form part of that flight information region.



(c) The designation of the particular aerodromes shall be as follows:

(1) Controlled aerodromes

Those aerodromes where it is determined that air traffic control service will be provided to aerodrome traffic, shall be designated as controlled aerodromes.

(2) AFIS aerodromes

Those aerodromes, other than controlled aerodromes, where it is determined that flight information service and alerting service for aerodrome traffic will be provided, shall be designated as AFIS aerodromes.



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3.1.2. Proposed amendments to Annex I 'Definitions of terms used in Annexes II to XIII'**ANNEX I
DEFINITIONS OF TERMS USED IN ANNEXES II to XIII**

For the purposes of this Regulation, the following definitions shall apply:

- aa. 'airspace structure' means a specific volume of airspace designed to ensure the safe and optimal operation of aircraft;
- bb. 'airway' means a control area or portion thereof established in the form of a corridor;
- cc. 'area navigation route' means an ATS route established for the use of aircraft capable of employing area navigation.
- dd. 'ATS route' means a specified route designed for channelling the flow of traffic as necessary for the provision of air traffic services;
- ee. 'control area' means a controlled airspace extending upwards from a specified limit above the earth;
- ff. 'control zone' means a controlled airspace extending upwards from the surface of the earth to a specified upper limit;
- gg. 'controlled airspace' means an airspace of defined dimensions within which air traffic control service is provided in accordance with the airspace classification;
- hh. 'danger area' means an airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times;
- ii. 'flight procedure design service' means a service established for the design, documentation, validation, continuous maintenance and periodic review of flight procedures necessary for the safety, regularity and efficiency of air navigation.
- jj. 'flight procedure designer' means a qualified person who performs design, documentation, validation, continuous maintenance and periodic review of flight procedures.
- kk. 'flight procedures' means a set of predetermined segments intended to be followed by a pilot when arriving to or departing from an aerodrome. Flight procedures are either instrument flight procedures or visual flight procedures.
- ll. 'holding procedure' means a predetermined manoeuvre which keeps an aircraft within a specified airspace while awaiting further clearance.
- mm. 'instrument approach procedure (IAP)' means a series of predetermined manoeuvres by reference to flight instruments with specified protection from obstacles from the initial approach fix, or where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and thereafter, if a landing is not completed, to a position at which holding or en-route obstacle clearance criteria apply. Instrument approach procedures are classified as follows:
- (a) Non-precision approach (NPA) procedure means an instrument approach procedure which utilises during the final segment lateral guidance but no vertical guidance.
- (b) Approach procedure with vertical guidance (APV) means an instrument procedure which utilises during the final segment lateral and vertical guidance but does not meet the requirements established for precision approach and landing operations.



- (c) Precision approach (PA) procedure means an instrument approach procedure using during the final segment precision lateral and vertical guidance with minima as determined by the category of operation;
- nn. 'instrument flight procedure' (IFP) means a description of a series of predetermined flight manoeuvres by reference to flight instruments, published by electronic and/or printed means.
- oo. 'missed approach procedure' means the procedure to be followed if the approach cannot be continued.
- pp. 'navigation aid' means a facility or system external to the aircraft that generates electro-magnetic signals to be used by aircraft navigation systems for position determination or flight path guidance.
- qq. 'prohibited area' means an airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited;
- rr. 'radio mandatory zone (RMZ)' means an airspace of defined dimensions wherein the carriage and operation of radio equipment is mandatory;
- ss. 'restricted area' means an airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain specified conditions;
- tt. 'standard instrument arrival (STAR)' means a designated instrument flight rule (IFR) arrival route linking a significant point, normally on an ATS route, with a point from which a published instrument approach procedure can be commenced.
- uu. 'standard instrument departure (SID)' means a designated instrument flight rule (IFR) departure route linking the aerodrome or a specified runway of the aerodrome with a specified significant point, normally on a designated ATS route, at which the en-route phase of a flight commences.
- vv. 'terminal control area (TMA)' means a control area normally established at the confluence of ATS routes in the vicinity of one or more major aerodromes.
- xx. 'transponder mandatory zone (TMZ)' means an airspace of defined dimensions wherein the carriage and operation of pressure-altitude reporting transponders is mandatory;
- yy. 'visual flight rules (VFR)' means the visual flight rules prescribed in Commission Implementing Regulation (EU) No 923/2012.



3.1.3. Proposed amendments to Annex II ‘Requirements for competent authorities — Oversight of services and other ATM network functions’

**ANNEX II
REQUIREMENTS FOR COMPETENT AUTHORITIES — OVERSIGHT OF SERVICES AND OTHER ATM NETWORK
FUNCTIONS**

(Part-ATM/ANS.AR)

**APPENDIX 1
CERTIFICATE FOR SERVICE PROVIDER
EUROPEAN UNION
COMPETENT AUTHORITY
SERVICE PROVIDER CERTIFICATE**

[CERTIFICATE NUMBER/ISSUE No]

Pursuant to Regulation (EU) 2016/1377 and subject to the conditions specified below, the [competent authority] hereby certifies

[NAME OF THE SERVICE PROVIDER]

[ADDRESS OF THE SERVICE PROVIDER]

as a Service Provider with the privileges, as listed in the attached service provision conditions.

CONDITIONS:

This certificate is issued subject to the conditions and the scope of providing services and functions as listed in the attached service provision conditions.

This certificate is valid whilst the certified service provider remains in compliance with Regulation (EU) 2016/1377 and the other applicable regulations and, when relevant, with the procedures in the service provider’s documentation as required by Regulation (EU) 2016/1377, Part-ATM/ANS.OR.

Subject to compliance with the foregoing conditions, this certificate shall remain valid unless the certificate has been surrendered, limited, suspended or revoked.

Date of issue:

Signed:

[Competent authority]

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**SERVICE PROVIDER
CERTIFICATE**

SERVICE PROVISION CONDITIONS

Attachment to service provider’s certificate:

[CERTIFICATE NUMBER/ISSUE No]

[NAME OF THE SERVICE PROVIDER]

has obtained the privileges to provide the following scope of services/functions:

(Delete lines as appropriate)

Services/Functions	Type of Service/Function	Scope of Service/Function	Limitations *
Flight procedure design (FPD)	Design of flight procedures		
	Documentation of flight procedures	Charting	
		Coding	
	Flight procedures validation	Ground validation	
		Flight validation	
	Maintenance and review of flight procedures	maintenance	
		periodic review	
Conditions**			



3.1.4. Proposed amendments to Annex XI ‘Specific requirements for providers of flight procedure design’**ANNEX XI
SPECIFIC REQUIREMENTS FOR PROVIDERS OF FLIGHT PROCEDURE DESIGN****(Part-FPD)****SUBPART A — ADDITIONAL ORGANISATION REQUIREMENTS FOR PROVIDERS OF FLIGHT PROCEDURE
DESIGN SERVICE (FPD.OR)****Section 1 — General requirements****FPD.OR.100 Flight procedure design service**

The flight procedure design service provider shall design, document, validate, maintain and periodically review flight procedures necessary for the safety, regularity and efficiency of air navigation prior to their approval by the competent authority. In this context, the flight procedure design service provider shall use aeronautical data and information that meet the requirements of accuracy, resolution and integrity as required by the Data Catalogue in Appendix 1 to Article 3 of this Regulation.

In specific cases, if aeronautical data is not provided in the Aeronautical Information Publication (AIP) or by an authoritative source or does not meet the applicable data quality requirements (DQRs), such aeronautical data may be originated by the flight procedure design service provider. In this context, such aeronautical data shall be validated by the flight procedure design service provider originating it.

FPD.OR.105 Management system

In addition to ATM/ANS.OR.B.005, the provider of flight procedure design shall establish and maintain a management system that ensures the quality and safety of the designs and includes, as a minimum, the following elements:

- (a) data acquisition;
- (b) flight procedure design according to criteria as set out in FPD.TR.200;
- (c) elaboration of flight procedure design documentation;
- (d) ground validation and, when appropriate, flight validation of flight procedure; and
- (e) validation of all software tools used to carry out computations and to display aviation-related information in support of a flight procedure design, correctly implement the design criteria and fulfil any other applicable requirements associated with the design task.

FPD.OR.110 Technical and operational competence and capability

- (a) In addition to ATM/ANS.OR.B.005(a)(6), the flight procedure design service provider shall ensure that:
 - (1) its flight procedure designers:
 - (i) have successfully completed a training course that provides competency in flight procedure design;
 - (ii) are suitably experienced to successfully apply the theoretical knowledge; and



(iii) have completed successfully continuation training, including recurrent and refresher training, as required.

(2) when flight validation is performed, the pilots are competent to perform the assigned tasks.

(b) In addition to ATM/ANS.OR.B.030, the flight procedure design service provider shall maintain records of all the training completed by the employed flight procedure designers and make such records available on request:

(1) to the flight procedure designers concerned;

(2) and in agreement of the flight procedure designers, to the new employer when a flight procedure designer is employed by a new entity.

FPD.OR.115 Required interfaces

The flight procedure design service provider shall ensure the necessary formal arrangements, as applicable, with:

(a) aeronautical data source(s);

(b) other service providers, including air navigation and data services providers;

(c) aerodrome operators¹³; and

(d) aircraft operators.

SUBPART B — TECHNICAL REQUIREMENTS FOR PROVIDERS OF FLIGHT PROCEDURE DESIGN (FPD.TR)

Section 1 — General requirements

FPD.TR.100 Flight procedure design criteria

The flight procedures shall be designed using design criteria specified by the competent authority so as to ensure safe aircraft operations. The design criteria shall permit the establishment of appropriate obstacle clearance for flight procedures, where required.

FPD.TR.105 Coordinates and aeronautical data

(a) In addition to ATM/ANS.OR.A.085¹⁴, geographical coordinates indicating latitude and longitude shall be determined and reported to the aeronautical information services provider(s) in terms of the World Geodetic System — 1984 (WGS-84) geodetic reference datum or equivalent. Those geographical coordinates which have been transformed into WGS-84 coordinates by mathematical means and whose accuracy of original field work does not meet the requirements in Appendix 1 to Article 3 of this Regulation shall be identified.

¹³ The mirroring provision to ADR.OR.B.025 Demonstration of compliance

¹⁴ NPA 2016-02 makes proposal as regards 'Aeronautical data and information' as follows:

ATM/ANS.OR.A.085 Common reference systems for air navigation

For the purpose of air navigation, service providers shall use:

(a) the World Geodetic System — 1984 (WGS-84) as the horizontal reference system.

(b) the mean sea level (MSL) datum as the vertical reference system.

(c) the Gregorian calendar and coordinated universal time (UTC) as the temporal reference system.



- (b) The order of accuracy of the field work and determinations and calculations derived therefrom shall be such that the resulting operational navigation data for the phases of flight will be within the maximum deviations, with respect to an appropriate reference frame, as indicated in Appendix 1 to Article 3 of this Regulation.



3.2. Draft acceptable means of compliance and guidance material (draft EASA decision)

3.2.1. Proposed amendments to AMC/GM to Commission Implementing Regulation (EU) 2016/1377

AMC1 Article 3(x) 'Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions'

APPENDIX XX, SECTION I 'SPECIFICATIONS FOR FLIGHT INFORMATION REGIONS, CONTROL AREAS AND CONTROL ZONES'

LATERAL LIMITS OF CONTROL ZONES

The lateral limits of a control zone should extend to at least 9.3 km (5 NM) from the centre of the aerodrome or aerodromes concerned in the directions from which approaches may be made.

LOWER LIMITS OF CONTROL AREAS

A lower limit of a control area should be established at a height above the ground or water of not less than 200 m (700 ft).

GM1 Article 3(x) 'Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions'

AIRSPACE DESIGN — AIRSPACE CHANGE PROCESS

- (a) Member States should nominate or establish one or more competent authority(ies) with clear allocation of responsibilities as regards airspace design activities (i.e. airspace structure design and flight procedure design). In this context, the competent authority assigned should establish a process ('the airspace change process') for the design, validation, approval, implementation, continuous maintenance and periodic review of airspace structures, including flight procedures¹⁵. In establishing an airspace change process, the competent authority should also allow for the establishment of airspace structures or flight procedures in response to an immediate safety threat or threat to national security.
- (b) An airspace change is a change to an airspace structure and/or the flight procedures contained within it, which includes:
- (1) the establishment, designation, modification, reclassification or disestablishment of airspace structures; and/or
 - (2) the establishment, modification or disestablishment of flight procedures or, where published in the AIP of a Member State, notified VFR routes within or beneath controlled airspace.
- (c) The competent authority should ensure that the airspace change process referred to in (a):
- (1) is proportionate to the nature and scale of any airspace change and available to the public; and
 - (2) includes the following elements:
 - identification of the need for an airspace change;

¹⁵ The process is illustrated in Figure 1 GM3 FPD.OR.105(d) 'Management system'.



