



**NOTICE OF PROPOSED AMENDMENT (NPA) 2012-10**

**DRAFT OPINION OF THE EUROPEAN AVIATION SAFETY AGENCY**

**for a Commission Regulation amending Commission Regulation (EC) No .../... laying down the common rules of the air and operational provisions regarding services and procedures in air navigation and amending Regulations (EC) No 1035/2011, (EC) No 1265/2007, (EC) No 1794/2006, (EC) No 730/2006, (EC) No 1033/2006 and (EU) No 255/2010**

**'Transposition of Amendment 43 to Annex 2 to the Chicago Convention on remotely piloted aircraft systems (RPASs) into common rules of the air'**

## EXECUTIVE SUMMARY

The scope of this rulemaking activity is outlined in the Terms of Reference (ToR) for RMT.0148 (ATM.001(a)), Issue 2, of 29 September 2010.

The purpose of this Notice of Proposed Amendment (NPA) is to propose the alignment of the European common rules of the air (SERA) with Amendment 43 to Annex 2 to the Chicago Convention, in line with Article 2.2(d) of the Basic Regulation and the implementing essential requirement 1(a) of Annex Vb thereto. The largest part of Amendment 43 is devoted to remotely piloted aircraft systems (RPASs), but it also includes revision of some provisions for 'manned' oceanic traffic.

This NPA also implements Article 4(a) and (b) of Regulation (EC) No 551/2004 of the European Parliament and of the Council on the organisation and use of the airspace in the single European sky (the airspace Regulation) as amended by Regulation (EC) No 1070/2009 of 21 October 2009.

Hence, the present NPA includes five major aspects:

- the certification of the remotely piloted aircraft system (RPAS), including the airworthiness of the remotely piloted aircraft (RPA);
- the certification of RPAS operators involved in commercial air transport and/or specialised operations (SPO);
- the licensing of remote pilots;
- provisions to facilitate the 'special authorisation' mandated by Article 8 of the Chicago Convention for international RPAS operations;
- improvement of air traffic control planning in oceanic and remote airspace through more accurate position reporting and estimating by flight crews of 'manned' aircraft.

Amendment 43 to ICAO Annex 2 becomes applicable on 15 November 2012. Therefore, the Agency considers this NPA as necessary and urgent. Nevertheless, it reserves the right to take any position after the consultation. These positions will be published in the subsequent Comment-Response Document (CRD) which, due to the urgency of the task, will be published simultaneously with the Opinion.

The Agency has specific rulemaking tasks (i.e. RMT.0229, RMT.0230 and RMT.0235) devoted to further rules for RPAS. These tasks are planned to be terminated in 2017.

Before then — and in the absence of more detailed common rules, or beyond the scope of Regulation (EC) No 216/2008 — EU Member States should nevertheless apply the SERA within the scope of Regulation (EC) No 551/2004 and implement as well Amendment 43 to ICAO Annex 2 for the aspects not regulated through the rules proposed by this NPA (e.g. licensing of remote pilots).

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## A. Explanatory Note

### I. General

1. The purpose of this Notice of Proposed Amendment (NPA) is to envisage amending Commission Implementing Regulation (EU) No .../...<sup>1</sup> laying down the common rules of the air and operational provisions regarding services and procedures in air navigation and amending Regulations (EC) No 1035/2011, (EC) No 1265/2007, (EC) No 1794/2006, (EC) No 730/2006, (EC) No 1033/2006 and (EU) No 255/2010. The scope of this rulemaking activity is outlined in the Terms of Reference (ToR) for ATM.001(a), Issue 2, of 29 September 2010 (now RMT.0148) and is described in more detail below.
2. The European Aviation Safety Agency (hereafter referred to as the 'Agency') is directly involved in the rule-shaping process. It assists the Commission in its executive tasks by preparing draft regulations, and amendments thereof, for the implementation of the Basic Regulation<sup>2</sup> which are adopted as 'Opinions' (Article 19(1)). It also adopts Certification Specifications, including Acceptable Means of Compliance and Guidance Material to be used in the certification process (Article 19(2)).
3. When developing rules, the Agency is bound to follow a structured process as required by Article 52(1) of the Basic Regulation. Such process has been adopted by the Agency's Management Board and is referred to as the 'Rulemaking Procedure'<sup>3</sup>.
4. This rulemaking activity is included in the Agency's Rulemaking Programme for 2011–2014. It implements rulemaking task ATM.001(a) (RMT.0148) 'Extension of the EASA system to safety regulation of Air Traffic Management (ATM) and Air Navigation Services (ANS) — development of Implementing Rules (ATM.001(a)) and Acceptable Means of Compliance, Guidance Material and Certification Specifications (ATM.001(b)) on requirements for Air Navigation Service Providers'. It also complements the efforts of the European Commission to establish common rules of the air under the single European sky (SES) umbrella.
5. Since this NPA is also based on the 'airspace Regulation' [Regulation (EC) No 551/2004, as amended by Regulation (EC) No 1070/2009 of 21 October 2009], EUROCONTROL has been informed during its development.
6. The text of this NPA, due to the simplicity of the task (mainly copying and pasting ICAO standards) has been developed by the Agency. It is submitted for consultation of all interested parties in accordance with Article 52 of the Basic Regulation and Articles 5.3 and 5.6 of the Rulemaking Procedure.
7. The proposed rule has taken into account the development of European Union and international law (ICAO), and the harmonisation with the rules of other authorities

<sup>1</sup> Currently under the process of adoption by the European Commission, after endorsement by the single Sky committee in March 2012.

<sup>2</sup> 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, 19.03.2008, p. 1). Regulation as last amended by Regulation (EC) No 1108/2009 of the European Parliament and of the Council of 21 October 2009 (OJ L 309, 24.11.2009, p. 51).

<sup>3</sup> EASA MB Decision No 01-2012 of 13 March 2012 amending and replacing MB Decision No 08-2007 concerning the procedure to be applied by the Agency for the issuing of opinions, certification specifications and guidance material ('Rulemaking Procedure').

<http://easa.europa.eu/management-board/docs/management-board-meetings/2012/01/EASA%20MB%20Decision%2001-2012%20Revised%20MB%20Decision%20RM%20Process%20.pdf>.

of the European Union's main partners as set out in the objectives of Article 2 of the Basic Regulation. The proposed rule is equivalent to the ICAO Standards and Recommended Practices adopted via Amendment 43 to Annex 2 to the Chicago Convention and is aiming to maintain the recently adopted common rules of the air (SERA) aligned with the ICAO Standards and Recommended Practices which this NPA proposes to transpose.

## II. Consultation

8. To achieve optimal consultation, the Agency is publishing the draft decision of the Executive Director on its website. Comments should be provided within **eight (8) weeks** in accordance with Article 6.4 of the Rulemaking Procedure and taking into account that Amendment 43 to ICAO Annex 2 becomes applicable on 15 November 2012.
9. Please submit your comments using the **automated Comment-Response Tool (CRT)** available at <http://hub.easa.europa.eu/crt/>.<sup>4</sup>
10. The deadline for the submission of comments is the **15th of October 2012**.

## III. Comment-Response Document (CRD)

11. All comments received in time will be responded to and incorporated in a Comment-Response Document (CRD). The CRD will be available on the Agency's website and in the Comment-Response Tool (CRT).
12. According to Article 8.1 of the Rulemaking Procedure, and taking into account that Amendment 43 to ICAO Annex 2 becomes applicable on 15 November 2012, the CRD will be published simultaneously with the Opinion.

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<sup>4</sup> In case the use of the Comment-Response Tool is prevented by technical problems please report them to the CRT webmaster (crt@easa.europa.eu).

#### IV. Content of the draft Opinion/Decision

13. Article 2.2(d) of the Basic Regulation mandates the Agency to assist EU Member States in fulfilling their obligations under the Chicago Convention by providing a basis for a common interpretation and uniform implementation of its provisions, and by ensuring that its provisions are duly taken into account in the implementation measures. The same Article 2 mandates not only to aim at 'high' safety but also at 'uniform' safety. It is clear that common rules are an essential prerequisite for uniform safety. It is therefore necessary to transpose Amendment 43 to ICAO Annex 2 with the same wording and at the same date in all EU Member States.
14. For ease of reference, said Amendment 43, notified by State Letter AN 13/1.1-12/19 of 10 April 2012, is reproduced in Appendix C.1 to this NPA. Since this text has been adopted by the ICAO Council, no comments are invited on it.
15. This transposition is also urgent because:
- this regulatory improvement (RI) is part of the draft 'roadmap' being developed by the European RPAS Steering Group (ERSG) established by the European Commission; and
  - Amendment 43 to ICAO Annex 2 is applicable from 15 November 2012 onwards.
16. The affected articles of Commission Regulation (EU) No .../... laying down the common rules of the air and operational provisions regarding services and procedures in air navigation, are summarised in the table below:

Article	Title	Notes
1	Subject matter and scope	Amended
2	Definitions	Amended

17. Furthermore, the affected paragraphs of the Annex to the Regulation mentioned in the paragraph immediately above are summarised in the table below:

<b>Annex to Commission Regulation (EU) No .../... laying down the common rules of the air and operational provisions regarding services and procedures in air navigation</b>		
Paragraph	Title	Notes
SERA.3138	Remotely piloted aircraft	New
SERA.3140	Unmanned free balloons	Editorial amendment to change the numbering of the related appendix.
SERA.8020	Adherence to flight plan	Amended
Appendix 2	Remotely piloted aircraft systems	New
Appendix 3	Unmanned free balloons	Number of appendix changed from 2 to 3. No amendment to the text.

18. In summary, the proposed amendments mainly introduce new definitions specific for remotely piloted aircraft systems (RPASs), improve air traffic control planning in oceanic and remote airspace through more accurate position reporting and estimating by flight crews, and a new Appendix 2 which contains the requirements and procedures applicable to RPAS in order to access non-segregated airspace (controlled or uncontrolled), as well as to fly internationally.
19. Commission Regulation (EU) No .../... laying down the common rules of the air and operational provisions regarding services and procedures in air navigation, and its Annex, is reproduced for ease of reference in Appendix C.2 to this NPA. This text has already been endorsed by the single sky Committee (SSC): even on its comments from stakeholders are not invited.
20. **The envisaged changes to Commission Regulation (EU) No .../... laying down the common rules of the air and operational provisions regarding services and procedures in air navigation, and to its Annex, are presented in more detail in the paragraphs below.**

### **Legal basis**

21. Also this Regulation, as the already approved common rules of the air, has a double legal basis: the Basic Regulation [Regulation (EC) No 216/2008] and the 'airspace Regulation' [Regulation (EC) No 551/2004]. This means that the proposed Regulation applies to all civil RPAS regardless of the maximum take-off mass (above or below 150 kg).

### **Recitals**

22. A new set of recitals is proposed for the future Commission Regulation implementing Amendment 43 to ICAO Annex 2 and amending Commission Regulation (EU) No .../... laying down the common rules of the air and operational provisions regarding services and procedures in air navigation.
23. Recitals (1) and (2) set the scene, recalling the mandate given by the legislator to the Commission and the already adopted common rules of the air.
24. Recital (3) makes reference to ICAO State Letter type II 2012/19 of 12 April 2012, through which ICAO notified the adoption of Amendment 43 to Annex 2 to the Chicago Convention. These ICAO standards are acts of international law mandatory for the EU Member States which are in turn ICAO contracting States, even in the absence of common rules on the subject.
25. Recital (4) recalls Article 8 of the Chicago Convention, requiring a 'special authorisation' for international flights by aircraft without pilot on board.
26. Recital (5) links the mentioned Article 8 of the Chicago Convention with the proposed rules.
27. Recital (6) clarifies that the proposed rules apply only to RPAS used for commercial air transport (CAT; e.g. of freight or mail) or for specialised operations (SPO) like e.g. aerial photography or any other operation requiring on-board sensors or other specialised equipment (i.e. necessary for the mission but not for the flight). In this context it shall be clearly understood that a certain SPO operation implies exactly identical risks for third parties in the air or on the ground, whether it is commercial aerial work (e.g. a consortium of farmers contracting an RPAS operator to spray crops), 'corporate'<sup>5</sup> (e.g. the consortium owns and operates directly the RPAS), or private (each farmer operates its RPAS to spray its field, which does not exclude a

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<sup>5</sup> Corporate operations are defined in ICAO Annex 6, Part II, on international general aviation, although aerial work is not currently standardised by ICAO.

crash beyond his/her property). Hence both CAT and SPO are in the scope of the proposed rules.

28. Model aircraft are however excluded. Model aircraft cannot be used for CAT and do not carry on board any special equipment or sensor. If they do they become RPAS and are therefore no longer models, but are subject to the proposed rules.
29. Recital (7) recalls to the ICAO contracting States that before requiring an authorisation to fly the RPAS shall be approved, the remote pilots licensed and the RPAS operator certified, even in the absence of common EU rules in these domains.
30. However, recital (8) announces that common rules for airworthiness, personnel competence and RPAS operations will be proposed in due time by the Commission, based on proposals developed by the Agency in its field of competence.
31. Before then, national rules adopted by the State of Registry and/or the State of Operator apply, as clarified in recital (9).
32. Recitals (10) and (11) refer to the procedure leading to adoption of the proposed rules.