- initial briefing by the entity seeking an airspace change (the 'change sponsor') to the competent authority;
- initial proposal development;
- consultation with affected stakeholders;
- finalisation and submission of the airspace change proposal to the competent authority;
- competent authority review of the proposals and regulatory decision;
- implementation of the airspace change;
- post-implementation review.

(i) Identification of the need for an airspace change

DRIVERS FOR AIRSPACE CHANGES

Drivers for airspace changes include but are not limited to business, technological, legal and social aspects, such as:

- (A) enhancing operational safety and/or efficiency;
- (B) addressing airspace capacity needs;
- (C) reducing the environmental impacts of aircraft operations;
- (D) enabling changes to the CNS infrastructure; or
- (E) correcting identified deficiencies.

AIRSPACE CHANGE PROPOSAL DEVELOPMENT AT INITIAL BRIEFING

It is not necessary for a change sponsor to develop an initial airspace change proposal in advance of the initial briefing of the change process.

(ii) Initial briefing by the entity seeking an airspace change (the 'change sponsor') with the competent authority:

CHANGE SPONSOR

Change sponsor may be any entity (as accepted by the competent authority or the competent authority itself) proposing a change to airspace structures and/or associated flight procedures.

EXAMPLES OF CHANGE SPONSORS

The change sponsor may be but is not limited to any of the following:

- (A) The Member State;
- (B) The competent authority;
- (C) An aerodrome operator;
- (D) An Air Traffic Services Provider ; or
- (E) An airspace user.



ROLES AND RESPONSIBILITIES OF CHANGE SPONSORS

In undertaking an airspace change, a change sponsor:

- (A) owns the proposal to modify the airspace and is responsible (either directly or through an appointed agent (or agents)) for developing its airspace change proposal, whilst ensuring that the change satisfies and/or enhances safety, improves capacity and mitigates, as far as practicable, any environmental impacts in line with any provisions specified by the competent authority and/or the Member State;
- (B) is accountable for identifying relevant stakeholders and conducting an effective consultation exercise;
- (C) designs and carries out consultation on the operational and environmental impacts of the proposed airspace change;
- (D) is accountable for the decisions whether to modify or not its proposed airspace design in light of the responses to the consultation exercise; and
- (E) is compliant with the requirements of the airspace change process.

INITIAL BRIEFING

As all airspace changes are unique, an initial briefing would be helpful to facilitate preliminary discussions between the competent authority and change sponsors regarding the high-level implications of a proposed airspace change.

The initial briefing provides the change sponsor with the opportunity to advise the competent authority on the airspace change proposal, any specific issues or concerns associated with these and why the change sponsor believes that changing the airspace arrangements in the proposed manner will address these matters.

The initial briefing provides the competent authority with the opportunity to provide appropriate and tailored advice and guidance on the specific requirements of each airspace change proposal, including the safety assessment to be carried out in conjunction with any affected ATS providers. The competent authority can also provide advice and guidance on the requirements of each stage of the airspace change process, according to the scale and scope of each airspace change proposal.

Furthermore, the competent authority may decide that certain small-scale and routine airspace changes do not require an initial briefing. The list of those changes, and the type of sponsors for which the initial briefing is not required, should be documented.

Following the initial briefing, the airspace change proposal should be developed by the change sponsor according to the criteria set out by the competent authority. An example list of elements to be considered is as follows:

- (A) The objectives, scope and target implementation date of the airspace change proposal



(B) Analysis of the existing operational environment, including all affected adjacent airspace structures and procedures, the utilisation of these and any inter-unit coordination agreements

(C) Identification of change options, including 'do nothing'.

PREFERRED CHANGE OPTION

The change sponsor should indicate the preferred airspace change option and explain why other options are not being carried forward.

The justification why other options are not being carried forward could be proportionate to the nature and scale of the airspace change. In some circumstances, this justification may be very simple, but it should be based on valid arguments:

(A) Detailed rationale supporting the preferred change option;

(B) Assessment of the impacts of the preferred change option on all affected stakeholders;

(C) Assessment of air traffic management enablers and constraints;

(D) Initial assessment of the impact of the preferred change option on the airspace arrangements in adjoining States (where appropriate);

(E) Identification of any connectivity to European Airspace Programmes, including relevant timescales (where appropriate);

(F) An initial assessment of the environmental implications of the preferred change option;

(G) An outline implementation plan demonstrating compliance with the requirements of Annex III and/or Annex IV to this Regulation, as appropriate;

(H) Identification of affected stakeholders; and

(I) A consultation plan.

COMPETENT AUTHORITY ACTING AS CHANGE SPONSOR

In those cases, where the competent authority acts as a change sponsor, that competent authority should ensure that the sponsorship of an airspace change proposal and the subsequent proposal assessment and approval are undertaken independently (e.g. by separate departments within the organisational structure of the competent authority).

(iii) Consultation with affected stakeholders

The change sponsor should communicate details of the consultation(s) in order to allow the participation of all affected stakeholders and thereafter maintain accurate and complete records of the consultation exercise, including an audit trail of any changes to the proposal that arise from the consultation.

Affected stakeholders should be considered to be:



- (A) affected service providers;
- (B) aviation undertakings (e.g. airspace users or aerodrome operators);
- (C) non-aviation groups (e.g. local government, local communities, environmental interests);
- (D) adjacent States;
- (E) any other groups affected by the airspace change identified by the sponsor or specified by the competent authority.

Whenever the airspace change results in a change to the functional system of a service provider, the requirements on the service provider planning the change to its functional system related to multifactor changes, as laid down in ATM/ANS.OR.A.045(e), are also applicable and may help in the identification of affected stakeholders.

In this context, the change sponsor should ensure that a safety assessment will be carried out to demonstrate the satisfaction of the requirements related to the assessment and assurance of safety of the airspace change prior to submission of the airspace change proposal to the competent authority. When the change sponsor is not the entity accountable to perform the safety assessment of airspace change, it should ensure the appropriate arrangements are in place with the accountable entity to undertake the safety assessment.

ORGANISATIONS PERFORMING THE SAFETY ASSESSMENT

Whenever air traffic services are provided, any change to the airspace in which they are provided will result in a change to the functional system(s) of the ATS providers serving the affected airspace.

When undertaking and/or implementing an airspace change, the affected ATS provider(s) should perform a safety assessment as per ATS.OR.205 of Subpart A of Annex IV to this Regulation. In that situation, the safety acceptability of the change is determined by providing the assurance that the safety criteria required by ATS.OR.210 are satisfied.

In other situations, the organisation performing the safety assessment may vary. For example, a change of flight procedures at an uncontrolled aerodrome may be performed by the aerodrome operator as per ADR.OR.B.040(f) of Commission Regulation (EU) No 139/2014.

AIRSPACE CHANGE CONSULTATION

- (A) Any modification to the preferred airspace change option that either introduces additional airspace or new routes, or alters the use of the existing airspace where the changes will now affect parties previously not consulted, should be the subject of additional consultation by the change sponsor unless it is satisfied it is unnecessary to do so.



(B) Any modification to the preferred airspace change option that has a negative environmental impact on those parties previously consulted should, subject to the significance of the environmental impact of the modifications, be the subject of additional consultation by the change sponsor unless it is satisfied it is unnecessary to do so.

(C) In any other case where there is a need to modify the design after the consultation exercise, the change sponsor should consider whether it is necessary to reconsult.

(D) The change sponsor should ensure that there are no aspects contained within the airspace change proposal that have not been consulted upon unless the change sponsor can fully justify the omission with valid reasons.

The change sponsor should take into account the significance of the modifications both in terms of the people affected and the severity of the effects.

(A) Amendments to an airspace change proposal arising from consultation having only positive operational and/or environmental impact on those parties previously consulted should not require to be reconsulted upon.

(B) If changes are made that do not affect any stakeholders, then there should be no need for further consultation.

(C) Where reconsultation takes place on the basis of amendments made in the light of earlier consultation, a shorter period may be appropriate.

(iv) Finalisation of the airspace change proposal;

The change sponsor should ensure that the airspace change proposal takes account of the operational environment that is expected to exist at the time when the airspace change proposal is intended to be implemented.

Operational context considerations may include but are not limited to:

(A) the navigation capability of the aircraft expected to operate in the affected airspace;

(B) the main prevalent runways in use and associated instrument flight procedure (IFP) requirements within the affected airspace;

(C) current and forecast main traffic flows;

(D) current and future surveillance and communication systems that will be available;

(E) ATC system-specific assumptions including (if appropriate) the maximum number of sectors that will be available for use, existing ATS procedures and letters of agreements; and

(F) Current and future operational requirements of all aircraft expected to operate within and adjacent to the affected airspace and the means by which ATS are provided to such aircraft.



The change sponsor should prove the validity of the change by:

- (A) assessing that the change objectives can be achieved by implementation of the airspace change proposal and that there is a positive case for change; and
- (B) identifying the impacts of the proposal, the need for mitigation measures and the subsequent development of these.

OPERATIONAL CONSIDERATIONS RELATED TO AIRCRAFT FLEET EQUIPAGE

- (A) Analysis of the anticipated navigation capability of the fleet includes:
 - (a) an estimate of the number of aircraft able to achieve the required navigational specification for the proposed airspace;
 - (b) an understanding of the standards to which the navigational systems have been certified and the operations the aircraft and carriers are approved for;
 - (c) an estimate of the number of aircraft operating within the affected airspace that are not capable of meeting the proposed navigational specification.
- (B) Arrangements considered to accommodate aircraft that do not comply with the required navigational specification will be covered. This may involve providing lesser services to such aircraft on the basis of 'best equipped best served'. This may be a temporary arrangement pending full fleet compliance.

VALIDATION METHODS

The airspace change may be validated using one or more of the following methodologies:

- (A) airspace modelling;
 - (B) fast time simulation;
 - (C) real time simulation;
 - (D) live ATC trials;
 - (E) flight simulation;
 - (F) data analytical tools;
 - (G) statistical analysis;
 - (H) collision risk modelling;
 - (I) noise and emissions modelling;
 - (J) expert judgement; and
 - (K) flight trials.
- (v) Airspace change proposal submission to the competent authority



The standard format in which airspace change proposal is submitted for competent authority assessment and subsequent regulatory decision may include the following:

(A) Operational requirements:

- (a) Justification for the change and analysis of change options;
- (b) Technical description of the changes:
 - (1) airspace description;
 - (2) traffic forecasts;
 - (3) supporting infrastructure/resources;
 - (4) operational impact; and
 - (5) supporting maps, charts and diagrams; and
- (c) Economic impact;
- (d) Airspace and infrastructure requirements;
- (e) Results of validation.

(B) Safety argument

(C) Environmental report:

- (a) an assessment of the effects on noise;
- (b) an assessment of the change in fuel burn/CO₂;
- (c) an assessment of the effect on local air quality;
- (d) an economic valuation of environmental impact; and
- (e) an assessment of the effect on sensitive fauna.

(D) Consultation report:

- (a) executive summary;
- (b) overview of responses;
- (c) modifications to the proposal arising from consultation; and
- (d) supporting documentation including copies of all consultation correspondence.

(E) Implementation plan:

- (a) target implementation date and alternative date (or dates), taking due account of the predetermined agreed AIRAC dates in addition to the time needed by the AIS provider for the preparation, production and issuance of relevant material for promulgation; and
- (b) planned awareness and education activities.

(vi) Competent authority review of the proposals and regulatory decision



REVIEW OF AIRSPACE CHANGE PROPOSAL

The competent authority should, upon receipt of an airspace change proposal, ensure the submission complies with the format specified.

The competent authority should assess the content of the airspace change proposal against the proposal objectives and the criteria specified.

The competent authority should notify the change sponsor of any deficiencies in the proposal submission and request rectification of these.

The competent authority should keep records of the process, including the assessment of an airspace change proposal in accordance with the requirements laid down in ATM/ANS.AR.B.015.

ASSESSMENT OF AIRSPACE CHANGE PROPOSAL

The competent authority may seek clarification of, or supplementary information on, any aspect of an airspace change proposal.

When requesting supplementary information from the change sponsor, the competent authority should stipulate the timescale in which the change sponsor must respond in order to facilitate the earliest resumption of the assessment of the proposal.

The competent authority should inform the change sponsor that any request for supplementary information may result in the suspension of the assessment and delays to the implementation of the proposed change.

COMPETENT AUTHORITY DECISION

Upon completion of its assessment of the airspace change proposal, the competent authority should inform the change sponsor of its decision to accept or reject the airspace change proposal without undue delay.

The competent authority should publish its approval of airspace change proposal, if applicable.

RATIONALE SUPPORTING CHANGE APPROVAL/REJECTION

The competent authority should record the rationale supporting its decision to approve or reject an airspace change proposal. Such rationale should be included in the formal notification to the change sponsor of the decision to approve or reject an airspace change proposal, and in any wider public notification of the competent authority's decision.

CONDITIONAL CHANGE APPROVALS

Some regulatory decisions may be conditional. Under such circumstances, a change sponsor should be informed.

RECORD-KEEPING OF THE AIRSPACE CHANGE PROPOSAL ASSESSMENT

The competent authority's record-keeping of the assessment of an airspace change proposal may include:



- (A) Statements of airspace change proposal compliance with specified airspace change criteria.
- (B) Statements of airspace change proposal non-compliance with specified airspace change criteria.
- (C) Statements of outstanding issues requiring remedial action by the change sponsor.
- (D) A recommendation that the airspace change proposal be approved or be rejected, providing an explanation of why this should be the case.
- (E) Statements of approval or rejection of the airspace change proposal.

(vii) Change implementation

The change sponsor should implement those aspects of the airspace change that are under its remit; however, the implementation of the airspace change may require many stakeholders implementing changes in their organisations. The overview of the implementation of all changes required is part of the responsibility of the change sponsor.

CHANGE IMPLEMENTATION — AMENDMENT OF AERONAUTICAL INFORMATION PUBLICATION

- (A) The change airspace will be published by means of an amendment to the national Aeronautical Information Publication by the AIS provider not less than one AIRAC cycle prior to effective date of the change. Additionally, promulgation requirements may apply as required by the Member State, e.g. promulgation of airspace changes in official Journals, the usage of information to update databases on board of aircraft.
- (B) For major complex changes such as those involving extensive new procedures, cross-border airspace, etc. amendment to the national Aeronautical Information Publication may be subject to a longer period of publication, e.g. at least two AIRAC cycles in advance of the implementation of the change.
- (C) Change sponsors may consider the need to encourage awareness of the impending implementation of an approved change through appropriate publicity channels, such as press releases or through social media.

CHANGE IMPLEMENTATION — SCOPE OF AERONAUTICAL INFORMATION PUBLICATION AMENDMENT

- (A) As part of the implementation process, change sponsors need to consider the extent of the AIP amendments their airspace change will generate and the time needed by the AIS provider for the preparation, production and issuance of relevant material for promulgation. The extent of changes in the AIP may require additional time and delay the publication and, therefore, the time needed for implementation. In the case of terminal airspace changes, these may go beyond the change sponsor's entry in the Aerodrome (AD) section



and require changes to the General (GEN), En-Route (ENR) sections or the AD entries of adjacent aerodromes.

- (B) Similarly, en-route or off-route changes may impact upon SIDs, STARs, IFP and terminal airspace structure charts within the AD section.
- (C) En-route or off-route changes may also impact upon the airspace structures of adjoining States. Consideration must, therefore, be given to the impact upon the AIP as a whole, and possibly the AIPs of neighbouring States.

CHANGE IMPLEMENTATION — PRE-NOTIFICATION OF AIRSPACE CHANGE

- (A) The change sponsor may identify the need to pre-notify details of the an approved permanent change by means of an Aeronautical Information Circular (AIC) at least one month prior to the distribution of the AIP amendment containing the airspace change and in accordance with the requirements specified by the competent authority. Such pre-notification may include the effective date of the change, the airspace dimensions and, where appropriate, a map of the revised airspace structure.
- (B) Notification by AIC may not be required for minor or temporary changes.
- (C) Minor or temporary changes may be pre-notified by means of a NOTAM in advance of an amendment/supplement to the AIP.

(viii) Post-implementation review

The competent authority should notify a deadline to the change sponsor at which a post-implementation review will be undertaken.

The post-implementation review should be organised to assess and validate the success of an airspace change and identify any operational issues that may have arisen since the introduction of the change.

The competent authority should take part in the post implementation review.

SCOPE OF POST-IMPLEMENTATION REVIEW

The post-implementation review is necessary in order to confirm the validity of the safety arguments and identify any subsequent requirements to bring about further changes to airspace structures, patterns and procedures, the need for which can only be determined through operational experience.

The nature of each review is determined by the scale and impact of the change itself. Reviews of minor changes may be conducted by correspondence, whereas more significant changes may require the competent authority to visit the unit(s) concerned. The net result of each review is to ensure that that the anticipated effect has been achieved with the revised airspace arrangements. If this is determined not to be the case, changes to the revised arrangements may have to be made.

The post-implementation review should be undertaken at an appropriate time after implementation of the airspace change. It is recommended to take place within 12



months after the implementation, but this may vary depending on the specific airspace change nature.

The end of the post-implementation review is the point at which the airspace change process terminates.

Following conclusion of the post-implementation review, the change sponsor, competent authority (and/or flight procedure design service provider, as appropriate) should periodically monitor performance of the subject airspace.

- (d) In the airspace change process referred to in (a), the competent authority should specify:
- (1) the requirements of each stage of the process;
 - (2) the roles and responsibilities of the competent authority within the process;
 - (3) the roles and responsibilities of the entity (or entities) seeking changes to airspace arrangements.
- (e) The competent authority should define criteria against which the airspace change will be assessed.
- (f) The competent authority should specify the format of submission of the airspace change proposal.
- (g) The airspace change process described in (a) should ensure that airspace changes:
- (1) are undertaken in a consistent, homogeneous, thorough and accountable manner;
 - (2) maintain or enhance the safety and efficiency of aircraft operations, as far as practicable;
 - (3) do not adversely affect national security interests; and
 - (4) address the social and environmental impacts of proposed changes.
- (h) The efficiency of aircraft operations referred to in (b)(2) may be measured by:
- (1) throughput or capacity — runways or air traffic routes/sectors;
 - (2) flight efficiency — efficient vertical or horizontal trajectories resulting in distance, time, or cost savings;
 - (3) equitable access to airspace and sharing of airspace between users;
 - (4) simplicity of interfaces between air traffic control units and/or sectors;
 - (5) effective application of flexible use of airspace; and
 - (6) improved environmental impacts, including reduced emissions and noise levels.

Stakeholders are invited to indicate and provide justifications on the preferred option whether GM1 Article 3, points (a) and (b) should remain GM or to be elevated to AMC.



GM2 Article 3(x) 'Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions'**AIRSPACE DESIGN — TEMPORARY AIRSPACE ARRANGEMENTS**

Controlled airspace, airspace restrictions and supporting flight procedures may be established on a temporary basis to support special events such as e.g. major political, cultural or sporting events, customs and police operations, military exercises or military operations. Development and implementation of such temporary arrangements should be undertaken in accordance with the processes specified by the Member State or the competent authority of that Member State.

The definition and assessment of temporary structures and associated procedures involving military operations should additionally comply with Article 4 of Commission Regulation (EC) No 2150/2005 of 23 December 2005 laying down common rules for the flexible use of airspace, and should be performed through a joint civil-military process in those Member States where both civil and military authorities are responsible for or involved in airspace management.

GM3 Article 3(x) 'Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions'**APPENDIX XX, SECTION I 'SPECIFICATIONS FOR FLIGHT INFORMATION REGION, CONTROL AREAS AND CONTROL ZONES'****UPPER AIRSPACE**

Where it is desirable to limit the number of flight information regions or control areas through which high flying aircraft would otherwise have to operate, a flight information region or control area, as appropriate, should be delineated to include the upper airspace within the lateral limits of a number of lower flight information regions or control areas.

LOWER LIMITS OF CONTROL AREAS

- (a) The lower limit of a control area should be established at a greater height than 200 m (700 ft), when practicable and desirable in order to allow freedom of action for VFR flights below the control area.
- (b) When the lower limit of a control area is above 900 m (3 000 ft) mean sea level (MSL), it should coincide with a VFR cruising level of the tables in Appendix 3 to Commission Implementing Regulation (EU) No 923/2012.
- (c) In a given control area, the lower limit may be established non-uniformly (see Figure A-5 of the 'Air Traffic Services Planning Manual' (Doc 9426), Part I, Section 2, Chapter 3).
- (d) The selected VFR cruising level of the lower limit of a control area should be such that expected local atmospheric pressure variations do not result in a lowering of this limit to a height of less than 200 m (700 ft) above ground or water.

SYSTEMS OF ROUTES IN CONTROL AREAS

In a control area other than one formed by a system of airways, a system of routes may be established to facilitate the provision of air traffic control.

LATERAL LIMITS OF CONTROL ZONES

When designing the lateral limits of control zones, aircraft holding in the vicinity of aerodromes are considered as arriving aircraft.

UPPER LIMIT OF CONTROL ZONES

- (a) If a control zone is located outside of the lateral limits of a control area, an upper limit should be established.
- (b) An upper limit higher than the lower limit of the overlying control area may be established when desired.
- (c) If it is desired to establish the upper limit of a control zone at a level higher than the lower limit of the control area established above it, or if the control zone is located outside of the lateral limits of a control area, its upper limit should be established at a level which can easily be identified by pilots. When this limit is above 900 m (3 000 ft) MSL, it should coincide with a VFR cruising level of the tables in Appendix 3 to Commission Implementing Regulation (EU) No 923/2012.
- (d) The selected VFR cruising level of the upper limit of a control zone should be such that the expected local atmospheric pressure variations do not result in a lowering of this limit to a height of less than 200 m (700 ft) above ground or water.
- (e) A control zone may include two or more aerodromes situated close together.

IDENTIFICATION

Whenever possible, a control zone, a control area, and a flight information region should be identified by the name of the unit having jurisdiction over such airspace.

GM4 Article 3(x) 'Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions'

APPENDIX XX, SECTION II 'IDENTIFICATION OF NAVIGATION SPECIFICATIONS AND THE IDENTIFICATION OF ATS ROUTES OTHER THAN STANDARD DEPARTURE AND ARRIVAL ROUTES'

LIMITATIONS IN DISPLAY EQUIPMENT

Due to limitations in the display equipment on board aircraft, the supplementary letters 'F' or 'G', added after the basic designator of the ATS route to indicate the type of service provided, may not be displayed to the pilot.

ESTABLISHMENT OF ROUTES AND PROCEDURES

Guidance material on the establishment of the routes and procedures is contained in ICAO 'Air Traffic Services Planning Manual' (Doc 9426).

ESTABLISHMENT OF ATS ROUTES

- (a) Guidance material on the establishment of ATS routes is contained in ICAO 'Air Traffic Services Planning Manual' (Doc 9426).
- (b) Guidance material on the establishment of ATS routes defined by VOR is contained in Attachment A to ICAO Annex 11.



- (c) The spacing between parallel tracks or between parallel ATS route centre lines based on performance-based navigation will be dependent upon the relevant navigation specification required.

SPECIAL ROUTES

When warranted by density, complexity or nature of the traffic, special routes should be established for use by low-level traffic, including helicopters operating to and from helidecks on the high seas. When determining the lateral spacing between such routes, account should be taken of the navigational means available and the navigation equipment carried on board helicopters.

GM5 Article 3(x) 'Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions'

APPENDIX XX, SECTION III 'IDENTIFICATION OF STANDARD DEPARTURE AND ARRIVAL ROUTES AND ASSOCIATED PROCEDURES'

DESIGNATORS FOR APPROACH PROCEDURES

Guidance for composing designators for approach procedures can be found in ICAO Doc 8168 (PANS-OPS) Volume II 'Construction of Visual and Instrument Flight Procedures'.

REFERENCE MATERIAL

Guidance material relating to the establishment of standard departure and arrival routes and associated procedures is contained in ICAO 'Air Traffic Services Planning Manual' (Doc 9426).

The procedure naming convention for approach procedures is contained in ICAO Doc 8168 (PANS-OPS) Volume II 'Construction of Visual and Instrument Flight Procedures', as last amended.

The plain language designator used for the phraseology is contained in ICAO Doc 4444 (PANS-ATM) 'Air Traffic Management', as last amended.

The runway designator detailed requirements are contained in ICAO Annex 14 Volume I, Section 5.2.2.

EXAMPLES OF PLAIN LANGUAGE AND CODED DESIGNATORS FOR STANDARD DEPARTURE AND ARRIVAL ROUTES AND ASSOCIATED PROCEDURES

- (a) Example 1: Standard departure route — instrument:

Plain language designator: BRECON ONE DEPARTURE

Coded designator: BCN 1

Meaning: The designator identifies a standard instrument departure route which terminates at the significant point BRECON (basic indicator). BRECON is a radio navigation facility with the identification BCN (basic indicator of the coded designator). The validity indicator ONE (1 in the coded designator) signifies either that the original version of the route is still in effect or that a change has been made from the previous version NINE (9) to the now effective version ONE (1) (see (d)(3)). The absence of a route indicator (see (b)(4) and (c)(2)) signifies that only one route, in this case a departure route, has been established with reference to BRECON.

- (b) Example 2: Standard arrival route — instrument:

Plain language designator: KODAP TWO ALPHA ARRIVAL



Coded designator: KODAP 2 A

Meaning: This designator identifies a standard instrument arrival route which begins at the significant point KODAP (basic indicator). KODAP is a significant point not marked by the site of a radio navigation facility and therefore assigned a five-letter name-code in accordance with Appendix 3 to Annex XI. The validity indicator TWO (2) signifies that a change has been made from the previous version ONE (1) to the now effective version TWO (2). The route indicator ALPHA (A) identifies one of several routes established with reference to KODAP and is a specific character assigned to this route.