***Amendments to articles of Commission Regulation (EU) No .../... laying down the common rules of the air and operational provisions regarding services and procedures in air navigation***

33. Editorial amendments are proposed to Article 1.3 to make it clearer and more explicit in regard to aircraft operators and flight crews. 'Aircraft operators' include operators of RPAS since the 'remotely piloted aircraft' (RPA) is indeed an aircraft.
34. Amendment 43 to ICAO Annex 2 includes a number of new definitions, which are used in the proposed rules and therefore should be transposed in Article 2 of the common rules of the air:
  - (a) command and control link (C2);
  - (b) detect and avoid;
  - (c) remote pilot;
  - (d) remote pilot station;
  - (e) remotely piloted aircraft (RPA);
  - (f) remotely piloted aircraft system (RPAS);
  - (g) RPA observer; and
  - (h) visual line-of-sight (VLOS) operations.
35. All the wording for the proposed definitions listed above is identical to the ICAO expressions.

***Amendments to Annex to the Regulation [Standardised European Rules of the Air (SERA)]***

36. The new rule SERA.3138 on remotely piloted aircraft is proposed, modelled on standard 3.1.9 which was introduced by ICAO through Amendment 43 to Annex 2. The proposed rule in fact refers to RPAS, but in particular more explicitly to those used for CAT or SPO. Furthermore, it introduces the new Appendix 2 to SERA. Even in the ICAO Annex 2 the appendix on RPAS has been introduced immediately before the appendix on unmanned free balloons (and the latter has been renumbered).
37. Rule SERA.3140 on unmanned free balloons is amended only editorially to refer to the renumbered appendix.
38. SERA.8020 'Adherence to flight plan' has been modified to make the change in time estimate more accurate. The amendment introduced by ICAO establishes the need to notify to the appropriate air traffic services unit the revised estimated time by



the flight crew when the error is found to be in excess of 2 minutes instead of 3 minutes. This change stems from the work of the ICAO Separation and Airspace Safety Panel (SASP) to address some concerns expressed about the wrong interpretation of the present wording of ICAO Annex 2, Chapter 3, Section 3.6.2., 'Adherence to flight plan'. The initial proposal contained some more changes to the wording of this chapter in relation to speed variations in controlled airspace, but this final text amending Annex 2 which has been adopted changes only the provisions related to the change in time estimate.

39. No other rules in SERA are affected by the present NPA. Equally Appendix 1 therein (i.e. Signals) is not affected.

***New Appendix 2 to SERA Part A***

40. The new proposed Appendix 2 focuses on remotely piloted aircraft systems. It transposes in particular the ICAO Standards to facilitate requesting and obtaining the authorisation for domestic RPAS missions and also for the special authorisation to fly internationally. The latter per Article 8 of the Chicago Convention.
41. The proposed Appendix 2:
- (a) does not change the technical content of Amendment 43 to ICAO Annex 2;
  - (b) does not include the obligation to approve RPAS, to license remote pilots and to certify RPAS operators since on the one hand common EU rules in these domains are not yet available and on the other hand these obligations are already mandated by ICAO to its contracting States, including EU Member States;
  - (c) elicits the safety requirements which are implicit in the ICAO text;
  - (d) establishes the procedures to be followed by the competent authorities which, according to Articles 1 and 2 of the Chicago Convention, are in fact left to the ICAO contracting States individually or, like in the case of the EU, collectively;
  - (e) is structured in the following main paragraphs:
    - (i) general operating rules;
    - (ii) requirements for RPAS operations;
    - (iii) procedures for authorisation;
    - (iv) request for authorisation;
    - (v) changes; and
    - (vi) coordination with air navigation services.

***General operating rules***

42. Paragraph 1.1 (general operating rules) of Appendix 2 to this NPA proposes to transpose analogous par. 1.1 from new Appendix 4 to ICAO Annex 2 into EU legislation. It contains the prohibition for RPAS to be operated without authorisation from the State from which the RPA takes off. The authorisation shall be issued by the competent authority established by the State. This is the normal principle in the EU legislation on safety of aircraft operations where all the certifications, approvals and authorisations to operators are issued at national level, based on common rules. In other words an authorisation is required even in the case of flights planned in the airspace of a single State.
43. Par. 1.2 of Appendix 2 to this NPA proposes to transpose par. 1.2 from new Appendix 4 to ICAO Annex 2 into EU legislation. This is connected to the special authorisation required by Article 8 of the Chicago Convention. In other words, if the flight is planned to cross borders between EU Member States, each Member State shall issue its authorisation.

44. In the future, the mutual recognition of certificates per Article 11 of the EASA Basic Regulation could streamline the administrative procedure for intra-EU flights. So, once common rules will be available for airworthiness, remote pilot licensing and certification of RPAS operators, a further amendment to the common rules of the air might be proposed.
45. Par. 1.3 of Appendix 2 to this NPA proposes to transpose par. 1.3 from new Appendix 4 to ICAO Annex 2 into EU legislation. An editorial change is introduced since the expression 'ATS authority' could be confusing in the EU, where there are competent authorities for safety oversight of ATM/ANS providers including providers of ATS, but in the case of flights over high seas the coordination should be directly with the ATS provider.
46. Par. 1.4 from new Appendix 4 to ICAO Annex 2 is not proposed to be transposed into EU legislation since its content is redundant, considering paragraph 4.1 or the proposed appendix to the common rules of the air described below.
47. Par. 1.5 from new Appendix 4 to ICAO Annex 2 does not need to be transposed into EU legislation since the conditions to request authorisation are spelled out in the following paragraphs of the proposed EU rules.
48. Par. 1.6 from new Appendix 4 to ICAO Annex 2 is also not proposed for transposition into the EU legislation since its content is covered by following par. 6.1 in the proposed common rules of the air.
49. Equally par. 1.7 from new Appendix 4 to ICAO Annex 2 does not need to be 'copied and pasted', since it's covered by the following proposed paragraph 2.1(e).
50. Stakeholders are kindly invited to remember that nothing in the Chicago Convention obliges to transpose the ICAO Standards with exactly the same wording or the same structure of the regulatory material.

#### **Requirements for RPAS operations**

51. No equivalent paragraph is present in Amendment 43 to ICAO Annex 2. However, some requirements, to be demonstrated by the RPAS operator, are implicit in ICAO paragraphs 2.1, 2.2, 2.3 and 3.2 of Appendix 4 thereto. These requirements are elicited and listed in proposed par. 2.1.
52. Furthermore the proposed common rules of the air make reference to the 'applicable' essential requirements of Annex IV (i.e. air operations) of the EASA Basic Regulation, which apply also to RPAS operators.
53. Hence par. 2 of the proposed Appendix 2 to the common rules of the air covers:
  - (a) the reference to the applicable essential requirements annexed to the EASA Basic Regulation;
  - (b) the requirement to hold a valid RPAS operator certificate;
  - (c) the requirement for suitable organisation and management;
  - (d) the requirements for valid RPAS and RPA certificates and licences;
  - (e) the requirements for equipment with adequate performance;
  - (f) the requirement for 'detect and avoid' for operations other than VLOS;
  - (g) the requirement for valid remote pilot licences;
  - (h) security requirements; and
  - (i) insurance.

#### **Procedures for authorisation**

54. Par. 3.1 of the proposed Appendix 4 to the common rules of the air has no equivalent in Amendment 43 to ICAO Annex 2, but it seems obvious that before issuing the authorisation the competent authority shall verify that the applicant is

compliant with the applicable requirements. A similar requirement, which is not in contrast with the spirit of the ICAO text, is present in other sets of the Agency's rules.

55. Par. 3.2 of the proposed Appendix 4 to the common rules of the air has no direct equivalent in the ICAO text, but it builds upon the mandate given by ICAO to its contracting States in par. 1.5 of Appendix 4 to ICAO Annex 2.
56. Par. 3.3 also has no direct equivalent in the ICAO text, but it simply makes more explicit the validity of the authorisation, which is implicit in par. 3.2.i) of Appendix 4 to ICAO Annex 2. It seems obvious that the possibility to issue the authorisation for a series of flights or for calendar duration would greatly reduce the administrative burden, without detriment to safety.
57. Unlimited duration of the authorisation is not proposed since it is not deemed appropriate until common rules on the certification of the RPAS operator are not promulgated. In fact, in the absence of such rules no common provisions exist on the continuous oversight, which are a prerequisite for the unlimited duration of any certificate, licence or authorisation.
58. The ICAO SARPs are addressed to contracting States which have then to implement them through respective legislation or rules. 'Notes' in the SARPs are useful to guide the Rulemakers at national level. On the contrary the EU legislation is directly addressed to citizens in the Member States. In this latter context 'notes', not carrying a precise legal requirement, are not considered appropriate. Therefore, it is proposed not to transpose notes 1, 2 and 3 from the ICAO text in paragraph 2 of the new Appendix 4 to Annex 2 into EU legislation.

#### ***Request for authorisation***

59. Par. 4.1 of the proposed common rules of the air transposes par. 3.1 from the ICAO text, thus limiting the discretion of the authority to the forms and manner to forward the application.
60. Par. 4.2 of Appendix 2 to this NPA proposes to transpose analogous par. 3.2 from new Appendix 4 to ICAO Annex 2 into EU legislation, with very minor editorial changes.
61. Finally, par. 4.3 of the proposed Appendix 2 to the common rules of the air transposes par. 3.3 of Appendix 4 to ICAO Annex 2 on languages, thus aligning it with the EU legislation on this matter. Once adopted, this rule may imply notifying a difference to ICAO.

#### ***Changes***

62. Paragraphs 5.1 to 5.4 of the proposed Appendix 2 to the common rules of the air transpose par. 3.5 of the ICAO text, thus making the legal provisions clearer and more comprehensive.

#### ***Coordination with air navigation services***

63. Par. 6.1 of the proposed common rules of the air transposes paragraphs 1.6 and 3.4 from the ICAO text.
64. Par. 6.2 of the proposed common rules of the air transposes par. 3.6 from the ICAO text.

#### ***Renumbering the appendix 'unmanned free balloons'***

65. Like ICAO Annex 2, the new Appendix 2 in SERA could be positioned immediately before the existing appendix 'unmanned free balloons'. Therefore, the latter has to be renumbered '3' instead of '2'.

## V. Regulatory Impact Assessment

### 1. Issue analysis and risk assessment

#### 1.1. What is the issue and the current regulatory framework?

##### General

##### a. Issue which the NPA is intended to address

Remotely piloted aircraft systems (RPASs), also named UAV, UAS or drones, have been known in aviation for about 100 years<sup>6</sup>. However, only during the last two decades their production and operational use became common by the armed services of several states. Their reduced weight and cost, coupled with miniaturised electronics and relatively simple required skills for the remote pilot, have made them attractive also to public non-military entities (e.g. police).

Military and non-military state flights are outside the scope of the Agency as per Article 1.2 of the Basic Regulation.

However, since these machines are more or less sophisticated models, with increasing performances and more sophisticated payloads, the purchase and operation becomes affordable even for civil physical persons or civil small or medium-sized enterprises (SMEs). Should commercial and corporate RPAS operations proliferate without common rules of the air, and beyond the areas normally used by aircraft models, this would potentially pose risks to third parties on the ground (especially in metropolitan areas) and to other airspace users, which could be involved in a mid-air collision (MAC). The impact of small metallic RPA (2–5 kg) with an aircraft could be catastrophic, if we consider that even a strike with a (non-metallic) bird of sufficient dimensions can be catastrophic.

Already in 2002 the EU legislator, when establishing the Agency, decided that indeed UAS (although only above 150 kg) fell into its remit.

In 2007 ICAO has initiated the development of international standards for these new types of aircraft and in 2012 adopted Amendment 43 to Annex 2 to the Chicago Convention.

Article 2.2(d) of the Basic Regulation mandates the Agency to take into account ICAO developments to propose implementing rules.

The United States adopted in February 2012 the Federal Aviation Administration (FAA) Modernization and Reform Act of 2012<sup>7</sup> which:

- tasks FAA to develop a comprehensive integration plan within 9 months which will result in a 5-year RPAS roadmap;
- sets 30 September 2015 as a deadline for the safe integration of RPAS into national airspace;
- aims at supporting the civil uptake of RPAS technology by law enforcement, fire fighters, emergency responders, etc.;
- sets short-term targets for the flight of very small and small RPAS;
- tasks FAA to develop certifications standards and air traffic requirements.

In conclusion there are safety, legal and harmonisation reasons which dictate to urgently, although only partially, fill the regulatory gap.

<sup>6</sup> <http://www.nationalmuseum.af.mil/factsheets/factsheet.asp?id=320>.

<sup>7</sup> 112th Congress of the United States of America, H.R. 658, Subtitle B — Unmanned Aircraft Systems.

In order to do this two issues are discussed in this RIA:

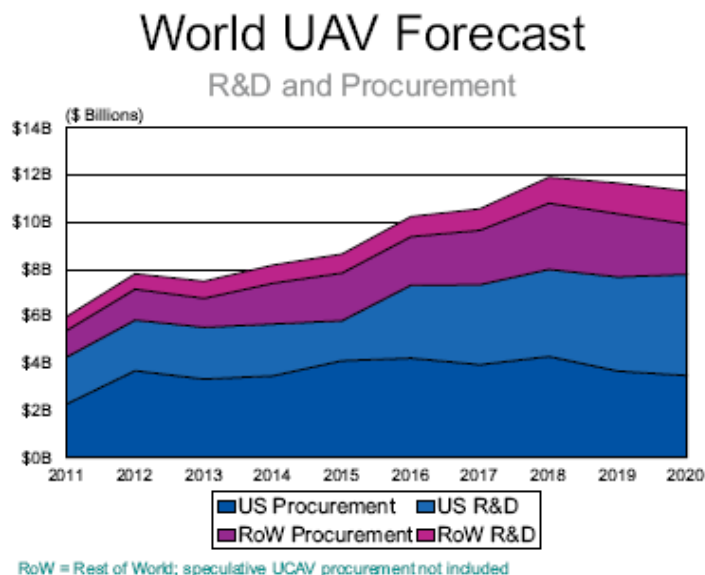
- the scope of the common rules of the air for civil RPAS; and
- when those common rules of the air should be promulgated.