(c) Example 3: Standard departure route — visual:

Plain language designator: ADOLA FIVE BRAVO DEPARTURE VISUAL

Coded designator: ADOLA 5 B

Meaning: This designator identifies a standard departure route for controlled VFR flights which terminates at ADOLA, a significant point not marked by the site of a radio navigation facility. The validity indicator FIVE (5) signifies that a change has been made from the previous version FOUR (4) to the now effective version FIVE (5). The route indicator BRAVO (B) identifies one of several routes established with reference to ADOLA.

EXAMPLES OF PLAIN LANGUAGE AND CODED DESIGNATORS FOR APPROACH PROCEDURES

(a) Example 1: Instrument approach to a runway

Plain language designator: RNAV ZULU APPROACH RUNWAY ONE EIGHT

Coded designator: RNAV Z RWY18

Meaning: The designator identifies an RNAV approach procedure to runway 18. The suffix letter ZULU (Z) identifies one of several RNAV approaches established on runway 18 and is a specific character assigned to this procedure.

(b) Example 2: Instrument approach to a runway

Plain language designator: ILS ZULU APPROACH RUNWAY THREE TWO

Coded designator: ILS Z RWY32

Meaning: The designator identifies an ILS approach procedure to runway 32. The suffix letter ZULU (Z) identifies one of several ILS approaches established on runway 32 and is a specific character assigned to this procedure.

(c) Example 3: Instrument approach to a helipad

Plain language designator: RNAV APPROACH TWO THREE TWO

Coded designator: RNAV 232

Meaning: The designator identifies an RNAV approach procedure to a helipad for which the final approach track is equal to 232°. The absence of suffix letter signifies there is no other RNAV approach to this helipad with the same final approach track.

(d) Example 4: Visual approach to a runway

Plain language designator: VISUAL APPROACH RUNWAY ONE EIGHT LEFT



Coded designator: None

Meaning: The designator identifies a visual approach procedure to the runway 18L.

TERM 'ROUTE'

In this section, the term 'route' is used in the meaning of 'route and associated procedures'.

GM6 Article 3(x) 'Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions'

APPENDIX XX, SECTION IV 'ESTABLISHMENT AND IDENTIFICATION OF SIGNIFICANT POINTS'

COMPOSITION OF CODE DESIGNATORS

When two radio navigation aids operating in different bands of the frequency spectrum are situated at the same location, their radio identifications are normally the same.

ON REQUEST REPORTING POINTS

'On-request' reporting points may be established in relation to the requirements of air traffic services for additional position reports when traffic conditions so demand.

ICARD SYSTEM FOR THE ALLOCATION OF 5LNC OF SIGNIFICANT POINTS

The ICAO International Codes and Routes Designators (ICARD) system is used to manage the allocation of unique five-letter name codes (5LNC) for significant points. They are notified to the Regional Offices of ICAO for coordination and registration on the 'ICAO five-letter name codes and route designators (ICARD)' data base system.

Additional details on the use of the ICARD system and associated database can be found in the 'ICAO codes and route designators. Five-Letter Name-Codes. Guidelines'.

GM7 Article 3(x) 'Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions'

APPENDIX XX, SECTION V 'MINIMUM FLIGHT ALTITUDES'

MINIMUM OBSTACLE CLEARANCE

Detailed obstacle clearance criteria are contained in PANS-OPS (Doc 8168), Volume II.

PANS-OPS (Doc 8168), Volume II requires a procedure altitude/height to be not less than the minimum obstacle clearance altitude (MOCA) and be developed in coordination with air traffic control requirements. The arrival segment procedure altitude/height may be established to allow the aircraft to intercept the prescribed final approach segment descent gradient/angle from within the intermediate segment.

PROCEDURE ALTITUDE

Minimum flight altitudes are either the minimum obstacle clearance altitude or the procedure altitude. Both are covered in PANS-OPS (Doc 8168).

GM8 Article 3(x) Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions

APPENDIX XX, SECTION VI 'IDENTIFICATION AND DELINEATION OF PROHIBITED, RESTRICTED AND DANGER AREAS'



SIZE OF PROHIBITED, RESTRICTED OR DANGER AREAS

When a prohibited, restricted or danger area is established, the area should be as small as practicable and be contained within simple geometrical limits, so as to permit ease of reference by all concerned.

NATIONALITY LETTERS

Nationality letters are those contained in ICAO Document 'Location Indicators' (Doc 7910).

GM9 Article 3(x) Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions**APPENDIX YY, DESIGNATION OF THE PORTIONS OF THE AIRSPACE WHERE AIR TRAFFIC SERVICES WILL BE PROVIDED****CLASSIFICATION OF AIRSPACE**

The airspace where ATS is provided is classified and designated in accordance requirements found at Commission Implementing Regulation (EU) 923/2012, SERA.6001 'Classification of airspaces' and Appendix 4 'ATS airspace classes — services provided and flight requirements' and in the associated Acceptable Means of Compliance and Guidance Material.

FLIGHT INFORMATION REGIONS, CONTROL AREAS AND CONTROL ZONES

The delineation of airspace, wherein air traffic services are to be provided, should be related to the nature of the route structure and the need for efficient service rather than to national boundaries.

PROVISION OF ATS ACROSS NATIONAL BOUNDARIES

- (a) Agreements to permit the delineation of airspace lying across national boundaries are advisable when such action will facilitate the provision of air traffic services. Agreements which permit delineation of airspace boundaries by straight lines will, for example, be most convenient where data processing techniques are used by air traffic services units.
- (b) Where delineation of airspace is made by reference to national boundaries, there is a need for suitably sited transfer points to be mutually agreed upon.



3.2.2. Proposed amendments to AMC/GM to Annex I 'Definitions of terms used in Annexes II to XIII' to Commission Implementing Regulation (EU) 2016/1377

GM1 (aa) 'Airspace structure'

TYPES OF AIRSPACE STRUCTURES

Airspace structures consist of:

- (a) controlled airspace, namely control zones, control areas, terminal control areas and airways;
- (b) airspace restrictions, namely danger, restricted and prohibited areas;
- (c) radio mandatory zones, transponder mandatory zones; and
- (d) Other airspaces specified by the competent authority when defining the airspace change process, such as e.g. flight information zones, aerodrome traffic zones, temporary segregated areas, temporary reserved areas or free route airspace.

GM1 (dd) 'ATS route'

TYPES OF ATS ROUTES

- (a) The term 'ATS route' is used to mean variously 'airway', 'advisory route', 'controlled route', 'uncontrolled route' (i.e. VFR routes or corridors), 'arrival or departure route', etc.
- (b) An ATS route is defined by route specifications which include an ATS route designator, the track to or from significant points (waypoints), distance between significant points, reporting requirements and, as determined by the competent authority, the lowest safe altitude.

GM1 (gg) 'controlled airspace'

AIRSPACE CLASSIFICATION

Details of the airspace classifications could be found in Commission Implementing Regulation (EU) No 923/2012, Section 6 'Airspace classification' and SERA.6001 'Classification of airspaces' of, and in Appendix 4 'ATS airspace classes — services provided and flight requirements' to the same Regulation and in the associated Acceptable Means of Compliance and Guidance Material.

GM1 (nn) 'Instrument flight procedure'

TYPES OF INSTRUMENT FLIGHT PROCEDURES

The instrument flight procedures may include but are not limited to:

- (a) ATS routes other than VFR routes;
- (b) standard instrument departure routes;
- (c) standard instrument arrival routes;
- (d) instrument approach procedures; and
- (e) holding procedures.



3.2.3. Proposed amendments to AMC/GM to Annex II ‘Requirements for competent authorities — oversight of services and other ATM network functions’ to Commission Implementing Regulation (EU) 2016/1377

(...)

SUBPART C — OVERSIGHT, CERTIFICATION, AND ENFORCEMENT (ATM/ANS.AR.C)

GM1 ATM/ANS.AR.005(b) Certification, declaration and verification of service providers’ compliance with the requirements

PROCESS

In reference to the process, please refer to GM1 Article 3(x) ‘Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions’ — ‘AIRSPACE DESIGN’.

(...)



3.2.4. Proposed amendments to AMC/GM to Annex III ‘Common requirements for service providers’ to Commission Implementing Regulation (EU) 2016/1377

(...)

SUBPART B — MANAGEMENT (ATM/ANS.OR.B)**GM1 ATM/ANS.OR.B.030(a) Record-keeping****GENERAL — FLIGHT PROCEDURE DESIGN PROVIDER**

The flight procedure design provider should document and keep records of the following documentation:

- (a) Documentation required for publication in the AIP;
- (b) Supporting information and data used in the design, including assumptions used by the flight procedure designer; common assumptions are aligned and agreed as per ATM/ANS.OR.A.045(f). The following is a list, non-exhaustive, of elements that need to be documented, if applicable:
 - (1) aeronautical data and information and its validation, as applicable;
 - (2) obstacle data for each segment of the procedure;
 - (3) effect of environmental considerations on the design of the procedure;
 - (4) safety assessment;
 - (5) infrastructure, aerodrome and navigation facility data;
 - (6) airspace constraints;
 - (7) output of the consultations with stakeholders;
 - (8) any non-compliance with the design criteria. If deviation from approved design criteria is required, it should be accepted by the competent authority as alternative means of compliance (AltMoC);
 - (9) additional information for the ground and/or flight validation, including the results of such validation. In particular, this information includes: all calculations and results of calculations cross-referenced with the design, formulae used for calculations, units of measurements and conversion factors;
 - (10) information on tools used by the flight procedure designer including software and its configuration; and
 - (11) the results of the periodic review and, for modifications or amendments to existing procedures, the reasons for any changes.
- (c) The following documentation forms the basis of the supporting documentation that the flight procedure service provider should produce:
 - (1) flight procedure specifications and drawings: all data and properties of the designed flight procedure. This includes the charts and information to be published in the AIP;
 - (2) the argument and supporting evidence, as per ATM/ANS.OR.C.005, to demonstrate that the flight procedure specifications are complete and correct in the context of their intended use. For the purposes of this Regulation, this document is referred to as a ‘safety



support case' (see ATM/ANS.OR.C.005 and related AMC/GM, as well as Figure 1 under GM1 FDP.OR.105(a) 'Management system'), and it is usually known as technical documentation.



3.2.5. Proposed amendments to AMC/GM to Annex XI 'Specific requirements for the providers of flight procedure design' to Commission Implementing Regulation (EU) 2016/1377

SUBPART A — ADDITIONAL ORGANISATION REQUIREMENTS FOR PROVIDERS OF FLIGHT PROCEDURE DESIGN (FPD.OR)

AMC1 FPD.OR.100 Flight procedure design service PERIODIC REVIEW

An interval for periodic review of flight procedures should not exceed five years.

GM1 FPD.OR.100 Flight procedure design service APPROVAL

The competent authority is responsible for the approval of the flight procedure. In this context, any change to the flight procedure should be considered as a change to the functional system of the ATS provider. Safety assessments of the change to the functional system of the ATS provider need to be carried out before the deployment of the flight procedure.

GM1 FDP.OR.105 Management system GENERAL

INTERACTIONS BETWEEN AIRSPACE CHANGE PROCESS AND FLIGHT PROCEDURE DESIGN PROCESS

The flight procedure design process is embedded in the airspace change process specified by the competent authority. When an airspace change includes the design of a new flight procedure or the modification of an existing flight procedure and the change sponsor is at the same time the flight procedure design service provider, both processes are effectively the same that the flight procedure design provider applies. However, when the change sponsor is a different organisation than the flight procedure design service provider, this flight procedure design process can be regarded as a sub-process of the wider process as depicted in Figure 1. Figure 1 shows the interactions between the airspace change process and the flight procedure design process.



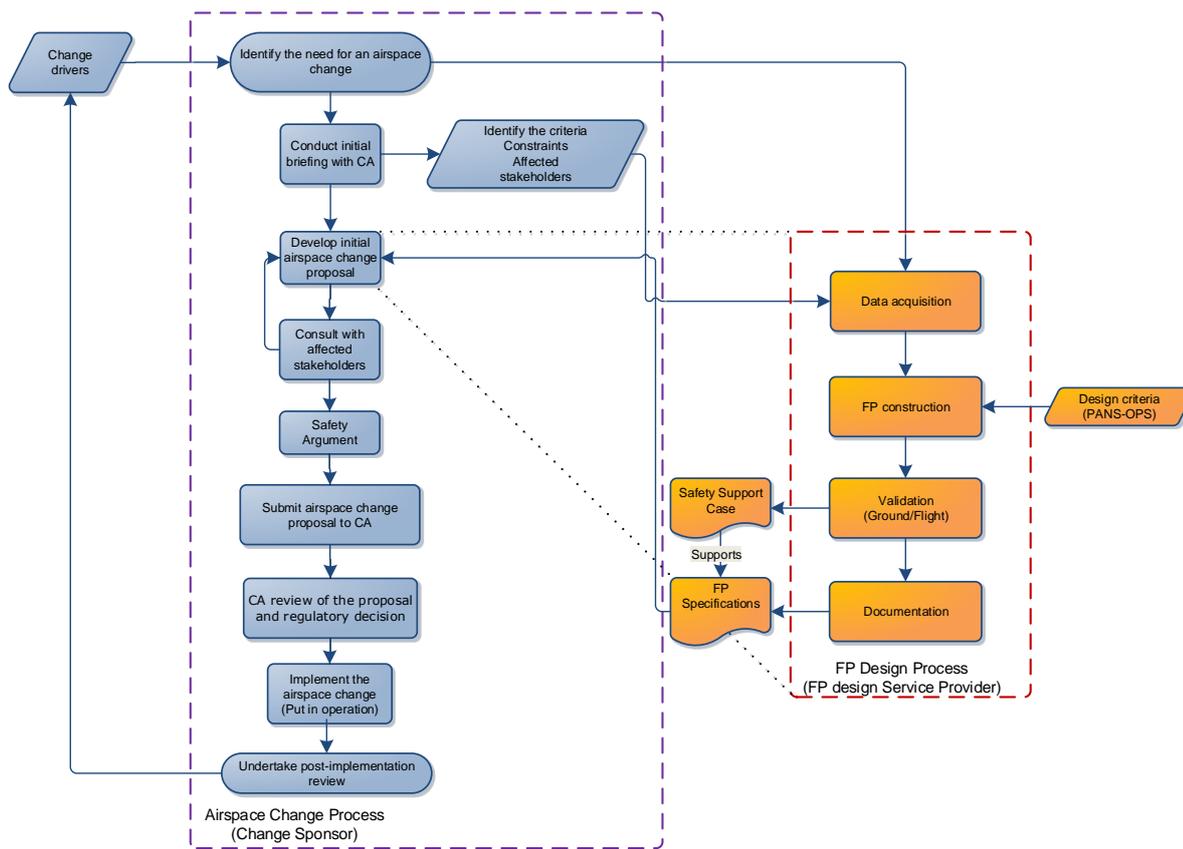


Figure 1 — Interactions between airspace change process and flight procedure design process

GM1 FDP.OR.105(a) Management system

DATA ACQUISITION

The flight procedure design process starts with the verification and compilation of input data in coordination with affected stakeholders. The following aspects should be addressed:

- (a) aerodrome, navigation aids, obstacles and terrain coordinates, and elevation data based on trustworthy sources;
- (b) airspace requirements;
- (c) user requirements, i.e. airspace users and air traffic service provider;
- (d) airport infrastructure and equipment;
- (e) environmental considerations; and
- (f) any other information as potentially specified by the competent authority.



GM1 FPD.OR.105(b) Management system

GENERAL

ICAO Doc 9906 Vol. 1 'Flight Procedure Design Quality Assurance System' provides guidance for a procedure design process.

GM1 FPD.OR.105(d) Management system

VALIDATION

(a) The flight procedure may be validated using any of the following methodologies:

- (1) airspace modelling;
- (2) fast time simulation;
- (3) real time simulation;
- (4) live ATC trials;
- (5) flight simulation;
- (6) data analytical tools;
- (7) statistical analysis;
- (8) collision risk modelling;
- (9) noise and emissions modelling;
- (10) flight trials; and
- (11) expert judgement.

(b) Validation is the necessary final quality assurance step in the flight procedure design. Validation may consist of ground validation and/or flight validation. ICAO Doc 9906 Vol. 5 'Validation of Instrument Flight Procedures' provides guidance for conducting the validation process of instrument flight procedures, including safety, ability to be flown and verification of data accuracy and completeness. Ground validation is always undertaken, but flight validation may not always be required.

GM2 FDP.OR.105(d) Management system

GROUND VALIDATION

(a) Ground validation is always undertaken. Ground validation is a verification undertaken by a person trained in procedure design as per FPD.OR.325 other than the one who designed the procedure to ensure compliance with applicable requirements. It is meant to arrest errors in criteria and documentation, and evaluate on the ground, to the extent possible, those elements that will be evaluated in a flight validation.

(b) Ground validation addresses the verification of all elements used in the design (e.g. obstacle data), aiming at:

- (1) providing assurance that adequate obstacle clearance has been provided;
- (2) verifying that the navigation data (e.g. tracks, distances and altitudes to be flown) to be published are correct;



- (3) verifying all required infrastructure (e.g. runway markings, lighting, communications and navigation sources);
- (4) conducting an assessment of flyability to determine that the procedure can be safely flown; and
- (5) evaluating the charting, aerodrome operating minima and other operational factors.

Issues identified in the ground validation should be addressed in order to be checked through flight validation.

GM3 FPD.OR.105(d) Management system

FLIGHT VALIDATION

Flight validation should be carried out whenever necessary, based on the results from the ground validation in order to:

- (a) provide assurance that adequate obstacle clearance has been provided;
- (b) verify that the navigation data to be published is correct;
- (c) verify that all required infrastructure supports the procedure (e.g. runway markings, lighting, communications and navigation sources);
- (d) conduct an assessment of flyability to determine that the procedure can be safely flown; and
- (e) evaluate the charting, aerodrome operating minima and other operational factors.

As a minimum, flight validation of instrument approach procedures and initial segments of standard instrument departures should be performed.

AMC1 FPD.OR.105(e) Management system

VALIDATION OF SOFTWARE TOOLS

The flight procedure design service provider should ensure, as a minimum, that the following elements are validated:

- (a) formulas used in the procedure design;
- (b) units of measurement;
- (c) geodetic constructions;
- (d) obstacle identification and mitigation; and
- (e) minima computations.

Elements not included in the validation may contain usability, interface, and data sources of the software design tools.

GM1 FPD.OR.105(e) Management system

VALIDATION OF SOFTWARE TOOLS

ICAO Doc 9906 Vol. 3 'Flight Procedure Design Software Validation' provides guidance for the validation of procedure design tools, i.e. (instrument) flight procedure design software, notably with regard to procedure design criteria.



GM1 FPD.OR.110(a)(1) Technical and operational competence and capability
FLIGHT PROCEDURE DESIGNERS' TRAINING

The flight procedure design service provider's personnel involved in the flight procedure charting and/or coding should have successfully completed a training course that provides a basic level of competency in charting and/or coding.

AMC1 FDP.OR.110(a)(1)(i) Technical and operational competence and capability
CONTENT OF FLIGHT PROCEDURE DESIGN TRAINING COURSE

(a) An initial training course should be based, as a minimum, on:

- (1) Commission Implementing Regulation (EU) 2016/1377 laying down common requirements for service providers and the oversight in air traffic management/air navigation services and other air traffic management network functions;
- (2) Commission Implementing Regulation (EU) No 923/2012 laying down the common rules of the air and operational provisions regarding services and procedures in air navigation;
- (3) flight procedure design criteria as defined in FPD.TR.100;
- (4) ICAO Annex 11 'Air Traffic Services';
- (5) ICAO Annex 4 'Aeronautical Charts';
- (6) ICAO Doc 9613 'Performance-based Navigation (PBN) Manual';
- (7) ICAO Doc 9906 'Quality Assurance Manual for Flight Procedure Design'; and
- (8) software tools used in the design. This may be acquired as part of the on-the-job training.

(b) The training course should provide the designer with:

- (1) knowledge of technical rules for the design and the establishment of instrument flight procedures;
- (2) knowledge of design criteria as defined under in FPD.TR.100 'Flight procedure design criteria';
- (3) knowledge of the applicable data quality requirements (DQRs); and
- (4) ability to design instrument flight procedures with the selected tools in accordance with the design criteria.

AMC1 FPD.OR.110(a)(1)(i) Technical and operational competence and capability
TRAINING COURSE

The training course on the design of flight procedure should include, as a minimum, a training on IFP design criteria, as applicable.

GM1 FPD.OR.110(a)(1)(i) Technical and operational competence and capability
FLIGHT PROCEDURE TRAINING CONTENT AND DURATION

ICAO Doc 9906 Vol. 2 'Flight Procedure Designer Training' provides guidance for the establishment of flight procedure designer training and possible content. A typical PANS-OPS course is based on a 4 to 8



weeks full-time training, or equivalent on a part-time basis, given by an experienced training provider, who is well grounded in procedure design and all aspects of PANS-OPS.

AMC1 FDP.OR.110(a)(1)(ii) Technical and operational competence and capability
FLIGHT PROCEDURE DESIGNER EXPERIENCE

The IFP designer should show suitable experience to demonstrate practical application of theoretical knowledge. This should be achieved by showing either:

- (a) Proof of recent IFP design work: this should include details of specific designs that have been completed and over what period of time; or
- (b) Proof of sufficient on-the-job training: Procedure designers who have undergone a minimum of time on-the-job PANS-OPS design training with an IFP design service provider until demonstrating adequate competency in the practical application of IFP design criteria. It is recommended a minimum of 3 years, but this period may be substantially reduced in cases where the designer has experience in flight procedures, e.g. as ATC controller or as a pilot.

GM1 FPD.OR.110(a)(1)(iii) Technical and operational competence and capability
CONTINUATION TRAINING

Recurrent and refresher trainings aim at addressing changes in the available criteria (PANS-OPS) and regulations.

GM1 FPD.OR.110(a)(2) Technical and operational competence and capability
FLIGHT VALIDATION PILOTS' TRAINING

ICAO Doc 9906 Volume 6 'Flight Validation Pilot Training and Evaluation (Development of a Flight Validation Pilot Training Programme) provides guidance for the establishment of flight procedure validation pilot training.

SUBPART B — TECHNICAL REQUIREMENTS FOR PROVIDERS OF FLIGHT PROCEDURE DESIGN (FPD.TR)

AMC1 FPD.TR.100 Flight procedure design criteria
DESIGN CRITERIA

Flight procedures should be designed in accordance with the design criteria contained in ICAO Doc 8168 (PANS-OPS) Volume II 'Construction of Visual and Instrument Flight Procedures', as last amended.

AMC2 FPD.TR.100 Flight procedure design criteria
REQUIRED NAVIGATION PERFORMANCE AUTHORIZATION REQUIRED (RNP AR) PROCEDURE DESIGN CRITERIA

When implementing RNP AR approach procedures, these procedures should be designed in accordance with the design criteria contained in ICAO Doc 9905 'Required Navigation Performance Authorization Required (RNP AR) Procedure Design Manual', as last amended.



GM1 FPD.TR.100 Flight procedure design criteria
NORMAL OPERATIONS

The flight procedures design in accordance with PANS-OPS criteria assumes normal operations. It is the responsibility of the aircraft operator to provide contingency procedures for abnormal and emergency operations.

GM2 FPD.TR.100 Flight procedure design criteria
FLIGHT PROCEDURES IN UPPER FLIGHT INFORMATION REGIONS

In cases where an upper flight information region is established, the procedures applicable therein need not be identical with those applicable in the underlying flight information region.

GM3 FPD.TR.100 Flight procedure design criteria
INSTRUMENT FLIGHT PROCEDURE CONSTRUCTION

Additional guidance for the construction of instrument flight procedures can be found in ICAO Doc 9368 'Instrument Flight Procedures Construction Manual'.



4. Regulatory impact assessment (RIA)

4.1. Issues to be addressed

EASA recognises that ASD¹⁶ is neither explicitly mentioned in Article 3(q) of the Basic Regulation nor falls within 'ATM', 'ANS' or 'ATM/ANS' as defined in said Regulation and in Regulation (EC) 549/2004, thus, it may appear excessive to regulate all the activities related to it as ATM/ANS according to Article 8b of the Basic Regulation (e.g. requiring a certificate to provide the ASD service). However, Article 8b(6)(a) of the Basic Regulation as well as point 2(i) of Annex Vb (Essential Requirements) to said Regulation address the obligation to ensure safe airspace structure and flight procedure designs, providing thus the legal basis for regulating this area. As today no common European rules on ASD are in place, there is a need to regulate this area to respond to the Essential Requirements and pave the way for safely designed, validated, maintained and reviewed flight procedures and airspace structures.

ASD has a direct effect on the trajectory followed by aircraft; poor and/or erroneous designs of airspace structures and flight procedures can increase the risk of incidents or accidents. The complexity of ASD has been identified as a safety issue that needs to be addressed¹⁷. In controlled airspace, the greatest risk was airspace infringements by GA aircraft due to the lack of knowledge by GA pilots of both the complex airspace structure and the services provided in different airspace types. It is, therefore, clear that ASD plays a key role in the safety of air operations and is also a key enabler for the implementation of new navigation concepts such as the PBN.

Apart from the potential safety consequences, there are also some negative economic impacts due to lack of EU legal provisions for ASD. The current model of national regulated ASD is less cost-efficient due to the divergent costs applicable in each MS, thus leading to different financial burden for the ANSPs, airspace users (GA pilots, aircraft operators), etc.