### Scale of the issue

Today military RPAS applications are driving technology development and market expansion<sup>8</sup>, leading the way in terms of research and development, standards, certification and pilot training. RPASs are currently almost exclusively used for military applications (about 95 %<sup>9</sup>). In Europe about 400 RPASs are currently under development in 19 EU Member States<sup>10</sup>. The potential for RPAS to be used in dozens of non-military applications (such as traffic monitoring, environmental monitoring, earth observation and communication) has been widely recognised.

Teal Group<sup>11</sup> estimates that the global procurement and R&D expenditures reached USD 6 billion in the year 2011, with about 40 % spent on R&D. Teal Group estimates that the worldwide RPAS market will double over the next decade to represent an annual procurement and R&D market of USD 11.3 billion in 2020.

Overall, it is estimated that 35 000 RPASs will be produced worldwide in the next 10 years<sup>12</sup>.



**Figure 1: World UAV forecast**

Source: *World Unmanned Aerial Vehicle Systems Market Profile and Forecast*, 2011 Edition, Teal Group.

It is highly likely that a civil market for RPAS will emerge in the next decade<sup>13</sup>.

<sup>8</sup> See for instance UK Trade and Investment: Report on inward investment in the unmanned aerial vehicle industry, 10/ 2008.

<sup>9</sup> Industry estimate at the 1st UAS Workshop.

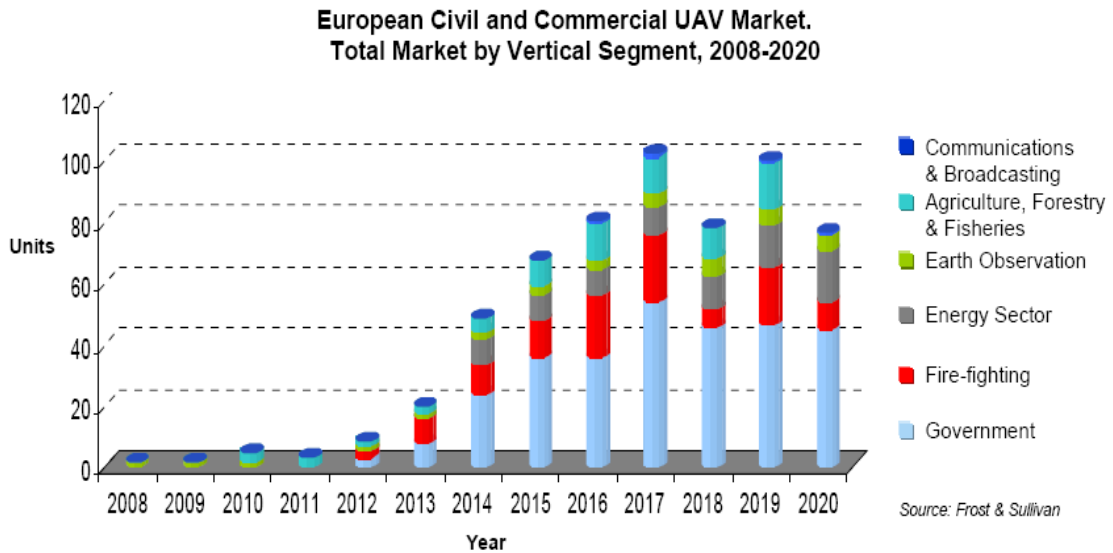
<sup>10</sup> UVSI discussion paper for workshop 1, page 5.

<sup>11</sup> World Unmanned Aerial Vehicle Systems Market Profile and Forecast, 2011 Edition, Teal Group.

<sup>12</sup> NextGen UAS Research, Development and Demonstration Roadmap, Version 1.0, 15 March 2012.

<sup>13</sup> NextGen UAS Research, Development and Demonstration Roadmap, Version 1.0, 15 March 2012.

The current market for commercial RPAS services is practically inexistent due to difficulties for RPAS to obtain flight permissions and their restriction to segregated airspace. In the long-term, once safe but proportionate and reasonable rules are in place, the commercial and public RPAS markets will have huge growth potential as forecasted by several studies.



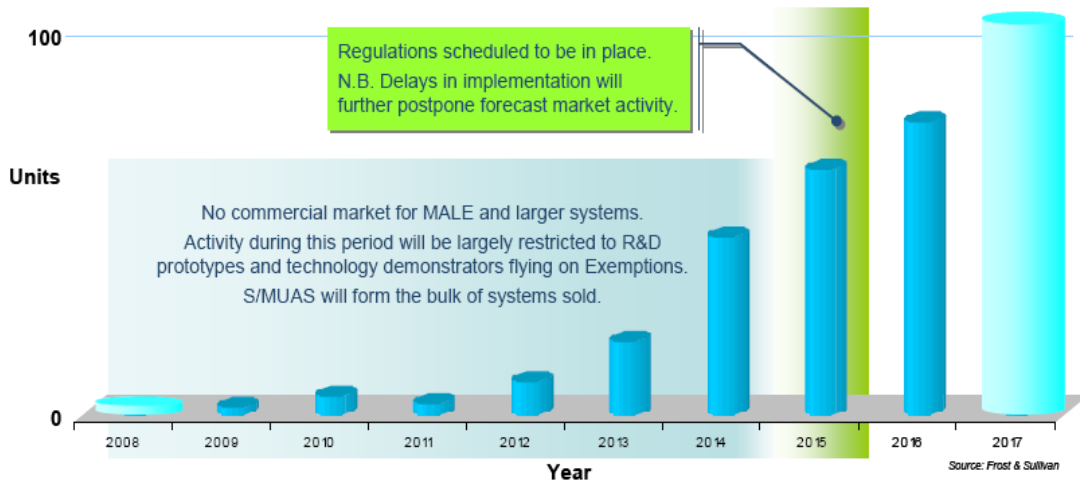
**Figure 2: Forecast European civil UAS market per application<sup>14</sup>**

Source: Frost & Sullivan, Study analysing the current activities in the field of UAV, ENTR/2007/065

Most of the European aircraft manufactures and equipment suppliers are today involved in the development and production of large RPASs (>150 kg). 69 models of large RPASs are currently developed or produced in the EU with 11 in service and 7 market-ready. The use of large systems will especially depend on the progress in the development of airspace insertion.

<sup>14</sup> Presentation ASD 1st Panel Workshop.

A study commissioned by the European Commission and published in 2007 estimated a huge potential for an increase of civil RPAS applications as soon as appropriate legislation is in place.



**Figure 3: Market forecast European civil UAS market<sup>15</sup>**

Source: Frost & Sullivan, Study analysing the current activities in the field of UAV, ENTR/2007/065

SMEs<sup>16</sup> represent more than 80 % of the companies involved in the development, manufacturing and exploitation of light RPAS (<150 kg). Most of these SMEs are not part of the traditional aviation sector. 335 light RPAS models have been identified in the EU with 179 under development and 115 market-ready, showing the dynamism of a sector involving many entrepreneurs and start-ups in most European countries<sup>17</sup>.

*1.2 Who is affected?*

The sectors of the civil aviation community that are potentially affected by the rules proposed in present NPA are:

- competent authorities;
- civil RPAS operators involved in CAT and SPO;
- remote pilots.

*1.3 What are the safety risks*

Should commercial and specialised RPAS operations proliferate without common rules of the air and beyond the areas normally used by aircraft models, this would potentially pose risks to third parties on the ground (especially in metropolitan areas) and to other airspace users, which could be involved in a mid-air collision (MAC). The impact of a small metallic RPA (2–5 kg) with an aircraft could be catastrophic, if we consider that even a strike with a (non-metallic) bird of sufficient dimensions can be catastrophic.

<sup>15</sup> Presentation ASD 1st Panel Workshop.

<sup>16</sup> 158 industries over the 194 identified in the development of light RPAS (<150 kg) are SMEs (UVSI DP for workshop 1).

<sup>17</sup> Activities have been identified in 20 European countries (UVSI DP for workshop 1).

## 2. Objectives

The objective of this NPA is to propose transposition of Amendment 43 to Annex 2 to the Chicago Convention in relation to RPAS into the common rules of the air.

For safety and cost-efficiency purposes, this transposition requires to define **adequately**:

- the scope of the common rules of the air for RPAS; and
- the timing for the implementation of the common rules of the air for RPAS (i.e. now or when all the other rules would be available for airworthiness, operations and remote pilot licensing).

The structure of the document is based on the following logical steps:

- step 1: definition of the scope of the common rules of the air for RPAS;
- step 2: once the preferred option for the scope of the future is defined, the timing for the implementation of the proposed common rules of the air is then assessed.

Therefore, the structure of the report is the following:

Sections 3–5: assessment of the scope of the common rules of the air for RPAS;

Sections 6–8: assessment of the timing for the implementation of the proposed common rules of the air.



### 3. Identification of options for the scope of the common rules of the air for RPAS

Four options have been identified:

No	Identification	Description
<b>0</b>	<b>Do nothing.</b>	No common rules of the air at all on RPAS for the time being. Transposition of Amendment 43 to ICAO Annex 2 remains exclusive national responsibility.
<b>1</b>	Scope covering only <b>commercial</b> RPAS operators.	Commercial RPAS operators subject to common rules of the air. Aircraft models and non-commercial (i.e. corporate or private) specialised RPAS operations (SPO) outside the scope of the common rules of the air.
<b>2</b>	Scope covering all <b>CAT and SPO</b> RPAS operations.	Commercial, corporate and private RPAS CAT and SPO operations subject to common rules of the air. Aircraft models outside the scope of the common rules of the air.
<b>3</b>	Scope covering <b>all</b> operations with no pilot on board.	CAT, SPO and model aircraft subject to the same common rules of the air.

### 4. Impacts

All identified impacts are qualitatively assessed (RIA light) and expressed in terms of a score = a numerical single digit from -3 (highly negative) to +3 (highly positive).

Safety scores — since safety is the primary objective of the Agency as per Article 2 of the Basic Regulation — are assigned a weight of 3. Environmental scores, based on the same article, have a weight of 2. Other scores have a weight of 1.

i. Safety

The four options can therefore be compared from the safety perspective in the table below:

Options	0	1	2	3
	Do nothing	Commercial RPAS	CAT and SPO	CAT, SPO and models
Assessment	<p>Progressive deterioration of safety due to increasing number of civil RPAS and related applications without clear common legal framework (e.g. models carrying special equipment and executing SPO missions, but still considered models).</p> <p>No uniform safety across EU-27 in relation to aircraft, registered anywhere and wishing to operate in the EU airspace. The same in relation to EU RPAS operators wishing to fly over the high seas.</p>	<p>Greatest part of RPAS operations covered, but not corporate operations which present exactly the same safety risks for third parties in the air and on the ground.</p>	<p>All professional RPAS operations covered, including corporate, and subject to common rules of the air.</p> <p>However, not yet common rules on airworthiness, OPS and licensing of remote pilots.</p>	<p>As 2.</p> <p>No significant additional safety benefit, since experience gained so far demonstrates that model activity is not a real safety concern.</p>
Score (unweighted)	-3	1	2	2
Weight	Multiply the unweighted score by: 3			
Score (weighted)	-9	3	6	6

## ii. Social

Options	0	1	2	3
	Do nothing	Commercial RPAS	CAT and SPO	CAT, SPO and models
<b>Assessment</b>	More difficult to create new jobs and to recognise the figure of remote pilots.	Basis for development of the civil RPAS market (manufacture, operations and information acquisition and exploitation), as well as promotion of high-quality jobs, including licensing of remote pilots.	As 1.	As 1.
<b>Score (unweighted)</b>	-2	3	3	3
<b>Weight</b>	Multiply the unweighted score by: 1			
<b>Score (weighted)</b>	-2	3	3	3

## iii. Economic

Options	0	1	2	3
	Do nothing	Commercial RPAS	CAT and SPO	CAT, SPO and models
Assessment	Lack of common rules, at least common rules of the air, detrimental to the common market and requiring more effort from industry to cope with different national rules.	Common rules of the air applicable to commercial operations (the majority) in their technical substance would most probably be adopted also by corporate operators.	Greater legal certainty for corporate operators, but some additional administrative burden on them.	New administrative burden on the community of operators of aircraft models, as well as additional workload for the competent authorities.
Score (unweighted)	-2	2	1	-3
Weight	Multiply the unweighted score by: 1			
Score (weighted)	-2	2	1	-3

iv. Environmental impact

Options	0	1	2	3
	Do nothing	Commercial RPAS	CAT and SPO	CAT, SPO and models
Assessment	Lack of common rules of the air would slow down the proliferation of RPAS operations, which translates in less energy required and less noise produced.	Facilitation of RPAS operations, which leads to more energy used and more emissions and noise, although most RPA have such a reduced mass that energy requirements, emissions and noise are much less than for manned aviation.	As 1.	Reduction of fuel burnt and noise generated by models, whose activities would become more regulated and therefore more difficult.
Score (unweighted)	2	-1	-1	1
Weight	Multiply the unweighted score by: 2			
Score (weighted)	4	-2	-2	2

v. Proportionality issues

Options	0	1	2	3
	Do nothing	Commercial RPAS	CAT and SPO	CAT, SPO and models
<b>Assessment</b>	Basic rules of the air could significantly differ from one state to another. This would not create a level playing field especially for SMEs.	Commercial operations, even long range, may in principle be at any altitude. It is proportionate to ensure adequate protection to society.  However, society will not be protected from corporate operations, which present identical risks as the commercial ones.	Proportionate and identical common rules of the air for all professional RPAS operations across EU-27.	The vast majority of models have poorer performances of RPAS. Furthermore they are operated in defined areas.  It would not be proportionate to impose to them the same common rules of the air as for the professional use of RPAS.
<b>Score (unweighted)</b>	-3	2	3	-3
<b>Weight</b>	Multiply the unweighted score by: 1			
<b>Score (weighted)</b>	-3	2	3	-3

vi. Regulatory coordination and harmonisation

Options	0	1	2	3
	Do nothing	Commercial RPAS	CAT and SPO	CAT, SPO and models
<b>Assessment</b>	Infringing the spirit of Article 2.2(d) of the Basic Regulation. Not paralleling the FAA initiatives mandated by the USA legislator.	Aligned with ICAO, possibly with the exception of corporate operations.	Aligned with ICAO.	Exceeding the scope of the ICAO standards.
<b>Score (unweighted)</b>	-3	2	3	-2
<b>Weight</b>	Multiply the unweighted score by: 1			
<b>Score (weighted)</b>	-3	2	3	-2

## 5. Conclusion and preferred option for the scope of the common rules of the air for RPAS

### a. Comparison of the positive and negative impacts for each option evaluated

Using the multi-criteria analysis (MCA) methodology, the 'weighted' scores assigned above are algebraically summed:

Options	0	1	2	3
	Do nothing	Commercial RPAS	CAT and SPO	CAT, SPO and models
	<b>Weighted score</b>			
<b>Safety</b>	-9	3	6	6
<b>Social impact</b>	-2	3	3	3
<b>Economic impact</b>	-2	2	1	-3
<b>Environment</b>	4	-2	-2	2
<b>Proportionality</b>	-3	2	3	-3
<b>Regulatory harmonisation</b>	-3	2	3	-2
<b>TOTAL</b>	<b>-15</b>	<b>10</b>	<b>14</b>	<b>3</b>

### b. Final assessment and recommendation of a preferred option

Option 0 ('do nothing') shows a significantly negative score from any perspective (except environment for which it is positive, since it slows down the spreading of RPAS operations), including safety.

Option 4 (i.e. include also aircraft models in the scope of the proposed common rules of the air) has a much lower score than 1 and 2; although it is safe, it is in fact disproportionate and imposes administrative burden on the community of aircraft model amateurs.

The remaining two options demonstrate a positive total (weighted) score, but 2 (i.e. common rules of the air not only for commercial air transport RPAS operations but also for specialised operations) is better in terms of safety, proportionality and regulatory harmonisation.

**Therefore, option 2, i.e. include in the scope of SERA both commercial air transport and specialised RPAS operations, is the preferred one.**



## 6. Identification of options for the timing for the common rules of the air for RPAS

However, the comprehensive application of ICAO Annex 2 requires standards in Annex 1 to the Chicago Convention for licensing of remote pilots, in Annex 6 for operations and in Annex 8 for airworthiness. These SARPs are not yet available, and in fact the ICAO Council has included some notes in the text of Amendment 43 to Annex 2.

Even in the European case amending the common rules of the air will not complete the work since more specific common rules of the air (at least for civil UAS above 150 kg) are required in the domain of crew licensing, airworthiness and operations.

It is therefore legitimate to ask whether common rules of the air for RPAS should be adopted now or in a later timeframe.

Two options have been identified:

No	Identification	Description
<b>2A</b>	Common rules of the air proposed in <b>2012</b> .	<p>Scope covering all <b>professional</b> RPAS operators, but only in relation to the common rules of the air.</p> <p>In the absence of common rules of the air, Member States should apply their measures for remote pilot licensing and RPAS operations.</p> <p>The Agency is unable to issue separate type certificates for RPAS, RPA and RPS.</p>
<b>2B</b>	Adopt amendment to common rules of the air in a later timeframe when the complete set of common rules for RPAS will be available (e.g. <b>2018</b> ).	An amendment to the Basic Regulation may be required to allow separate type certification of RPAS, RPA and RPS, as well as certification of corporate RPAS operators. This requires no less than 4 years. Therefore, these complete set of rules could not be adopted before 2018.

## 7. Impacts for the timing of the common rules of the air for RPAS

All identified impacts are qualitatively assessed (RIA light) and expressed in terms of a score = a numerical single digit from -3 (highly negative) to +3 (highly positive).

Safety scores (since safety is the primary objective of the Agency as per Article 2 of the Basic Regulation) are assigned a 'weight' of 3. Environmental scores, based on the same Article, have a weight of 2. Other scores have a weight of 1.

*i. Safety*

The two options can therefore be compared from the safety perspective in the table below:

<b>Options</b>	<b>2A</b>	<b>2B</b>
	<b>2012</b>	<b>2018</b>
<b>Assessment</b>	Minimum common set of rules mandating certain uniformity already in 2013.	Non-uniform safety across EU-27 due to potentially different transpositions of Amendment 43 to ICAO Annex 2 until 2018.
<b>Score (unweighted)</b>	2	-1
<b>Weight</b>	Multiply the unweighted score by: 3	
<b>Score (weighted)</b>	<b>6</b>	<b>-2</b>

*ii. Social*

<b>Options</b>	<b>2A</b>	<b>2B</b>
	<b>2012</b>	<b>2018</b>
<b>Assessment</b>	Quick creation of high-quality jobs for civil remote pilots.	Delayed creation of high-quality jobs for civil remote pilots.
<b>Score (unweighted)</b>	2	-2
<b>Weight</b>	Multiply the unweighted score by: 1	
<b>Score (weighted)</b>	<b>2</b>	<b>-2</b>

## iii. Economic

Options	2A	2B
	2012	2018
<b>Assessment</b>	EU-27 aligned uniformly to ICAO SARPs in the very short term: no need for industry to familiarise with 27 different set of basic rules (or penalised by the absence of rules).	EU-27 aligned uniformly to ICAO SARPs only in 2018. Need for industry to familiarise with 27 different set of basic rules (or penalised by the absence of rules) during transition.
<b>Score (unweighted)</b>	2	-2
<b>Weight</b>	Multiply the unweighted score by: 1	
<b>Score (weighted)</b>	<b>2</b>	<b>-2</b>

## iv. Environment and proportionality issues

Both identified options are neutral from the environmental and proportionality perspective.

## v. Regulatory coordination and harmonisation

Options	2A	2B
	2012	2018
<b>Assessment</b>	EU Member States compliant with Amendment 43 to ICAO Annex 2 in the shortest timeframe possible and therefore the Agency is fulfilling its obligations as per Article 2 of the EASA Basic Regulation.	EU Member States may not be uniformly compliant with Amendment 43 to ICAO Annex 2 or may even file differences to it until 2018.
<b>Score (unweighted)</b>	3	-3
<b>Weight</b>	Multiply the unweighted score by: 1	
<b>Score (weighted)</b>	<b>3</b>	<b>-3</b>

## 8. Conclusion and preferred option for the timing of the common rules of the air for RPAS

### a. Comparison of the positive and negative impacts for each evaluated option

Using the multi-criteria analysis (MCA) methodology, the 'weighted' scores assigned above are algebraically summed:

Options	2A	2B
	2012	2018
	<b>Weighted score</b>	
<b>Safety</b>	6	-2
<b>Social impact</b>	2	-2
<b>Economic impact</b>	2	-2
<b>Environment</b>	0	0
<b>Proportionality</b>	0	0
<b>Regulatory harmonisation</b>	3	-3
<b>TOTAL</b>	<b>13</b>	<b>-9</b>

### b. Final assessment and recommendation of a preferred option

Option 2A (i.e. transpose Amendment 43 to ICAO Annex 2 at EU level in the shortest timeframe possible) shows a significantly positive score from all perspectives, including safety.

On the contrary, option 2B (first amend the Basic Regulation and then adopt a complete set of common rules in all affected domains) shows a negative score from any perspective.

**Therefore, option 2A, i.e. publication of this NPA in 2012 aiming at the subsequent Opinion in 2013, is the preferred one.**

**B. Draft rules**

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

1. deleted or amended text is shown with a strike through: ~~deleted~~
2. changed or new text is highlighted with grey shading: **new**
3. ... indicates that remaining text is unchanged in front of or following the reflected amendment.

**I. Draft Opinion — SERA****COMMISSION IMPLEMENTING REGULATION (EU) No .../...****of ...****amending Commission Implementing Regulation (EU) No .../... laying down the common rules of the air and operational provisions regarding services and procedures in air navigation and amending Regulations (EC) No 1035/2011, (EC) No 1265/2007, (EC) No 1794/2006, (EC) No 730/2006, (EC) No 1033/2006 and (EU) No 255/2010**

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EC) No 551/2004 of the European Parliament and of the Council of 10 March 2004 on the organisation and use of the airspace in the single European sky (the airspace Regulation)<sup>18</sup>, and in particular Article 4(a) and (b) thereof,Having regard to 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 (the EASA Basic Regulation)<sup>19</sup>, and in particular Articles 8 and 8b and Annex Vb thereof,

Whereas:

- (1) Pursuant to Regulation (EC) No 551/2004 and Regulation (EC) No 216/2008, the Commission is required to adopt appropriate provisions on rules of the air based upon Standards and Recommended Practices of the International Civil Aviation Organization (ICAO), and to harmonise the application of the ICAO airspace classification with the aim to ensure the seamless provision of safe and efficient air traffic services within the single European sky.
- (2) Accordingly, the Commission adopted the Commission Implementing Regulation (EU) No .../... on common rules of the air and operational provisions regarding services and procedures in air navigation. This Regulation implemented Standards and Recommended Practices contained in Annex 2 to the Chicago Convention.
- (3) By State Letter AN 13/1.1-12/19 of 10 April 2012 ICAO has informed contracting States of the adoption of Amendment 43 to Annex 2 to the Chicago Convention, which covers in particular remotely piloted aircraft systems (RPAS).
- (4) Article 8 of the Chicago Convention recognises the sovereignty of each contracting State over the authorisation of remote piloted aircraft (RPA) operation over its territory.
- (5) In order to amend Commission Implementing Regulation (EU) No .../... to reflect Amendment 43 to Annex 2 to the Chicago Convention, in full respect for the principle

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<sup>18</sup> OJ L 96, 31.3.2004, p. 20.

<sup>19</sup> OJ L 79, 19.3.2008, p. 1.

contained in Article 8, the requirement for an RPAS operator to obtain prior authorisation before taking off from the territory of a Member State and before operating in the airspace subject to the supervision of a Member State is introduced.

- (6) Although not expressly excluded from the wording of Annex 2 to the Chicago Convention, model aircraft, used for recreational or sports activities should be excluded from the requirements of this Regulation. Therefore, the proposals are limited to RPAS operated in commercial air transport and specialised operations, as defined in Commission Regulation (EU) No .../... (covering air operations).
- (7) Amendment 43 to Annex 2 to the Chicago Convention covers other aspects related to RPAS besides their integration in airspace, namely their airworthiness, the licensing of remote pilots and the certification of RPAS operators, by making general references to national regulations, while recognising that ICAO standards for the airworthiness, operation and pilot licensing in the field of RPAS have not been developed yet.
- (8) In the system created by the EASA Basic Regulation, these aspects need to be regulated separately from the rules of the air, in dedicated Commission regulations to be developed. Therefore, the Commission will in due time propose amendments to Commission Regulation (EC) No 1702/2003 (covering initial airworthiness), Commission Regulation (EC) No 2042/2003 (covering continuing airworthiness), Commission Regulation (EU) No 1178/2011 (covering pilot licensing) and Commission Regulation (EU) No .../... (covering air operations).
- (9) Pending the entry into force of common European requirements on airworthiness, air operations and pilot licensing in the field of RPAS, Member States' national regulations continue to apply. Therefore, RPAS will be operated in accordance with the conditions specified by the State of Registry and/or the State of the Operator, as well as the state(s) in which the flight is to operate.
- (10) The European Aviation Safety Agency prepared draft implementing rules and submitted them as an opinion to the Commission in accordance with Article 19(1) of Regulation (EC) No 216/2008.
- (11) The measures provided for in this Regulation are in accordance with the opinion of the Committee established by Article 5 of Regulation (EC) No 549/2004<sup>20</sup>,

HAS ADOPTED THIS REGULATION:

#### *Article 1*

The Commission Implementing Regulation (EU) No .../... is amended as follows:

1. Paragraph 3 of Article 1 is amended as follows:

- ‘3. This Regulation shall also apply to the Competent Authorities of the Member States, **aircraft operators**, Air Navigation Service Providers and the relevant **flight and ground personnel** engaged in aircraft operations.’

2. In Article 2, the following definitions are added:

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<sup>20</sup> OJ L 96, 31.3.2004, p. 1.

‘55a. “Command and control link (C2)”. The data link between the remotely piloted aircraft and the remote pilot’s station for the purposes of managing the flight;’

...

‘67a. “Detect and avoid” means the capability to see, sense or detect conflicting traffic or other hazards and take the appropriate action;’

...

‘108a. “Remote pilot” means a person executing duties essential to the operation of a remotely piloted aircraft and who manipulates the flight controls, as appropriate, during flight time;’

‘108b. “Remote pilot station” means the component of the remotely piloted aircraft system containing the equipment used to pilot the remotely piloted aircraft;’

‘108c. “Remotely piloted aircraft (RPA)” means an unmanned aircraft which is piloted from a remote pilot station;’

‘108d. “Remotely piloted aircraft system (RPAS)” means a remotely piloted aircraft, its associated remote pilot station(s), the required command and control links and any other components as specified in the type design;’

...