Furthermore, the principle of proportionality is a cornerstone of any legislation in the EU (please refer to Article 5(4) of the Treaty, which requires '(...) the content and form of Union action shall not exceed what is necessary to achieve the objectives of the Treaties. Furthermore, ASD is an issue that requests action at EU level (not at Member States' national level), because only the EU harmonised rules will effectively address the safety issues and promote cost-efficiency in the regulatory and certification processes. Otherwise, the national rules will potentially continue maintaining numerous differences between the Member States and, therefore, the issues identified above would not be resolved and could even deteriorate over the years with the increase of traffic and the implementation of projects such as the SESAR projects.

Following that, the subsequent layer, which propagates the principle of proportionality is Article 8b(7)(b) of the EASA Basic Regulation. Said Article contains a clear obligation for the implementing rules to be 'proportionate to the type and complexity' for the activities regulated. Therefore, if one of the areas to be regulated in ASD such as e.g. flight procedure design, is less complex, it would be reasonable to envisage a simpler regulatory framework.

The main issues addressed with this NPA are the following:

¹⁶ ASD consists of airspace structures and flight procedures areas of activities.

¹⁷ EASA Mid-Air Collision/Airprox Study, 2016



- Safety: by harmonising at European Union level the implementing measures and transposing the remaining ICAO Annex 11 requirements related to ASD e.g. the airspace structures and flight procedures requirements. While those requirements exist in the ICAO documentation, their implementation across the European Union varies, increasing hence the risk of misunderstanding between the different airspace actors, i.e. airspace designers (e.g. ANSPs) and airspace users.
- Regulatory harmonisation: the provisions proposed are to large extent contained in the ICAO documentation (SARPs and ICAO documents), but their transposition and implementation by the Member States vary so the implementation of the SES initiative, including FABs is not supported. In addition, the outcome of this NPA consultation process and the input provided by the stakeholders may affect some of the proposed provisions such as e.g. ‘flight information zone’ and level of granularity associated with the design of airspace structures activities, in particular with Article 3(x) ‘Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions’.

4.1.1. Safety risk assessment

This rulemaking task is not directly driven by safety events occurred in the past; however, the lack of harmonised implementing measures on the design of airspace structures and flight procedures has a direct effect on the trajectory followed by aircraft. As mentioned in the issue analysis, the ‘Mid-Air Collision/Airprox’ study confirmed that ASD has been one of the potential contributing factors for occurrences in the past 10 years (e.g. it is very difficult for GA pilots to understand the complexity of airspace and the traffic services offered in different types of airspace). In controlled airspace, the greatest risk was airspace infringements by GA aircraft due to the lack of knowledge by GA pilots. Thus, poor and/or erroneous designs of airspace structures and flight procedures can increase the risks of incidents or accidents. The correct and harmonised design of the airspace structures and flight procedures should, therefore, contribute to ensuring safe air operations within the European airspace.

4.1.2. Who is affected?

The proposed amendment affects directly ANSPs, ATCOs and competent authorities and indirectly aerodrome operators, GA pilots, and aircraft operators. The proposal affects also the competent authorities responsible for airspace matters within the Member States as well as the competent authorities responsible for the oversight of ANSPs.

The proposal affects also the organisations dealing with the design of flight procedures and other service providers such as air traffic service providers.

4.1.3. How could the issue/problem evolve?

If Commission Implementing Regulation (EU) 2016/1377 is not amended and complemented with the material of this NPA, Member States would fulfil their obligation stemming from the Chicago Conventions on ASD matters at local level and would make use of their own subject national requirements and procedures, most likely based on those contained in ICAO material. This would possibly lead to maintaining numerous differences between the Member States and, therefore, the issues identified above would not be resolved and could even deteriorate over the years with the increase of traffic and the implementation of projects such as the SESAR project.



Furthermore, EASA would not fulfil its obligation stemming from the Basic Regulation in submitting opinion to the Commission on this subject matter.

4.2. Objectives

The overall objectives of EASA are established in Article 2 of the Basic Regulation. This proposal will contribute to the achievement of the overall objectives by addressing the issues outlined in Chapter 2.

The specific objectives of the proposal are to:

- (a) 'promote cost-efficiency in the regulatory and certification processes and to avoid duplication at national and European level' (Article 2.2(c) of the Basic Regulation);
- (b) facilitate the free movement of airspace users across the European airspace; and
- (c) to ensure regulatory harmonisation across Europe, while assisting Member States in fulfilling their obligations under the Chicago Convention, by providing a basis for a common interpretation and uniform implementation of its provisions.

The objectives will be achieved through set up of safely designed, validated flight procedures and airspace structures that are maintained and reviewed in a coherent manner.

4.3. Policy options

The RIA considers the three options described below for addressing the issues identified above:

Table 1: Policy options

Option No	Short title	Description
0	Do nothing	Lack of EU implementing rules in the context of ASD. Leave the Basic Regulation not implemented. The Member States would need to develop their own national ASD criteria and requirements to fulfil their obligation stemming from the Chicago Convention.
1	Performance-based rules on ASD, especially on the design of airspace structure	The rules avoid a detailed prescription of organisational or ownership models and focus on describing the required output and objectives of the activity itself. Thus, it will be at the discretion of the Member States to employ the most efficient national administrative model in order to assign the roles as regards the airspace structures. In this way, the future rules will allow all Member States' currently existing models to exist (without duplication) and the rule will not prescribe a certain organisational model for airspace structures design. This approach takes duly into account the varying degrees of the Member States', competent authorities' or service providers' involvement.
2	Prescriptive ASD rules	The rules would introduce organisational or ownership models. In this way, the future rules will not allow all currently existing models in the Member States to coexist. This option will not take into account the varying degrees of the Member States, competent authorities' or service providers' involvement. It may request a longer transition period.



The assessment of the impacts below is made in a qualified manner due to lack of available quantifiable data. However, the stakeholders are invited to provide quantified justification elements on the possible social and economic impacts by answering the questions below. For this NPA, the scoring of the impacts uses a simple scale with '+' and '-' to indicate the positive and negative impacts.

4.4. Analysis of impacts

4.4.1. Safety impact

As explained in the issue analysis, this rulemaking task is not directly driven by safety events occurred in the past; however, the lack of harmonised implementing measures on the design of airspace structures and flight procedures has a direct effect on the trajectory followed by aircraft.

Option 0 — Do nothing

This could have a negative safety impact, because all the safety issues identified above will not be solved. Moreover, with the expected increase of traffic and complexity of controlled airspace, the safety risk will increase. Furthermore, the lack of harmonised ASD criteria would not enable the implementation of FABs and large projects (like the SESAR projects).

Option 1 — Performance-based rules on ASD, especially on the design of airspace structures

Option 1 intends to resolve the issue identified above by complementing Commission Implementing Regulation (EU) 2016/1377 with the required harmonised ASD criteria and requirements. The consistent implementation of the flight procedure design services and oversight of these services will contribute to the improvement of flight safety. Consequently, the safety impact would be positive and indicated with '+' in the table below.

Option 2 — Prescriptive ASD rules

Similar but with a 'more prescriptive ASD rules' approach, Option 2 intends to resolve the issue identified. Therefore, the safety impact would be similar to that of Option 1 and indicated with '+' in the table below.

<i>Type of impacts</i>	<i>Option 0</i>	<i>Option 1</i>	<i>Option 2</i>
Safety impacts	-	+	+



4.4.2. Social impact

The social impact is assessed from the perspective of facilitating the free movement of airspace users across the European airspace, e.g. factors that would further enhance the potentials for free movement of airspace users (GA pilots, aircraft operators) in the EU.

Option 0 — Do nothing

Option 0 does not contribute to this objective as the remaining ASD criteria and associated procedures will be developed at national level and are, therefore, likely to be different between them. Hence, the free movements of airspace users varies and the level playing field for the flight procedure design organisations is not facilitated.

Option 1 — Performance-based rules on ASD, especially on the design of airspace structures

Option 1 should support this objective by requiring the harmonisation of the ASD requirements and rules applicable within the European airspace and, thus, facilitating the free movement of airspace users and services.

Option 2 — Prescriptive ASD rules

The social impact is anticipated to be the same as that of Option 1. It is, therefore, indicated with '+' in the table below.

<i>Type of impacts</i>	<i>Option 0</i>	<i>Option 1</i>	<i>Option 2</i>
Social impacts	0	+	+

Question to stakeholders on social impacts

Stakeholders are invited to provide quantified justification elements on the possible social impacts of the options proposed.

4.4.3. Economic impact

Option 0 — Do nothing

The economic impact of this option is neutral as nothing will change with regard to today's situation.

Option 1 — Performance-based rules on ASD, especially on the design of airspace structures

The implementation of the proposal incurs initial compliance costs:

- (1) cost for the Member States and for the organisations performing design of flight procedures (e.g. national ANSPs) to adjust the current existing system(s) to the new rules (one-off cost).
- (2) cost to train relevant personnel in the competent authorities, aircraft and aerodrome operators and air traffic services providers on the new procedures (one-off cost).

The increase of cost depends on the current costs for implementation of the national rules on ASD applicable in each Member State. As they are divergent, it is difficult to predict this initial compliance cost in a quantitative manner. However, their value is expected to be low, because the future rules will allow the currently existing models of the Member States to coexist and therefore, the adjustments to the existing systems will not be significant. In addition, the economic impact of having harmonised



requirements among the Member States will be positive over time as the benefits will appear in a long-term perspective. Therefore, it is expected that in the long term the 'costs may be offset by the improvement in work efficiency due to a clearly defined regulatory framework'¹⁸. Implementing this option will improve the work efficiency of flight procedure design service, leading to improvement of efficiency of the air transportation system. It is expected that the transition period in order for the regulated parties to adjust to the new requirements, will last maximum one year.

In the current NPA, only the initial implementing costs are considered in the assessment. The economic impact is indicated '+/-', because of the initial compliance costs, which are expected to be low, depending on the current national frameworks on ASD.

Option 2 — Prescriptive ASD rules

The compliance costs for adjustments of the Member States, competent authorities and other affected parties to tailor their existing (national) administrative models to the new one will cause much higher costs (in comparison to Option 1). A longer transition period would be required (expectation of two or more years), which will add additional burden to the stakeholders.

The economic impact of this option is negative at the beginning and in the mid-term (due to the longer transition period in comparison to Option 1) for the implementation of the proposed amendment, but expected to be positive in the long term.

In the current NPA, only the initial implementing costs are considered in the assessment. The economic impact is estimated as negative due to the higher compliance costs for adjustments of the current systems to the new rules (in comparison to the Option 1).

<i>Type of impacts</i>	<i>Option 0</i>	<i>Option 1</i>	<i>Option 2</i>
Economic impacts	0	+/-	-

Question to stakeholders on economic impacts

To the organisations performing design of flight procedures (e.g. ANSPs)

1. *What is the current annual workload for designing flight procedures?*
2. *What is the average cost per hour for designing flight procedures?*
3. *How much do you expect to increase your workload if you adjust the current existing systems to the new rules as per Option 1 (performance based rules)?*
4. *How much do you expect to increase your workload if you adjust the current existing systems to the new rules as per Option 2 (prescriptive rules)?*
5. *How much do you expect the additional cost to be in order to adjust the current existing system to the new rules as per Option 1 (performance based rules)?*
6. *How much do you expect the additional cost to be in order to adjust the current existing system to the new rules as per Option 2 (prescriptive rules)?*
7. *How much do you expect the cost to be for training of your staff to adjust to the new rules as per Option 1 (performance-based rules)?*

¹⁸ Quote from the impact assessment in ICAO State letter from 11/04/2016 in relation to amendment 50 to Annex 11 (Annex F point 2.8)



To the competent authorities

8. *How much do you expect the cost to be for training your staff to adjust to the new rules?*
9. *How much do you expect to increase your workload if you adjust the current existing systems to the new rules as per Option 1 (performance-based rules)?*
10. *How much do you expect to increase your workload if you adjust the current existing systems to the new rules as per Option 2 (prescriptive rules)?*

To all stakeholders

11. *Stakeholders are invited to provide quantified justification and comments on the possible economic impacts of the options proposed.*

4.4.4. General aviation and proportionality issues**Option 0 — Do nothing**

Already today in accordance with the Chicago Convention, the Member States should design their airspace structures to ensure the proportionality of access to certain volumes of airspace taking into account the specific needs of the airspace users.

In the context of the design of flight procedures, Option 0 could be interpreted as not having impact on proportionality since in most of the cases the flight procedure design is performed by the ANSPs that have already today a quality management system in place.

Option 1 — Performance-based rules on ASD, especially on the design of airspace structures

Option 1, as regards the design of airspace structures, leaves at the discretion of the Member States to employ the most efficient national administrative model in order to assign the roles. Furthermore, when fulfilling their responsibilities, the rules foresee a proportionate application by the creation of different types of AMC and GM. It is expected that this option will have a positive impact on proportionality issues not only because of the application of proportionate requirements but also due to the facilitation of level playing field as a result of the harmonised implementation of requirements for these flight procedure design providers among the EU Member States.

In the context of flight procedure design, Option 1 would not require introduction of a new management system and, hence, it would have a positive impact, as in most of the cases flight procedure design is performed by the ANSPs that have already today a quality management system in place.