‘112a. “RPA observer” means a trained and competent person designated by the operator who, by visual observation of the remotely piloted aircraft, assists the remote pilot in the safe conduct of the flight;’

...

‘141a. “Visual line-of-sight (VLOS)” operation means an operation in which the remote pilot or RPA observer maintains direct unaided visual contact with the remotely piloted aircraft;’

3. A new paragraph SERA.3138 is added to Chapter 1 of Section 3 of the Annex Rules of the Air:

**‘SERA.3138 Remotely piloted aircraft**

A remotely piloted aircraft involved in commercial air transport or specialised operations shall be operated in such a manner as to minimize hazards to persons, property or other aircraft and in accordance with the requirements contained in this Regulation and in particular those specified in Appendix 2.’

4. Paragraph SERA.3140 is amended as follows:

**‘SERA.3140 Unmanned Free Balloons**

An unmanned free balloon shall be operated in such a manner as to minimize hazards to persons, property or other aircraft and in accordance with the conditions specified in Appendix 23.’

5. Paragraph SERA.8020 is amended as follows:

**‘SERA.8020 Adherence to Flight Plan**

(a) Except ...

(b) *Inadvertent changes.* In the event that a controlled flight inadvertently deviates from its current flight plan, the following action shall be taken:



- (1) Deviation from track: if the aircraft is off track, action shall be taken forthwith to adjust the heading of the aircraft to regain track as soon as practicable.
- (2) Variation in true airspeed: if the average true airspeed at cruising level between reporting points varies or is expected to vary by plus or minus 5 per cent of the true airspeed, from that given in the flight plan, the appropriate air traffic services unit shall be so informed.
- (3) Change in time estimate: if the time estimate for the next applicable reporting point, flight information region boundary or destination aerodrome, whichever comes first, is found to be in error in excess of 32 minutes from that notified to air traffic services, or such other period of time as is prescribed by the competent authority or on the basis of ICAO regional air navigation agreements, a revised estimated time shall be notified as soon as possible to the appropriate air traffic services unit.'

(c) ...

6. Appendix 2 – Unmanned Free Balloons to the Annex Rules of the Air is renumbered Appendix 3.

7. A new Appendix 2 is added to the Annex Rules of the Air:

## **APPENDIX 2**

### **REMOTELY PILOTED AIRCRAFT SYSTEMS**

#### **1. General operating rules**

1.1 The operator of a remotely piloted aircraft system (RPAS) shall only operate a remotely piloted aircraft (RPA) taking off from the territory of a Member State after receiving appropriate authorisation from the competent authority designated by that Member State.

1.2 The operator of an RPAS shall only operate an RPA in the airspace under the responsibility of a Member State after receiving an authorisation issued by the competent authority designated by that Member State.

1.3 The operator of an RPAS shall not operate an RPA over the high seas without prior coordination with the appropriate Air Traffic Service Provider (ATSP).

#### **2. Requirements for RPAS operations**

2.1 In order to obtain the authorisations in 1.1 and in 1.2, applicants shall demonstrate to the competent authority that:

- (1) they comply with all the applicable requirements of Annex IV to Regulation (EC) No 216/2008 and of this Regulation;
- (2) the operator holds a valid RPAS operator certificate and is capable of executing the intended operation in a safe manner;
- (3) the organisation and management of the RPAS operator are suitable and properly matched to the scale and scope of the operation;
- (4) all the RPA involved in the intended operation have a valid certificate of registration, a valid certificate of airworthiness and, if applicable, a valid radio station licence;

- (5) all the RPAS involved in the intended operation are equipped with the communications, navigation and surveillance systems, with adequate performance for the specific airspace in which the flight is to operate, including command and control links (C2);
- (6) in the case of operations which are not VLOS, all the involved RPAS are equipped with a suitable detect and avoid system;
- (7) all the pilots involved in the intended operation hold a valid remote pilot(s) licence with appropriate ratings and endorsements;
- (8) the security of the command and control link is adequately ensured, as well as the physical security of the RPS;
- (9) the operator has adequate insurance coverage.

### **3. Request for authorisation**

3.1 In order to obtain the authorisations specified in 1.1 and 1.2, the operator of an RPAS shall apply to the relevant competent authority in a form and manner established by it. The application shall be made no less than seven days before the date of the intended flight(s).

3.2 The application shall include at least the following:

- (a) name and contact information of the operator;
- (b) RPA characteristics (type of aircraft, maximum certified take-off mass, number of engines, wing span);
- (c) copy of certificate of registration;
- (d) aircraft identification to be used in radiotelephony, if applicable;
- (e) copy of the certificate of airworthiness;
- (f) copy of the RPAS operator certificate;
- (g) copy of the remote pilot(s) licence(s);
- (h) copy of the aircraft radio station licence, if applicable;
- (i) description of the intended operation (type of operation or purpose), flight rules, visual line-of-sight (VLOS) operation if applicable, date of intended flight(s), point of departure, destination, cruising speed(s), cruising level(s), route to be followed, duration/frequency of flight;
- (j) take-off and landing requirements;
- (k) RPA performance characteristics, including:
  - (1) operating speeds;
  - (2) typical and maximum climb rates;
  - (3) typical and maximum descent rates;
  - (4) typical and maximum turn rates;
  - (5) other relevant performance data (e.g. limitations regarding wind, icing, precipitation); and
  - (6) maximum aircraft endurance;
- (l) communications, navigation and surveillance capabilities;

- (1) aeronautical safety communications frequencies and equipment, including:
  - (i) ATC communications, including any alternate means of communication;
  - (ii) command and control links (C2) including performance parameters and designated operational coverage area;
  - (iii) communications between remote pilot and RPA observer, if applicable;
- (2) navigation equipment; and
- (3) surveillance equipment;
- (m) detect and avoid capabilities;
- (n) emergency procedures, including:
  - (1) communications failure with ATC;
  - (2) C2 failure; and
  - (3) remote pilot/RPA observer communications failure, if applicable;
- (o) number and location of remote pilot stations as well as handover procedures between remote pilot stations, if applicable;
- (p) document attesting noise certification that is consistent with the provisions of Article 6 of Regulation (EC) No 216/2008, if applicable;
- (q) confirmation of compliance with system security standards to include security measures relevant to the RPAS operation, as appropriate;
- (r) payload information/description; and
- (s) proof of adequate insurance/liability coverage.

3.3 The certificates or other documents identified in 4.2 shall be presented in one or more of the official language(s) of the European Union acceptable to the relevant competent authority.

#### **4. Procedure for authorisation**

4.1 Upon receiving an application for the authorisations in 1.1 and 1.2, the competent authority shall verify the RPAS operator's compliance with the applicable requirements.

4.2 When satisfied that the RPAS operator is in compliance with the applicable requirements, the competent authority shall issue the authorisation(s) in a form and manner established by it. The RPAS operations that the RPAS operator is authorised to conduct shall be specified in the terms of the authorisation.

4.3 The competent authority may issue the authorisations in 1.1 and 1.2 for a single flight or series of flights or for a limited calendar duration.

#### **5. Changes**

5.1 The RPAS operator shall obtain prior authorisation by the relevant competent authorities for any changes to the content or scope of the initial authorisations.

5.2. Upon receiving an application for a change, the competent authority shall verify the RPAS operator's compliance with the applicable requirements before issuing the change to the previous authorisation.

5.3 The competent authority shall prescribe the conditions under which the RPAS operator may operate during and after the implementation of the change.

5.4 When satisfied that the RPAS operator is in compliance with the applicable requirements, the competent authority shall approve the change(s) to the authorisation(s).

## **6. Coordination with air traffic services**

6.1 Once the authorisations in 1.1 and 1.2 have been obtained, the RPAS operator shall complete notification and coordination with the relevant air traffic services in accordance with the requirements of this regulation. Flight plans shall be submitted in accordance with the provisions of Section 4 of this Annex.

6.2 In the event of a flight cancellation, the RPAS operator or the remote pilot shall notify all appropriate competent authorities and ANSPs as soon as possible.

## **APPENDIX 23**

### **UNMANNED FREE BALLOONS'**

...

#### *Article 2*

This Regulation shall enter into force on the 20th day following its publication in the *Official Journal of the European Union*.

## C. Appendices

### 1 TEXT OF AMENDMENT 43 TO THE INTERNATIONAL STANDARDS RULES OF THE AIR (ANNEX 2 TO THE CONVENTION ON INTERNATIONAL CIVIL AVIATION)

**Note:** The following text has been adopted by the ICAO Council in March 2012.  
It is reproduced here for information purposes only.  
Stakeholders are not invited to comment on it.

#### CHAPTER 1. DEFINITIONS

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*Insert new text as follows:*

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**Command and control link (C2).** The data link between the remotely piloted aircraft and the remote pilot station for the purposes of managing the flight.

**Detect and avoid.** The capability to see, sense or detect conflicting traffic or other hazards and take the appropriate action.

**Operator.** A person, organization or enterprise engaged in or offering to engage in an aircraft operation.

*Note.— In the context of remotely piloted aircraft, an aircraft operation includes the remotely piloted aircraft system.*

**Remote pilot.** A person charged by the operator with duties essential to the operation of a remotely piloted aircraft and who manipulates the flight controls, as appropriate, during flight time.

**Remote pilot station.** The component of the remotely piloted aircraft system containing the equipment used to pilot the remotely piloted aircraft.

**Remotely piloted aircraft (RPA).** An unmanned aircraft which is piloted from a remote pilot station.

**Remotely piloted aircraft system (RPAS).** A remotely piloted aircraft, its associated remote pilot station(s), the required command and control links and any other components as specified in the type design.

**RPA observer.** A trained and competent person designated by the operator who, by visual observation of the remotely piloted aircraft, assists the remote pilot in the safe conduct of the flight.

**Visual line-of-sight (VLOS) operation.** An operation in which the remote pilot or RPA observer maintains direct unaided visual contact with the remotely piloted aircraft.

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End of new text.

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## CHAPTER 3. GENERAL RULES

### 3.1 Protection of persons and property

...

#### 3.1.9 Remotely piloted aircraft

A remotely piloted aircraft shall be operated in such a manner as to minimize hazards to persons, property or other aircraft and in accordance with the conditions specified in Appendix 4.3.1.9~~10~~ Unmanned free balloons

An unmanned free balloon shall be operated in such a manner as to minimize hazards to persons, property or other aircraft and in accordance with the conditions specified in Appendix 4~~5~~.

...

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*Renumber remaining paragraphs.*

---

### 3.6 Air traffic control service

...

#### 3.6.2 Adherence to flight plan

...

3.6.2.2 Inadvertent *changes*. In the event that a controlled flight inadvertently deviates from its current flight plan, the following action shall be taken:

- a) *Deviation from track*: if the aircraft is off track, action shall be taken forthwith to adjust the heading of the aircraft to regain track as soon as practicable.
- b) *Variation in true airspeed*: if the average true airspeed at cruising level between reporting points varies or is expected to vary by plus or minus 5 per cent of the true airspeed, from that given in the flight plan, the appropriate air traffic services unit shall be so informed.
- c) *Change in time estimate*: if the time estimate for the next applicable reporting point, flight information region boundary or destination aerodrome, whichever comes first, is found to be in error in excess of ~~32~~ minutes from that notified to air traffic services, or such other period of time as is prescribed by the appropriate ATS authority or on the basis of air navigation regional agreements, a revised estimated time shall be notified as soon as possible to the appropriate air traffic services unit.

...

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*Insert new text as follows:*

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## APPENDIX 4. REMOTELY PILOTED AIRCRAFT SYSTEMS

*(Note. — See Chapter 3, 3.1.9 of the Annex)*

*Note. — Circ 328, Unmanned Aircraft Systems (UAS) contains explanatory information related to remotely piloted aircraft systems.*

### 1. General operating rules

1.1 A remotely piloted aircraft system (RPAS) engaged in international air navigation shall not be operated without appropriate authorisation from the State from which the take-off of the remotely piloted aircraft (RPA) is made.

1.2 An RPA shall not be operated across the territory of another State, without special authorisation issued by each State in which the flight is to operate. This authorisation may be in the form of agreements between the States involved.

1.3 An RPA shall not be operated over the high seas without prior coordination with the appropriate ATS authority.

1.4 The authorisation and coordination referred to in 1.2 and 1.3 shall be obtained prior to take-off if there is reasonable expectation, when planning the operation, that the aircraft may enter the airspace concerned.

1.5 An RPAS shall be operated in accordance with conditions specified by the State of Registry, the State of the Operator if different and the State(s) in which the flight is to operate.

1.6 Flight plans shall be submitted in accordance with Chapter 3 of this Annex or as otherwise mandated by the State(s) in which the flight is to operate.

1.7 RPAS shall meet the performance and equipment carriage requirements for the specific airspace in which the flight is to operate.

## **2. Certificates and licensing**

*Note 1.— Assembly Resolution A37-15 Appendix G resolves that pending the coming into force of international Standards respecting particular categories, classes or types of aircraft, certificates issued or rendered valid, under national regulations, by the contracting State in which the aircraft is registered shall be recognised by other contracting States for the purposes of flight over their territories, including landings and take-offs.*

*Note 2.— Certification and licensing standards are not yet developed. Thus, in the meantime, any certification and licensing need not be automatically deemed to comply with the SARPs of the related Annexes, including Annexes 1, 6 and 8, until such time as the related RPAS SARPs are developed.*

*Note 3.— Notwithstanding the Assembly Resolution A37-15, Article 8 of the Chicago Convention assures each contracting State of the absolute sovereignty over the authorisation for RPA operation over its territory.*

2.1 An RPAS shall be approved, taking into account the interdependencies of the components, in accordance with national regulations and in a manner that is consistent with the provisions of related Annexes. In addition:

- a) RPA shall have a certificate of airworthiness issued in accordance with national regulations and in a manner that is consistent with the provisions of Annex 8; and
- b) the associated RPAS components specified in the type design shall be certificated and maintained in accordance with national regulations and in a manner that is consistent with the provisions of related Annexes.