Considering the above, the anticipated impact is positive and indicated as '+' in the table.

Stakeholders are invited to comment on these estimated impacts.

1. *Do you confirm that the tasks on flight procedure design are performed by the ANSPs in your country? If not, which organisation is performing these tasks?*
2. *Are the organisations performing flight procedure design certified to provide flight procedure design service?*

EASA may further contact you to get additional details on your answer.

Option 2 — Prescriptive ASD rules

Option 2 could be interpreted as having a negative impact on proportionality as it would propose prescriptive rules on all the areas of ASD, thus, the rules would introduce organisational or ownership models. Consequently, in the table the proportionality issues aspect is indicated with ‘-’.

<i>Type of impacts</i>	<i>Option 0</i>	<i>Option 1</i>	<i>Option 2</i>
Proportionality issues	0	+	-

4.4.5. Impact on ‘better regulation’ and harmonisation

One of the issues intended to be resolved with this NPA is the need for harmonisation of the rules on the design of airspace structures and flight procedures for the European airspace. This is necessary not only for safety but also to facilitate the free movements of airspace users within the European airspace and the implementation of the single European sky (including FABs).

Option 0 — Do nothing

This option is expected to have a negative harmonisation impact as the Member States will need to develop their own national ASD criteria. While it is expected that Member States would develop these national ASD criteria based on the ICAO SARPs and associated Documents, it is also foreseen that it would lead to some differences between the different national ASD criteria and associated procedures. This would lead to a non-harmonised environment.

Furthermore, EASA would not fulfil its obligation stemming from the Basic Regulation in submitting opinion to the Commission on this subject matter.

Option 1 — Performance-based rules on ASD, especially on the design of airspace structures

The rules will avoid a detailed prescription of organisational or ownership models and focus on describing the required output and objectives of the activity itself. With this approach, EASA would fulfil its obligations stemming from the Basic regulation on regulating the area of ASD.

Option 1 will ensure positive impact on ‘better regulation’ and harmonisation. Therefore, the impact is positive and indicated as ‘+’ in the table below.

Option 2 — Prescriptive ASD rules

This option is expected to provide the basis for regulatory harmonisation and coordination between the European Member States as it establishes the harmonised rules of ASD of the European airspace. It is, therefore, expected to have a positive impact on ‘better regulation’ and harmonisation. Therefore, the impact is positive and indicated as ‘+’ in the table below. Equally to Option 1, with Option 2, EASA would fulfil its obligations stemming from the Basic Regulation on regulating the area of ASD.

<i>Type of impacts</i>	<i>Option 0</i>	<i>Option 1</i>	<i>Option 2</i>
‘Better regulation’ and harmonisation	-	+	+



4.5. Comparison and conclusion

The summary of the impacts for each option is provided in the following table.

Table 2: Summary of impacts per option

<i>Type of impacts</i>	<i>Option 0</i>	<i>Option 1</i>	<i>Option 2</i>
Safety impacts	-	+	+
Social impacts	0	+	+
Economic impacts	0	+/-	-
Proportionality issues	0	+	-
‘Better regulation’ and harmonisation	-	+	+
Overall impact	0	+	-

Based on the analysis of the impacts, the preferred option is Option 1.

This option does not only aim at resolving the issues identified and at achieving the objectives, but it is also the best option to implement the Essential Requirements in Chapter 2, point (i) of Annex Vb to the Basic Regulation. Additionally, it also aims at harmonising the technical requirements on airspace structure design as well as the organisational and technical requirements for organisations providing flight procedure design service. Last but not least, the overall result is clearly positive compared to Option 0 and more performance-based (or ‘less prescriptive’) compared to Option 2. This is, therefore, the option proposed in the draft opinion included in this NPA.

In conclusion, this NPA aims at ensuring that the airspace structures and flight procedures are appropriately surveyed, designed, and validated.



5. References

5.1. Affected regulations

Commission Implementing Regulation (EU) 2016/1377 of 4 August 2016 laying down common requirements for service providers and the oversight in air traffic management/air navigation services and other air traffic management network functions, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011 and (EU) No 1035/2011 and amending Regulation (EU) No 677/2011 (OJ L 226, 19.8.2016, p. 1)

5.2. Affected AMC and GM

The forthcoming ED Decision on Acceptable Mean of Compliance (AMC) and Guidance Material (GM) to Commission Implementing Regulation (EU) 2016/1377

5.3. 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 an European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC (OJ L 79, 19.3.2008, p. 1).
- Regulation (EC) No 549/2004 of the European Parliament and of the Council of 10 March 2004 laying down the framework for the creation of the single European sky (the framework Regulation) (OJ L 96, 31.3.2004, p. 1).
- Commission Regulation (EC) No 2150/2005 of 23 December 2005 laying down common rules for the flexible use of airspace (OJ L 342, 24.12.2005, p. 20).
- Regulation (EC) No 550/2004 of the European Parliament and of the Council of 10 March 2004 on the provision of air navigation services in the single European sky (the service provision Regulation) (OJ L 96, 31.3.2004, p. 10).
- 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 Implementing Regulation (EU) No 923/2012 of 26 September 2012 laying down the common rules of the air and operational provisions regarding services and procedures in air navigation and amending Implementing Regulation (EU) No 1035/2011 and Regulations (EC) No 1265/2007, (EC) No 1794/2006, (EC) No 730/2006, (EC) No 1033/2006 and (EU) No 255/2010 (OJ L 281, 13.10.2012, 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)
- ICAO Annex 4, 'Aeronautical Charts', 2009, 11th Edition
- ICAO Annex 11, 'Air Traffic Services', 2001, 13th Edition
- ICAO Annex 14 'Aerodromes - Volume I – Aerodrome Design and Operations'



- ICAO Annex 15 'Aeronautical Information Services'
- 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 8126 'Aeronautical Information Services Manual'
- ICAO Document 7910 'Location Indicators'
- ICAO Document 9368 'Instrument Flight Procedures Construction Manual'



6. Appendix

CROSS REFERENCE TABLE — ICAO Annex 11 airspace design (ASD) SARPs, Amendment 50 to the proposed requirements in this NPA

ICAO Annex 11 SARP identifier	ICAO Provision	NPA reference	Reasons/ Justification
1.	CHAPTER 1. DEFINITIONS		
	Area navigation route. An ATS route established for the use of aircraft capable of employing area navigation.	Annex I, point cc.	
	ATS route. A specified route designed for channelling the flow of traffic as necessary for the provision of air traffic services.	Annex I, point dd.	
	Control area. A controlled airspace extending upwards from a specified limit above the earth.	Annex I, point ee.	
	Controlled aerodrome. An aerodrome at which air traffic control service is provided to aerodrome traffic.	N/A	Not transposed as ASD-related definition; exhaustive definition and explanation on 'controlled aerodrome' is provided within the set of measures proposed. Furthermore, NPA 2016-09 (Requirements for Part-ATS) is addressing this definition.
	Control zone. A controlled airspace extending upwards from the surface of the earth to a specified upper limit.	Annex I, point ff.	
	Danger area. An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.	Annex I, point hh.	
	Instrument flight procedure design service. A service	Annex I, point ii.	The proposal is not limited only



	established for the design, documentation, validation, maintenance and periodic review of instrument flight procedures necessary for the safety, regularity and efficiency of air navigation.		to instrument flight procedure design service. It is broader and addresses 'flight procedure design service' as a whole.
	Prohibited area. An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited.	Annex I, point qq.	
	Restricted area. An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain specified conditions.	Annex I, point ss.	
2.	CHAPTER 2. GENERAL		
2.5	Designation of the portions of the airspace and controlled aerodromes where air traffic services will be provided	Appendix YY to Article 3(x)	
2.5.1	When it has been determined that air traffic services will be provided in particular portions of the airspace or at particular aerodromes, then those portions of the airspace or those aerodromes shall be designated in relation to the air traffic services that are to be provided.	Appendix YY to Article 3(x), paragraph (a)	
2.5.2	The designation of the particular portions of the airspace or the particular aerodromes shall be as follows:	Appendix YY to Article 3(x), paragraph (b)	
2.5.2.1	Flight information regions. Those portions of the airspace where it is determined that flight information service and alerting service will be provided shall be designated as flight information regions.	Appendix YY to Article 3(x), paragraph (b)(1)(i)	
2.5.2.2.1	Control areas and control zones Those portions of the airspace where it is determined that air	Appendix YY to Article 3(x), paragraph (b)(2)(i) and (ii)	



	traffic control service will be provided to IFR flights shall be designated as control areas or control zones.		
	<i>Note. — The distinction between control areas and control zones is made in 2.10.</i>	N/A	Note not proposed for transposition.
2.5.2.2.1.1	Those portions of controlled airspace wherein it is determined that air traffic control service will also be provided to VFR flights shall be designated as Classes B, C, or D airspace.	N/A	Not proposed for transposition as it is considered that it has already been addressed in Regulation (EU) No 923/2012 (SERA)
2.5.2.2.2	Where designated within a flight information region, control areas and control zones shall form part of that flight information region.	Appendix YY to Article 3(x), paragraph (b)(2)(i) and (ii)	
2.5.2.3	Controlled aerodromes. Those aerodromes where it is determined that air traffic control service will be provided to aerodrome traffic shall be designated as controlled aerodromes.	Appendix YY to Article 3(x), paragraph (c)(1)	
2.10.1	Specifications for flight information regions, control areas and control zones <i>The delineation of airspace, wherein air traffic services are to be provided, should be related to the nature of the route structure and the need for efficient service rather than to national boundaries.</i>	Appendix XX to Article 3(x), Section I FLIGHT INFORMATION REGIONS, especially GM9 Article 3(x) Provision of ATM/ANS and ATM network functions	
2.10.2.1	Flight information regions Flight information regions shall be delineated to cover the whole of the air route structure to be served by such regions.	Appendix XX to Article 3(x), Section I FLIGHT INFORMATION REGIONS, (a)(1)	
	<i>Note 1. — Agreements to permit the delineation of airspace lying across national boundaries are advisable when such action will facilitate the provision of air traffic services (see 2.1.1). Agreements which permit</i>	Appendix XX to Article 3(x), Section I FLIGHT INFORMATION REGIONS, especially GM9 Article 3(x) Provision of ATM/ANS and ATM network functions	



	<i>delineation of airspace boundaries by straight lines will, for example, be most convenient where data processing techniques are used by air traffic services units.</i>		
	<i>Note 2.— Where delineation of airspace is made by reference to national boundaries there is a need for suitably sited transfer points to be mutually agreed upon.</i>	Appendix XX to Article 3(x), Section I FLIGHT INFORMATION REGIONS, especially GM9 Article 3(x) Provision of ATM/ANS and ATM network functions	
2.10.2.2	A flight information region shall include all airspace within its lateral limits, except as limited by an upper flight information region.	Appendix XX to Article 3(x), Section I FLIGHT INFORMATION REGIONS, (a)(2)	
2.10.2.3	Where a flight information region is limited by an upper flight information region, the lower limit specified for the upper flight information region shall constitute the upper vertical limit of the flight information region and shall coincide with a VFR cruising level of the tables in Appendix 3 to Annex2.	Appendix XX to Article 3(x), Section I, FLIGHT INFORMATION REGIONS (b)	
	<i>Note.— In cases where an upper flight information region is established the procedures applicable therein need not be identical with those applicable in the underlying flight information region.</i>	GM3 FPD.TR.100 Flight procedure design criteria FLIGHT PROCEDURES IN UPPER FLIGHT INFORMATION REGIONS	
2.10.3.1	Control areas Control areas including, inter alia, airways and terminal control areas shall be delineated so as to encompass sufficient airspace to contain the flight paths of those IFR flights or portions thereof to which it is desired to provide the applicable parts of the air traffic control service, taking into account the capabilities of the navigation aids normally used in that area.	Appendix XX to Article 3(x), Section I, CONTROL AREAS (a)	



	<i>Note.— In a control area other than one formed by a system of airways, a system of routes may be established to facilitate the provision of air traffic control.</i>	GM3 Article 3(x) Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions	
2.10.3.2	A lower limit of a control area shall be established at a height above the ground or water of not less than 200 m (700 ft).	AMC1 Article 3(x) Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions APPENDIX XX, SECTION I SPECIFICATIONS FOR CONTROL ZONES AND CONTROL AREAS	
	<i>Note.— This does not imply that the lower limit has to be established uniformly in a given control area (see Figure A-5 of the Air Traffic Services Planning Manual (Doc 9426), Part I, Section 2, Chapter 3).</i>	N/A	Note not proposed for transposition.
2.10.3.2.1	<i>The lower limit of a control area should, when practicable and desirable in order to allow freedom of action for VFR flights below the control area, be established at a greater height than the minimum specified in 2.10.3.2.</i>	GM3 Article 3(x) Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions APPENDIX XX, SECTION I SPECIFICATIONS FOR FLIGHT INFORMATION REGION, CONTROL AREAS AND CONTROL ZONES	
2.10.3.2.2	When the lower limit of a control area is above 900 m (3 000 ft) MSL it should coincide with a VFR cruising level of the tables in Appendix3 to Annex2.	GM3 Article 3(x) Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions APPENDIX XX, SECTION I SPECIFICATIONS FOR FLIGHT INFORMATION REGION, CONTROL AREAS AND CONTROL ZONES	
	<i>Note.— This implies that the selected VFR cruising level be such that expected local atmospheric pressure variations do not result in a lowering of this limit to a height of less than 200 m (700 ft) above ground or water.</i>	GM3 Article 3(x) Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions APPENDIX XX, SECTION I SPECIFICATIONS FOR FLIGHT INFORMATION REGION, CONTROL AREAS AND CONTROL ZONES	
2.10.3.3	An upper limit of a control area shall be established when either: a) air traffic control service will not be provided above such upper limit; or b) the control area is situated	Appendix XX to Article 3(x), Section I, CONTROL AREAS (b)	