2.2 An operator shall have an RPAS operator certificate issued in accordance with national regulations and in a manner that is consistent with the provisions of Annex 6.

2.3 Remote pilots shall be licensed or have their licences rendered valid, in accordance with national regulations and in a manner that is consistent with the provisions of Annex 1.

### 3. Request for authorisation

3.1 The request for authorisation referred to in 1.2 above shall be made to the appropriate authorities of the State(s) in which the RPA will operate not less than seven days before the date of the intended flight unless otherwise specified by the State.

3.2 Unless otherwise specified by the State(s), the request for authorisation shall include the following:

- a) name and contact information of the operator;
- b) RPA characteristics (type of aircraft, maximum certificated take-off mass, number of engines, wing span);
- c) copy of certificate of registration;
- d) aircraft identification to be used in radiotelephony, if applicable;
- e) copy of the certificate of airworthiness;
- f) copy of the RPAS operator certificate;
- g) copy of the remote pilot(s) licence;
- h) copy of the aircraft radio station licence, if applicable;
- i) description of the intended operation (to include type of operation or purpose), flight rules, visual line-of-sight (VLOS) operation if applicable, date of intended flight(s), point of departure, destination, cruising speed(s), cruising level(s), route to be followed, duration/frequency of flight;
- j) take-off and landing requirements;
- k) RPA performance characteristics, including:
  - 1) operating speeds;
  - 2) typical and maximum climb rates;
  - 3) typical and maximum descent rates;
  - 4) typical and maximum turn rates;
  - 5) other relevant performance data (e.g. limitations regarding wind, icing, precipitation); and
  - 6) maximum aircraft endurance;
- l) communications, navigation and surveillance capabilities:
  - 1) aeronautical safety communications frequencies and equipment, including:
    - i) ATC communications, including any alternate means of communication;
    - ii) command and control links (C2) including performance parameters and designated operational coverage area;
    - iii) communications between remote pilot and RPA observer, if applicable;
  - 2) navigation equipment; and
  - 3) surveillance equipment (e.g. SSR transponder, ADS-B out);
- m) detect and avoid capabilities;
- n) emergency procedures, including:
  - 1) communications failure with ATC;
  - 2) C2 failure; and
  - 3) remote pilot/RPA observer communications failure, if applicable;
- o) number and location of remote pilot stations as well as handover procedures between remote pilot stations, if applicable;
- p) document attesting noise certification that is consistent with the provisions of Annex 16, Volume 1, if applicable;



- q) confirmation of compliance with national security standards in a manner that is consistent with the provisions of Annex 17, to include security measures relevant to the RPAS operation, as appropriate;
- r) payload information/description; and
- s) proof of adequate insurance/liability coverage.

3.3 When certificates or other documents identified in 3.2 above are issued in a language other than English, an English translation shall be included.

3.4 After authorisation has been obtained from the appropriate State(s), air traffic services notification and coordination shall be completed in accordance with the requirements of the State(s).

*Note.— A request for authorisation does not satisfy the requirement to file a flight plan with the air traffic services units.*

3.5 Changes to the authorisation shall be submitted for consideration to the appropriate State(s). If the changes are approved, all affected authorities shall be notified by the operator.

3.6 In the event of a flight cancellation the operator or remote pilot shall notify all appropriate authorities as soon as possible.

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End of new text.

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#### **APPENDIX 45. UNMANNED FREE BALLOONS**

*(Note.— See Chapter 3, 3.1.910 of the Annex)*

...

**2 DRAFT TEXT OF THE COMMON RULES OF THE AIR AND OPERATIONAL PROVISIONS REGARDING SERVICES AND PROCEDURES IN AIR NAVIGATION, ENDORSED BY THE RELEVANT EU COMMITTEE**

**Note:** The following text has been endorsed by the Single Sky Committee.  
It is reproduced here for information purposes only.  
Stakeholders are not invited to comment on it.



EUROPEAN COMMISSION

Brussels, **XXX**  
[...] (2012) **XXX** draft

**COMMISSION IMPLEMENTING REGULATION (EU) No .../..**

**of **XXX****

**laying down the common rules of the air and operational provisions regarding services and procedures in air navigation and amending Regulations (EC) No 1035/2011, (EC) No 1265/2007, (EC) No 1794/2006, (EC) No 730/2006, (EC) No 1033/2006 and (EU) No 255/2010**

(Text with EEA relevance)

**COMMISSION IMPLEMENTING REGULATION (EU) No .../..****of XXX**

**laying down the common rules of the air and operational provisions regarding services and procedures in air navigation and amending Regulations (EC) No 1035/2011, (EC) No 1265/2007, (EC) No 1794/2006, (EC) No 730/2006, (EC) No 1033/2006 and (EU) No 255/2010**

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EC) No 551/2004 of the European Parliament and of the Council of 10 March 2004 on the organization and use of the airspace in the single European sky, (the airspace Regulation)<sup>1</sup>, and in particular Article 4(a) and (b) thereof,

Having regard to 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, (the EASA Basic Regulation<sup>2</sup>), and in particular Articles 8 and 8b and annex Vb thereof,

Whereas:

- (1) Pursuant to Regulation (EC) No 551/2004 and Regulation (EC) No 216/2008, the Commission is required to adopt implementing rules in order to adopt appropriate provisions on rules of the air based upon Standards and recommended practices of the International Civil Aviation Organisation (ICAO), and to harmonise the application of the ICAO airspace classification, with the aim to ensure the seamless provision of safe and efficient air traffic services within the single European sky;
- (2) Eurocontrol has been mandated in accordance with Article 8(1) of Regulation (EC) No 549/2004 of the European Parliament and the Council of 10 March 2004 laying down the framework for the creation of the single European sky<sup>3</sup> to assist the Commission in the development of implementing rules which lay down appropriate provisions on rules of the air based upon ICAO Standards and recommended practices, and harmonise the application of the ICAO airspace classification;

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<sup>1</sup> OJ L96 31.3.2004, p. 20

<sup>2</sup> OJ L79 19.3.2008, P. 1

<sup>3</sup> OJ L 96, 31.3.2004, p.1.

- (3) In accordance with Articles 1(3) and 13 of Regulation (EC) No 549/2004 and Article 2 of Regulation (EC) No 216/2008, the single European sky initiative should assist the Member States in fulfilling their obligations under the 1944 Chicago Convention on International Civil Aviation (hereafter the Chicago Convention) by providing for common interpretation and implementation;
- (4) The objective of Regulation (EC) No 551/2004 is to support the concept of a more integrated operating airspace within the context of the common transport policy, and to establish common procedures for design, planning and management while ensuring the efficient and safe performance of air traffic management. This objective is particularly relevant for the rapid implementation of functional airspace blocks in the single European sky.
- (5) The outcome of the work undertaken by the joint group created by the Commission, Eurocontrol and ICAO, which charted the national differences filed by Member States relating to ICAO Standards dealing with rules of the air and related provisions for air navigation services, supports the need for standardisation of common rules and differences with respect to the single European sky.
- (6) In order to ensure safe, efficient and expeditious international air traffic and to support the establishment of functional airspace blocks, all participants in the single European sky should adhere to a common set of rules. Furthermore, a key enabler of safe cross-border operations is the creation of a transparent regulatory system, where the actors can be provided a legal certainty and predictability. To this end, standardised rules of the air and related operational provisions regarding services and procedures in air navigation should be established, and be supplemented, where appropriate, with guidance material and/or acceptable means of compliance.
- (7) To achieve those objectives, only commonly agreed European differences should be notified to ICAO by the Member States on areas which are covered by Union law. Those differences should be established and monitored through a permanent process.
- (8) Member States that have adopted additional provisions complementing an ICAO standard, should, if they are still considered necessary and provided such additional provisions do not constitute a difference under the Chicago Convention or against existing Union law, continue to apply such provisions until they are addressed by appropriate Union provisions.
- (9) The application of this Regulation should be without prejudice to the Member States' obligations and rights over the High Seas, in accordance with Article 12 of the Chicago Convention, and in particular with Annex 2 to the Chicago Convention, as well as the obligations of Member States and the Union under the United Nations Convention on the Law of the Sea and the obligations of Member States under the Convention on the International Regulations for Preventing Collisions at Sea, 1972.
- (10) In accordance with Article 1(2) of the framework Regulation, the regulatory framework for the creation of the single European sky does not cover military operations and training.
- (11) The existing process for amending ICAO Standards and recommended practices within the framework of the Chicago Convention is not addressed by this Regulation.

- (12) The extension of the competence of EASA to include air traffic management safety requires consistency between the development of implementing rules under Regulations (EC) No 551/2004 and (EC) No 216/2008.
- (13) In order to ensure consistency between the transposition of provisions of Annex 2 to the Chicago Convention set out in this Regulation and the future provisions stemming from other annexes to the Chicago Convention, which will be included in the next stages of work as well as the implementation of future Union rules, the initial provisions should be revisited where necessary.
- (14) Where necessary, other Union legislation should be updated to refer to this Regulation.

HAS ADOPTED THIS REGULATION:

### *Article 1*

#### **Subject matter and scope**

1. The objective of this Regulation is to establish the common rules of the air and operational provisions regarding services and procedures in air navigation that shall be applicable to general air traffic within the scope of the airspace Regulation.
2. This Regulation shall apply in particular to airspace users and aircraft engaged in general air traffic:
  - a) operating into, within or out of the Union;
  - b) bearing the nationality and registration marks of a Member State of the Union, and operating in any airspace to the extent that they do not conflict with the rules published by the country having jurisdiction over the territory overflown.
3. This Regulation shall also apply to the Competent Authorities of the Member States, Air Navigation Service Providers and the relevant ground personnel engaged in aircraft operations.

### *Article 2*

#### **Definitions**

For the purpose of this Regulation the following definitions shall apply:

1. 'accuracy' means a degree of conformance between the estimated or measured value and the true value;
2. 'ADS-C agreement' means a reporting plan which establishes the conditions of ADS-C data reporting (i.e. data required by the air traffic services unit and frequency of ADS-C reports which have to be agreed to prior to using ADS-C in the provision of air traffic services) ;

3. 'advisory airspace' means an airspace of defined dimensions, or designated route, within which air traffic advisory service is available ;
4. 'advisory route' means a designated route along which air traffic advisory service is available;
5. 'aerobatic flight' means manoeuvres intentionally performed by an aircraft involving an abrupt change in its attitude, an abnormal attitude, or an abnormal variation in speed, not necessary for normal flight or for instruction for licenses or ratings other than aerobatic rating;
6. 'aerodrome' means a defined area (including any buildings, installations and equipment) on land or water or on a fixed, fixed off-shore or floating structure intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft;
7. 'aerodrome control service' means air traffic control service for aerodrome traffic;
8. 'aerodrome control tower' means a unit established to provide air traffic control service to aerodrome traffic;
9. 'aerodrome traffic' means all traffic on the manoeuvring area of an aerodrome and all aircraft flying in the vicinity of an aerodrome. An aircraft operating in the vicinity of an aerodrome includes but is not limited to aircraft entering or leaving an aerodrome traffic circuit;
10. 'aerodrome traffic circuit' means the specified path to be flown by aircraft operating in the vicinity of an aerodrome;
11. 'aerodrome traffic zone' means an airspace of defined dimensions established around an aerodrome for the protection of aerodrome traffic;
12. 'aerial work' means an aircraft operation in which an aircraft is used for specialized services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial advertisement, etc;
13. 'Aeronautical Information Publication (AIP)' means a publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation;
14. 'aeronautical mobile service' means a mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate; emergency position-indicating radio beacon stations may also participate in this service on designated distress and emergency frequencies;
15. 'aeronautical station' means a land station in the aeronautical mobile service. In certain instances, an aeronautical station may be located, for example, on board ship or on a platform at sea;
16. 'aeroplane' means a power-driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given

conditions of flight;

17. 'airborne collision avoidance system (ACAS)' means an aircraft system based on secondary surveillance radar (SSR) transponder signals which operates independently of ground-based equipment to provide advice to the pilot on potential conflicting aircraft that are equipped with SSR transponders;
18. 'aircraft' means any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface;
19. 'aircraft address' means a unique combination of 24 bits available for assignment to an aircraft for the purpose of air-ground communications, navigation and surveillance;
20. 'aircraft observation' means the evaluation of one or more meteorological elements made from an aircraft in flight;
21. 'AIRMET information' means information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of low-level aircraft operations and which was not already included in the forecast issued for low-level flights in the flight information region concerned or sub-area thereof;
22. 'air-ground communication' means two-way communication between aircraft and stations or locations on the surface of the earth;
23. 'air-ground control radio station' means an aeronautical telecommunication station having primary responsibility for handling communications pertaining to the operation and control of aircraft in a given area;
24. 'air-report' means a report from an aircraft in flight prepared in conformity with requirements for position, and operational and/or meteorological reporting;
25. 'air-taxiing' means movement of a helicopter/VTOL above the surface of an aerodrome, normally in ground effect and at a ground speed normally less than 37 km/h (20 kts);
26. 'air traffic' means all aircraft in flight or operating on the manoeuvring area of an aerodrome;
27. 'air traffic advisory service' means a service provided within advisory airspace to ensure separation, in so far as practical, between aircraft which are operating on IFR flight plans;
28. 'air traffic control clearance' means authorisation for an aircraft to proceed under conditions specified by an air traffic control unit;
29. 'air traffic control instruction' means directives issued by air traffic control for the purpose of requiring a pilot to take a specific action;
30. 'air traffic control service' means a service provided for the purpose of:
  - a) preventing collisions:



- 1) between aircraft, and
  - 2) on the manoeuvring area between aircraft and obstructions; and
- b) expediting and maintaining an orderly flow of air traffic;
31. 'air traffic control unit' means a generic term meaning variously, area control centre, approach control unit or aerodrome control tower;
  32. 'air traffic service (ATS)' means a generic term meaning variously, flight information service, alerting service, air traffic advisory service, air traffic control service (area control service, approach control service or aerodrome control service) ;
  33. 'air traffic services airspaces' mean airspaces of defined dimensions, alphabetically designated, within which specific types of flights may operate and for which air traffic services and rules of operation are specified;
  34. 'air traffic services reporting office' means a unit established for the purpose of receiving reports concerning air traffic services and flight plans submitted before departure;
  35. 'air traffic services unit' means a generic term meaning variously, air traffic control unit, flight information centre, aerodrome flight information service unit or air traffic services reporting office;
  36. 'airway' means a control area or portion thereof established in the form of a corridor;
  37. 'alerting service' means a service provided to notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organizations as required;
  38. 'alternate aerodrome' means an aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing. Alternate aerodromes include the following:
    - (a) 'take-off alternate' means an alternate aerodrome at which an aircraft can land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure.
    - (b) 'en-route alternate' means an aerodrome at which an aircraft would be able to land after experiencing an abnormal or emergency condition while en route.
    - (c) 'ETOPS en-route alternate' means a suitable and appropriate alternate aerodrome at which an aeroplane would be able to land after experiencing an engine shutdown or other abnormal or emergency condition while en route in an ETOPS operation.
    - (d) 'destination alternate' means an alternate aerodrome to which an aircraft may proceed should it become either impossible or inadvisable to land at the aerodrome of intended landing;

39. 'altitude' means the vertical distance of a level, a point or an object considered as a point, measured from mean sea level (MSL) ;
40. 'approach control service' means air traffic control service for arriving or departing controlled flights;
41. 'approach control unit' means a unit established to provide air traffic control service to controlled flights arriving at, or departing from, one or more aerodromes;
42. 'apron' means a defined area, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, fuelling, parking or maintenance;
43. 'area control centre (ACC)' means a unit established to provide air traffic control service to controlled flights in control areas under its jurisdiction;
44. 'area control service' means air traffic control service for controlled flights in control areas;
45. 'area navigation (RNAV)' means a method of navigation which permits aircraft operation on any desired flight path within the coverage of ground- or space-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these..
46. 'ATS route' means a specified route designed for channelling the flow of traffic as necessary for the provision of air traffic services;
47. 'automatic dependent surveillance — broadcast (ADS-B)' means a means by which aircraft, aerodrome vehicles and other objects can automatically transmit and/or receive data such as identification, position and additional data, as appropriate, in a broadcast mode via a data link;
48. 'automatic dependent surveillance — contract (ADS-C)' means a means by which the terms of an ADS-C agreement will be exchanged between the ground system and the aircraft, via a data link, specifying under what conditions ADS-C reports would be initiated, and what data would be contained in the reports;
49. 'automatic terminal information service (ATIS)' means the automatic provision of current, routine information to arriving and departing aircraft throughout 24 hours or a specified portion thereof:
  - (a) 'Data link-automatic terminal information service (D-ATIS)' means the provision of ATIS via data link.
  - (b) 'Voice-automatic terminal information service (Voice-ATIS)' means the provision of ATIS by means of continuous and repetitive voice broadcasts;
50. 'ceiling' means the height above the ground or water of the base of the lowest layer of cloud below 6 000 m (20 000 ft) covering more than half the sky;
51. 'change-over point' means the point at which an aircraft navigating on an ATS route segment defined by reference to very high frequency omnidirectional radio ranges is expected to transfer its primary navigational reference from the facility behind the

- aircraft to the next facility ahead of the aircraft;
52. 'clearance limit' means the point to which an aircraft is granted an air traffic control clearance;
  53. 'cloud of operational significance' means a cloud with the height of cloud base below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater, or a cumulonimbus cloud or a towering cumulus cloud at any height.
  54. 'code (SSR)' means the number assigned to a particular multiple pulse reply signal transmitted by a transponder in Mode A or Mode C;
  55. 'competent authority' means the authority designated by the Member State as competent to ensure compliance with the requirements of this Regulation;
  56. 'control area' means a controlled airspace extending upwards from a specified limit above the earth;
  57. 'controlled aerodrome' means an aerodrome at which air traffic control service is provided to aerodrome traffic regardless whether or not a control zone exists;
  58. 'controlled airspace' means an airspace of defined dimensions within which air traffic control service is provided in accordance with the airspace classification;
  59. 'controlled flight' means any flight which is subject to an air traffic control clearance;
  60. 'controller-pilot data link communications (CPDLC)' mean a means of communication between controller and pilot, using data link for ATC communications;
  61. 'control zone' means a controlled airspace extending upwards from the surface of the earth to a specified upper limit;
  62. 'cruise climb' means an aeroplane cruising technique resulting in a net increase in altitude as the aeroplane mass decreases;
  63. 'cruising level' means a level maintained during a significant portion of a flight;
  64. 'current flight plan (CPL)' means the flight plan, including changes, if any, brought about by subsequent clearances;
  65. 'danger area' means an airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times;
  66. 'data link communications' mean a form of communication intended for the exchange of messages via a data link;
  67. 'datum' means any quantity or set of quantities that may serve as a reference or basis for the calculation of other quantities;
  68. 'downstream clearance' means a clearance issued to an aircraft by an air traffic control unit that is not the current controlling authority of that aircraft;

69. 'estimated elapsed time' means the estimated time required to proceed from one significant point to another;
70. 'estimated off-block time' means the estimated time at which the aircraft will commence movement associated with departure;
71. 'estimated time of arrival' means for IFR flights, the time at which it is estimated that the aircraft will arrive over that designated point, defined by reference to navigation aids, from which it is intended that an instrument approach procedure will be commenced, or, if no navigation aid is associated with the aerodrome, the time at which the aircraft will arrive over the aerodrome. For VFR flights, the time at which it is estimated that the aircraft will arrive over the aerodrome;
72. 'expected approach time' means the time at which ATC expects that an arriving aircraft, following a delay, will leave the holding fix to complete its approach for a landing. The actual time of leaving the holding fix will depend upon the approach clearance;
73. 'filed flight plan (FPL)' means the flight plan as filed with an ATS unit by the pilot or a designated representative, without any subsequent changes;
74. 'flight crew member' means a licensed crew member charged with duties essential to the operation of an aircraft during a flight duty period;
75. 'flight information centre' means a unit established to provide flight information service and alerting service;
76. 'flight information region' means an airspace of defined dimensions within which flight information service and alerting service are provided;
77. 'flight information service' means a service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights;
78. 'flight level (FL)' means a surface of constant atmospheric pressure which is related to a specific pressure datum, 1 013.2 hectopascals (hPa), and is separated from other such surfaces by specific pressure intervals;
79. 'flight plan' means specified information provided to air traffic services units, relative to an intended flight or portion of a flight of an aircraft;
80. 'flight visibility' means the visibility forward from the cockpit of an aircraft in flight;
81. 'forecast' means a statement of expected meteorological conditions for a specified time or period, and for a specified area or portion of airspace;
82. 'ground visibility' means the visibility at an aerodrome, as reported by an accredited observer or by automatic systems;
83. 'heading' means the direction in which the longitudinal axis of an aircraft is pointed, usually expressed in degrees from North (true, magnetic, compass or grid) ;
84. 'height' means the vertical distance of a level, a point or an object considered as a

- point, measured from a specified datum;
85. 'helicopter' means a heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more powerdriven rotors on substantially vertical axes;
  86. 'high seas airspace' means airspace beyond land territory and territorial seas, as specified in the United Nations Convention on the Law of the Sea (Montego Bay, 1982);
  87. 'IFR' means the symbol used to designate the instrument flight rules;
  88. 'IFR flight' means a flight conducted in accordance with the instrument flight rules;
  89. 'IMC' means the symbol used to designate instrument meteorological conditions;
  90. '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 utilizes lateral guidance but does not utilize vertical guidance.
    - (b). *Approach procedure with vertical guidance (APV)* means an instrument procedure which utilizes 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 precision lateral and vertical guidance with minima as determined by the category of operation;
  91. 'instrument meteorological conditions (IMC)' mean meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, less than the minima specified for visual meteorological conditions;
  92. 'landing area' means that part of a movement area intended for the landing or take-off of aircraft;
  93. 'level' means a generic term relating to the vertical position of an aircraft in flight and meaning variously, height, altitude or flight level;
  94. 'manoeuvring area' means that part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons;
  95. 'mode (SSR)' means the conventional identifier related to specific functions of the interrogation signals transmitted by an SSR interrogator. There are four modes specified in ICAO Annex 10: A, C, S and intermode;
  96. 'movement area' means that part of an aerodrome to be used for the take-off, landing

- and taxiing of aircraft, consisting of the manoeuvring area and the apron(s) ;
97. 'night' means the hours between the end of evening civil twilight and the beginning of morning civil twilight. Civil twilight ends in the evening when the centre of the sun's disc is 6 degrees below the horizon and begins in the morning when the centre of the sun's disc is 6 degrees below the horizon;
98. 'obstacle' means all fixed (whether temporary or permanent) and mobile objects, or parts thereof, that:
- (a) are located on an area intended for the surface movement of aircraft; or
  - (b) extend above a defined surface intended to protect aircraft in flight; or
  - (c) stand outside those defined surfaces and that have been assessed as being a hazard to air navigation;
99. 'operating site' means a site selected by the operator or pilot-in-command for landing, take-off and/or hoist operations;
100. 'pilot-in-command' means the pilot designated by the operator, or in the case of general aviation, the owner, as being in command and charged with the safe conduct of a flight;
101. 'pressure-altitude' means an atmospheric pressure expressed in terms of altitude which corresponds to that pressure in the Standard Atmosphere, as defined in Annex 8, Part 1 to the Chicago Convention;
102. 'problematic use of substances' means the use of one or more psychoactive substances by aviation personnel in a way that:
- (a) constitutes a direct hazard to the user or endangers the lives, health or welfare of others; and/or
  - (b) causes or worsens an occupational, social, mental or physical problem or disorder;
103. '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;
104. 'psychoactive substances' mean alcohol, opioids, cannabinoids, sedatives and hypnotics, cocaine, other psychostimulants, hallucinogens, and volatile solvents, whereas coffee and tobacco are excluded;
105. 'radar' means a radio detection device which provides information on range, azimuth and/or elevation of objects;
106. 'radio mandatory zone (RMZ)' means an airspace of defined dimensions wherein the carriage and operation of radio equipment is mandatory;
107. 'radio navigation service' means a service providing guidance information or position data for the efficient and safe operation of aircraft supported by one or more radio

- navigation aids;
108. 'radiotelephony' means a form of radiocommunication primarily intended for the exchange of information in the form of speech;
  109. 'repetitive flight plan' means a flight plan related to a series of frequently recurring, regularly operated individual flights with identical basic features, submitted by an operator for retention and repetitive use by ATS units;
  110. 'reporting point' means a specified geographical location in relation to which the position of an aircraft can be reported;
  111. '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;
  112. 'route segment' means a route or portion of route usually flown without an intermediate stop;
  113. 'runway' means a defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft;
  114. 'runway-holding position' means a designated position intended to protect a runway, an obstacle limitation surface, or an ILS/MLS critical/sensitive area at which taxiing aircraft and vehicles shall stop and hold, unless otherwise authorised by the aerodrome control tower;
  115. 'runway visual range (RVR)' means the range over which the pilot of an aircraft on the centre line of a runway can see the runway surface markings or the lights delineating the runway or identifying its centre line.
  116. 'safety-sensitive personnel' mean persons who might endanger aviation safety if they perform their duties and functions improperly including, but not limited to, crew members, aircraft maintenance personnel and air traffic controllers;
  117. 'sailplane' means a heavier-than-air aircraft which is supported in flight by the dynamic reaction of the air against its fixed lifting surfaces, the free flight of which does not depend on an engine, including also hang gliders, paragliders and other comparable craft;
  118. 'secondary surveillance radar (SSR)' means a surveillance radar system which uses transmitters/receivers (interrogators) and transponders;
  119. 'SIGMET information' means information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of aircraft operations;
  120. 'signal area' means an area on an aerodrome used for the display of ground signals;
  121. 'significant point' means a specified geographical location used in defining an ATS route or the flight path of an aircraft and for other navigation and ATS purposes;