	<p>below an upper control area, in which case the upper limit shall coincide with the lower limit of the upper control area.</p> <p>When established, such upper limit shall coincide with a VFR cruising level of the tables in Appendix 3 to Annex 2.</p>		
2.10.4	<p>Flight information regions or control areas in the upper airspace</p> <p><i>Where it is desirable to limit the number of flight information regions or control areas through which high flying aircraft would otherwise have to operate, a flight information region or control area, as appropriate, should be delineated to include the upper airspace within the lateral limits of a number of lower flight information regions or control areas.</i></p>	<p>GM3 Article 3(x) Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions</p> <p>APPENDIX XX, SECTION I SPECIFICATIONS FOR FLIGHT INFORMATION REGION, CONTROL AREAS AND CONTROL ZONES</p>	
2.10.5.1	<p>Control zones</p> <p>The lateral limits of control zones shall encompass at least those portions of the airspace, which are not within control areas, containing the paths of IFR flights arriving at and departing from aerodromes to be used under instrument meteorological conditions.</p>	<p>Appendix XX to Article 3(x), Section I, CONTROL ZONES (a)</p>	
	<p><i>Note. — Aircraft holding in the vicinity of aerodromes are considered as arriving aircraft.</i></p>	<p>GM3 Article 3(x) Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions</p> <p>APPENDIX XX, SECTION I SPECIFICATIONS FOR FLIGHT INFORMATION REGION, CONTROL AREAS AND CONTROL ZONES</p>	
2.10.5.2	<p>The lateral limits of a control zone shall extend to at least 9.3 km (5 NM) from the centre of the aerodrome or aerodromes concerned in the directions from which approaches may be made.</p>	<p>AMC1 Article 3(x) Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions</p> <p>APPENDIX XX, SECTION I SPECIFICATIONS FOR FLIGHT INFORMATION REGIONS, CONTROL</p>	



		AREAS AND CONTROL ZONES	
	<i>Note.— A control zone may include two or more aerodromes situated close together</i>	GM3 Article 3(x) Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions APPENDIX XX, SECTION I SPECIFICATIONS FOR FLIGHT INFORMATION REGION, CONTROL AREAS AND CONTROL ZONES	
2.10.5.3	If a control zone is located within the lateral limits of a control area, it shall extend upwards from the surface of the earth to at least the lower limit of the control area.		
	<i>Note.— An upper limit higher than the lower limit of the overlying control area may be established when desired.</i>	GM3 Article 3(x) Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions APPENDIX XX, SECTION I SPECIFICATIONS FOR FLIGHT INFORMATION REGION, CONTROL AREAS AND CONTROL ZONES	
2.10.5.4	<i>If a control zone is located outside of the lateral limits of a control area, an upper limit should be established.</i>	GM3 Article 3(x) Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions APPENDIX XX, SECTION I SPECIFICATIONS FOR FLIGHT INFORMATION REGION, CONTROL AREAS AND CONTROL ZONES	
2.10.5.5	<i>If it is desired to establish the upper limit of a control zone at a level higher than the lower limit of the control area established above it, or if the control zone is located outside of the lateral limits of a control area, its upper limit should be established at a level which can easily be identified by pilots. When this limit is above 900 m (3 000 ft) MSL it should coincide with a VFR cruising level of the tables in Appendix 3 to Annex 2.</i>	GM3 Article 3(x) Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions APPENDIX XX, SECTION I SPECIFICATIONS FOR FLIGHT INFORMATION REGION, CONTROL AREAS AND CONTROL ZONES	
	<i>Note.— This implies that, if used, the selected VFR cruising level be such that expected local atmospheric pressure variations do not result in a</i>	GM3 Article 3(x) Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions APPENDIX XX, SECTION I	



	<i>lowering of this limit to a height of less than 200 m (700 ft) above ground or water</i>	SPECIFICATIONS FOR FLIGHT INFORMATION REGION, CONTROL AREAS AND CONTROL ZONES	
2.11.1	Identification of air traffic services units and airspaces <i>An area control centre or flight information centre should be identified by the name of a nearby town or city or geographic feature.</i>	N/A	Not proposed for transposition.
2.11.2	<i>An aerodrome control tower or approach control unit should be identified by the name of the aerodrome at which it is located.</i>	N/A	Not proposed for transposition.
2.11.3	<i>A control zone, control area or flight information region should be identified by the name of the unit having jurisdiction over such airspace.</i>	N/A	Not proposed for transposition.
2.12.1	Establishment and identification of ATS routes When ATS routes are established, a protected airspace along each ATS route and a safe spacing between adjacent ATS routes shall be provided.	Appendix XX to Article 3(x), Section II (a)	
2.12.2	<i>When warranted by density, complexity or nature of the traffic, special routes should be established for use by low-level traffic, including helicopters operating to and from helidecks on the high seas. When determining the lateral spacing between such routes, account should be taken of the navigational means available and the navigation equipment carried on board helicopters.</i>	GM4 Article 3(x) Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions APPENDIX XX, SECTION II IDENTIFICATION OF NAVIGATION SPECIFICATIONS AND THE IDENTIFICATION OF ATS ROUTES OTHER THAN STANDARD DEPARTURE AND ARRIVAL ROUTES	
2.12.3	ATS routes shall be identified by designators.	Appendix XX to Article 3(x), Section II (b)	
2.12.4	Designators for ATS routes other than standard departure and arrival routes shall be selected in accordance with the principles set forth in	Appendix XX to Article 3(x), Section II (c)	



	Appendix 1.		
2.12.5	Standard departure and arrival routes and associated procedures shall be identified in accordance with the principles set forth in Appendix 3.	Appendix XX to Article 3(x), Section III	
	<i>Note 1. — Guidance material relating to the establishment of ATS routes is contained in the Air Traffic Services Planning Manual (Doc 9426).</i>	GM4 Article 3(x) Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions APPENDIX XX, SECTION II IDENTIFICATION OF NAVIGATION SPECIFICATIONS AND THE IDENTIFICATION OF ATS ROUTES OTHER THAN STANDARD DEPARTURE AND ARRIVAL ROUTES	
	<i>Note 2. — Guidance material relating to the establishment of ATS routes defined by VOR is contained in Attachment A.</i>	GM4 Article 3(x) Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions APPENDIX XX, SECTION II IDENTIFICATION OF NAVIGATION SPECIFICATIONS AND THE IDENTIFICATION OF ATS ROUTES OTHER THAN STANDARD DEPARTURE AND ARRIVAL ROUTES	
	<i>Note 3. — The spacing between parallel tracks or between parallel ATS route centre lines based on performance-based navigation will be dependent upon the relevant navigation specification required.</i>	GM4 Article 3(x) Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions APPENDIX XX, SECTION II IDENTIFICATION OF NAVIGATION SPECIFICATIONS AND THE IDENTIFICATION OF ATS ROUTES OTHER THAN STANDARD DEPARTURE AND ARRIVAL ROUTES	
2.13.1	Establishment of change-over points <i>Change-over points should be established on ATS route segments defined by reference to very high frequency omnidirectional radio ranges where this will assist accurate navigation along the route segments. The establishment of change-over points should be limited to route segments of 110 km (60 NM) or more,</i>	N/A	Not proposed for transposition.



	<i>except where the complexity of ATS routes, the density of navigation aids or other technical and operational reasons warrant the establishment of change-over points on shorter route segments.</i>		
2.13.2	<i>Unless otherwise established in relation to the performance of the navigation aids or frequency protection criteria, the change-over point on a route segment should be the mid-point between the facilities in the case of a straight route segment or the intersection of radials in the case of a route segment which changes direction between the facilities.</i>	N/A	Not proposed for transposition.
	<i>Note. — Guidance on the establishment of change-over points is contained in Attachment A.</i>	N/A	Not proposed for transposition.
2.14.1	Establishment and identification of significant points Significant points shall be established for the purpose of defining an ATS route or instrument approach procedure and/or in relation to the requirements of air traffic services for information regarding the progress of aircraft in flight.	Appendix XX to Article 3(x), Section IV, point (a)	
2.14.2	Significant points shall be identified by designators.	Appendix XX to Article 3(x), Section IV, point (c)	
2.14.3	Significant points shall be established and identified in accordance with the principles set forth in Appendix 2.	Appendix XX to Article 3(x), Section IV, point (c)	
2.22	Minimum flight altitudes Minimum flight altitudes shall be determined and promulgated by each Contracting State for each ATS route and control area over its territory. The minimum flight altitudes determined shall	Appendix XX to Article 3(x), Section V	



	provide a minimum clearance above the controlling obstacle located within the areas concerned.		
	<i>Note.— The requirements for publication by States of minimum flight altitudes and of the criteria used to determine them are contained in Annex 15, Appendix 1. Detailed obstacle clearance criteria are contained in PANS-OPS (Doc 8168), Volume II.</i>	GM7 Article 3(x) Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions APPENDIX XX, SECTION V MINIMUM FLIGHT ALTITUDES	
2.31.1	Identification and delineation of prohibited, restricted and danger areas Each prohibited area, restricted area, or danger area established by a State shall, upon initial establishment, be given an identification and full details shall be promulgated.	Appendix XX to Article 3(x), Section VI	
	<i>Note.— See Annex 15, Appendix 1, ENR 5.1.</i>	N/A	Note not proposed for transposition.
2.31.2	The identification so assigned shall be used to identify the area in all subsequent notifications pertaining to that area.	Appendix XX to Article 3(x), Section VI, point (a)	
2.31.3	The identification shall be composed of a group of letters and figures as follows: a) nationality letters for location indicators assigned to the State or territory which has established the airspace; b) a letter P for prohibited area, R for restricted area and D for danger area as appropriate; and c) a number, unduplicated within the State or territory concerned.	Appendix XX to Article 3(x), Section VI, point (b)	
	<i>Note.— Nationality letters are those contained in Location Indicators (Doc 7910).</i>	GM8 Article 3(x) Provision of ATM/ANS and ATM network functions APPENDIX XX, SECTION VI IDENTIFICATION AND DELINEATION OF PROHIBITED, RESTRICTED AND DANGER AREAS	



2.31.4	To avoid confusion, identification numbers shall not be reused for a period of at least one year after cancellation of the area to which they refer.	Appendix XX to Article 3(x), Section VI, point (c)	
2.31.5	<i>Recommendation.— When a prohibited, restricted or danger area is established, the area should be as small as practicable and be contained within simple geometrical limits, so as to permit ease of reference by all concerned.</i>	GM8 Article 3(x) Provision of ATM/ANS and ATM network functions APPENDIX XX, SECTION VI IDENTIFICATION AND DELINEATION OF PROHIBITED, RESTRICTED AND DANGER AREAS	
2.33	Instrument flight procedure design service States shall ensure that an instrument flight procedure design service is in place in accordance with Appendix 8.	Article 3(x), Article 5, Annex II (Part-ATM/ANS.AR), ATM/ANS.OR.B.001, FPD.OR.105, AMC1 FPD.OR.100 Flight procedure design service - PERIODIC REVIEW	
Appendix 1	Principles governing the identification of navigation specifications and the identification of ATS routes other than standard departure and arrival routes	Appendix XX to Article 3(x), Section II (c)	
Appendix 2	Principles governing the establishment and identification of significant points	Appendix XX to Article 3(x), Section IV, point (c)	
Appendix 3	Principles governing the identification of standard departure and arrival routes and associated procedures	Appendix XX to Article 3(x), Section III	
Appendix 8	State responsibilities concerning an instrument flight procedure design service	Article 3(x), Article 5, Annex II (Part-ATM/ANS.AR), ATM/ANS.OR.B.001, FPD.OR.105, AMC1 FPD.OR.100 Flight procedure design service - PERIODIC REVIEW	
Attachment A	Material relating to a method of establishing ATS routes defined by VOR	GM4 Article 3(x) Provision of ATM/ANS, airspace structure and flight procedure design, and ATM network functions APPENDIX XX, SECTION II IDENTIFICATION OF NAVIGATION SPECIFICATIONS AND THE IDENTIFICATION OF ATS ROUTES OTHER THAN STANDARD DEPARTURE AND ARRIVAL ROUTES	