122. 'special VFR flight' means a VFR flight cleared by air traffic control to operate within a control zone in meteorological conditions below VMC;
123. 'strayed aircraft' means an aircraft which has deviated significantly from its intended track or which reports that it is lost;
124. 'surveillance radar' means radar equipment used to determine the position of an aircraft in range and azimuth;
125. 'taxiing' means movement of an aircraft on the surface of an aerodrome or an operating site under its own power, excluding take-off and landing;
126. 'taxiway' means a defined path on a land aerodrome established for the taxiing of aircraft and intended to provide a link between one part of the aerodrome and another, including:
- (a) Aircraft stand taxilane means a portion of an apron designated as a taxiway and intended to provide access to aircraft stands only.
  - (b) Apron taxiway means a portion of a taxiway system located on an apron and intended to provide a through taxi route across the apron.
  - (c) Rapid exit taxiway means a taxiway connected to a runway at an acute angle and designed to allow landing aeroplanes to turn off at higher speeds than are achieved on other exit taxiways thereby minimizing runway occupancy times;
127. 'territory' means the land areas and territorial waters adjacent thereto under the sovereignty, suzerainty, protection or mandate of a State;
128. 'threshold' means the beginning of that portion of the runway usable for landing;
129. 'total estimated elapsed time' means
- (a) for IFR flights, the estimated time required from take-off to arrive over that designated point, defined by reference to navigation aids, from which it is intended that an instrument approach procedure will be commenced, or, if no navigation aid is associated with the destination aerodrome, to arrive over the destination aerodrome.
  - (b) for VFR flights, the estimated time required from take-off to arrive over the destination aerodrome;
130. 'track' means the projection on the earth's surface of the path of an aircraft, the direction of which path at any point is usually expressed in degrees from North (true, magnetic or grid);
131. 'traffic avoidance advice' means an advice provided by an air traffic services unit specifying manoeuvres to assist a pilot to avoid a collision;
132. 'traffic information' means information issued by an air traffic services unit to alert a pilot to other known or observed air traffic which may be in proximity to the position



- or intended route of flight and to help the pilot avoid a collision;
133. 'transfer of control point' means a defined point located along the flight path of an aircraft, at which the responsibility for providing air traffic control service to the aircraft is transferred from one control unit or control position to the next;
  134. 'transition altitude' means the altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes;
  135. 'transition level' means the lowest flight level available for use above the transition altitude;
  136. 'transponder mandatory zone (TMZ)' means an airspace of defined dimensions wherein the carriage and operation of pressure-altitude reporting transponders is mandatory;
  137. 'unidentified aircraft' means an aircraft which has been observed or reported to be operating in a given area but whose identity has not been established
  138. 'unmanned free balloon' means a non-power-driven, unmanned, lighter-than-air aircraft in free flight;
  139. 'VFR' means the symbol used to designate the visual flight rules;
  140. 'VFR flight' means a flight conducted in accordance with the visual flight rules;
  141. 'visibility' means visibility for aeronautical purposes which is the greater of:
    - (a) the greatest distance at which a black object of suitable dimensions, situated near the ground, can be seen and recognized when observed against a bright background;
    - (b) the greatest distance at which lights in the vicinity of 1 000 candelas can be seen and identified against an unlit background;
  142. 'visual meteorological conditions' mean meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, equal to or better than specified minima;
  143. 'VMC' means the symbol used to designate visual meteorological conditions;

### *Article 3*

#### **Compliance**

The Member States shall ensure compliance with the common rules and provisions set out in the Annex to this Regulation without prejudice to the flexibility provisions contained in Article 14 of the Regulation (EC) No 216/2008 and the safeguards contained in Article 13 of Regulation (EC) No 549/2004.

*Article 4***Exemptions for special operations**

1. At the request of the entities conducting the following activities, the competent authorities may grant exemptions from the specific requirements of this Regulation to those entities for the following activities of public interest and for the training necessary to carry out the activities safely;
  - (a) police and customs missions;
  - (b) traffic surveillance and pursuit missions;
  - (c) environmental control missions conducted by, or on behalf of public authorities;
  - (d) search and rescue;
  - (e) medical flights;
  - (f) evacuations;
  - (g) fire fighting;
  - (h) exemptions required to ensure the security of flights by heads of State, Ministers and comparable State functionaries.
2. The competent authority authorising these exemptions shall inform EASA of the nature of the exemptions at latest two months after the exemption has been approved.
3. This article is without prejudice to article 3 and may be applied in the cases where the activities listed under paragraph 1, cannot be carried out as operational air traffic or where they otherwise may not benefit from the flexibility provisions contained in this Regulation.

*Article 5***Differences**

1. Further to the entry into force of this Regulation and at the latest by the date of its applicability, the Member States shall:
  - (a) Formally notify ICAO that all previously notified differences with respect to ICAO Standards and recommended practices that are covered by this Regulation are withdrawn, with the exception of those relating to essential security and defence policy interests of the Member States in accordance with Article 13 of the framework Regulation;
  - (b) notify ICAO of the commonly agreed differences contained in the supplement to the Annex to this Regulation.

2. In accordance with Annex 15 to the Chicago Convention, each Member State shall publish through its Aeronautical Information Publication the commonly agreed differences notified to ICAO in accordance with point b of paragraph 1 of this Article, as well as any other provisions necessitated by local air defence and security considerations in accordance with point (a) of paragraph 1 of this Article.

#### *Article 6*

#### **Monitoring of Amendments**

1. Further to the entry into force of this Regulation, the Commission shall establish, with the support of Eurocontrol and EASA, a permanent process:
  - (a) to ensure that any amendments adopted under the framework of the Chicago Convention which are of relevance with respect to the scope of this Regulation are monitored and analysed; and
  - (b) where necessary, to develop proposals for amendments to the Annex to this Regulation.
2. The provisions of Article 5 of this Regulation relating to the withdrawal and notification of differences and publication in the Aeronautical Information Publication and Article 7 regarding amendments to the Annex shall apply as appropriate.

#### *Article 7*

#### **Amendments to the Annex**

1. The Annex shall be amended in accordance with Article 5(3) of Regulation (EC) 549/2004.
2. The amendments referred to in paragraph 1 may include, but shall not be limited to, amendments required to ensure consistency of legal provisions during the future extension of this Regulation to contain the relevant provisions of other ICAO annexes and documents than Annex 2 or changes stemming from updates of those ICAO annexes and documents themselves or from changes to any relevant Union Regulations.

#### *Article 8*

#### **Transitional and additional measures**

1. Member States that have adopted prior to the entry into force of this Regulation additional provisions complementing an ICAO Standard shall ensure that those are compliant with this Regulation.
2. For the purpose of this Article, such additional provisions complementing an ICAO Standard shall not constitute a difference under the Chicago Convention. The

Member States shall publish such additional provisions as well as any matters left to the decision of a Competent Authority under this Regulation, through their Aeronautical Information Publications. They shall also inform the Commission and EASA at the latest two months after entry into force of this Regulation, or when the additional provision has been adopted.

#### *Article 9*

### **Safety requirements**

1. Further to the entry into force of this Regulation and without prejudice to Article 7, Member States shall, in order to maintain or enhance existing safety levels, ensure that, within the context of a safety management process addressing all aspects of the implementation of this Regulation, a safety assessment on the implementation plan, including hazard identification, risk assessment and mitigation, is conducted, preceding the actual changes to the previously applied procedures. Such mitigation may include the application of Article 3.

#### *Article 10*

### **Amendments to Regulations, (EC) No 730/2006, (EC) No 1033/2006, (EC) No 1794/2006, (EC) No 1265/2007, (EU) No 255/2010 and (EU) No 1035/2011**

1. Regulation (EC) No 730/2006 is amended as follows:
  - (a) Article 2(3) and (4) shall be replaced by the following:

“3. ‘IFR’ means the symbol used to designate instrument flight rules”;

“4. ‘VFR’ means the symbol used to designate visual flight rules
2. Regulation (EC) No 1033/2006 is amended as follows:
  - (a) Article 2(8) shall be replaced by the following:

“8. ‘IFR’ means the symbol used to designate instrument flight rules.”
  - (b) Article 3.1 shall be replaced by the following:

“3.1 The provisions specified in the Annex shall apply to the submission, acceptance and distribution of flight plans for every flight subject to this Regulation and to all changes to a key item in a flight plan in the pre-flight phase in accordance with this Regulation.”
  - (c) The heading and first indent of the Annex shall be replaced by the following:

“Provisions referred to in Article 3(1)

1. Section 4 of Regulation [This regulation].”

3. Regulation (EC) No 1794/2006 is amended as follows:
  - (a) Article 2(c) and (d) shall be replaced by the following:

“(c) ‘IFR’ means the symbol used to designate instrument flight rules.”

“(d) ‘VFR’ means the symbol used to designate visual flight rules.”
4. Regulation (EC) No 1265/2007 is amended as follows:
  - (a) Article 2(5) shall be replaced by the following:

“5. ‘flights operated under visual flight rules’ (VFR flights) means any flights conducted in accordance with visual flight rules.”
5. Regulation (EU) No 255/2010 is amended as follows:
  - (a) Article 2(3) shall be replaced by the following:

“3. ‘IFR’ means the symbol used to designate instrument flight rules”
6. Regulation (EU) No 1035/2011 is amended as follows:
  - (a) the reference in Annex II, point 4 (a), to “Annex 2 on rules of the air (10th edition, July 2005)” shall be replaced by a reference to “Regulation (EU) [This regulation]”.
  - (b) the reference in Annex II, point 4 (c), to “Annex 11 on air traffic services in its 13th edition of July 2001, including all amendments up to No 47-B;” shall be amended by adding at the end of that sentence “and Regulation (EU) [This regulation] as applicable”.
  - (c) the reference in Annex III, point 2 (b), to “Annex 11 on air traffic services in its 13th edition of July 2001, including all amendments up to No 47-B;” shall be amended by adding at the end of that sentence “and Regulation (EU) [This regulation] as applicable”

#### *Article 11*

#### **Entry into force**

1. This Regulation shall enter into force on the twentieth day following that of its publication in the Official Journal of the European Union.

It shall apply from 4 December 2012.
2. By way of derogation from the second subparagraph of paragraph 1, Member States may decide not to apply the provisions of this Regulation until 4 December 2014.

When a Member State makes use of that possibility, it shall notify to the Commission and EASA in accordance with Article 12(1) of Regulation 549/2004, the reasons for that

derogation, its duration, as well as the envisaged and related timing of implementation of this Regulation.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels,

*For the Commission  
The President*

NOT FOR COMMENTING

**ANNEX**  
**Rules of the Air**

**Section 1 — Flight over the High Seas**

**SERA.1001 General**

- (a) For flight over the high seas, the rules specified in Annex 2 to the Chicago Convention shall apply without exception. For the purposes of continuity and seamless operation of air traffic services in particular within Functional Airspace Blocks, the provisions of Annex 11 to the Chicago Convention may be applied in airspace over high seas in a manner that is consistent with how those provisions are applied over the territory of the member States. This shall be without prejudice to the operations of State Aircraft under Article 3 of the Chicago Convention. This shall also be without prejudice to the responsibilities of Member States to ensure that aircraft operations within the Flight Information Regions within which they are responsible for the provision of air traffic services in accordance with ICAO regional air navigation agreements are undertaken in a safe, expeditious and efficient manner.
- (b) For those parts of the high seas where a Member State has accepted, pursuant to an ICAO regional air navigation agreement, the responsibility of providing air traffic services, the Member State shall designate the ATS provider for providing those services.

**Section 2 — Applicability and Compliance**

**SERA.2001 Applicability**

Without prejudice to SERA.1001 above, this Regulation shall apply in accordance with Article 1 in particular to airspace users and aircraft:

- (a) operating into, within or out of the Union;
- (b) bearing the nationality and registration marks of a Member State of the Union, and operating in any airspace to the extent that they do not conflict with the rules published by the State having jurisdiction over the territory overflown.

This Regulation shall also apply to the Competent Authorities of the Member States, Air Navigation Service Providers and the relevant ground personnel engaged in aircraft operations.

**SERA.2005 Compliance with the Rules of the Air**

The operation of an aircraft either in flight, on the movement area of an aerodrome or at an operating site shall be in compliance with the general rules, the applicable local provisions and, in addition, when in flight, either with:

- (a) the visual flight rules; or

- (b) the instrument flight rules

#### **SERA.2010 Responsibilities**

- (a) Responsibility of the Pilot-in-command

The pilot-in-command of an aircraft shall, whether manipulating the controls or not, be responsible for the operation of the aircraft in accordance with this Regulation, except that the pilot-in-command may depart from these rules in circumstances that render such departure absolutely necessary in the interests of safety.

- (b) Pre-flight Action

Before beginning a flight, the pilot-in-command of an aircraft shall become familiar with all available information appropriate to the intended operation. Pre-flight action for flights away from the vicinity of an aerodrome, and for all IFR flights, shall include a careful study of available current weather reports and forecasts, taking into consideration fuel requirements and an alternative course of action if the flight cannot be completed as planned.

#### **SERA.2015 Authority of Pilot-in-command of an Aircraft**

The pilot-in-command of an aircraft shall have final authority as to the disposition of the aircraft while in command.

#### **SERA.2020 Problematic Use of Psychoactive Substances**

No person whose function is critical to the safety of aviation (safety-sensitive personnel) shall undertake that function while under the influence of any psychoactive substance, by reason of which human performance is impaired. No such person shall engage in any kind of problematic use of substances.

### **Section 3 - General Rules and collision avoidance**

#### **Chapter 1 - Protection of Persons and Property**

##### **SERA.3101 Negligent or Reckless Operation of Aircraft**

An aircraft shall not be operated in a negligent or reckless manner so as to endanger life or property of others.

##### **SERA.3105 Minimum Heights**

Except when necessary for take-off or landing, or except by permission from the competent authority, aircraft shall not be flown over the congested areas of cities, towns or settlements or over an open-air assembly of persons, unless at such a height as will permit, in the event of an emergency arising, a landing to be made without undue hazard to persons or property on the surface. The minimum heights for VFR flights shall be those specified in SERA.5005 (f) and minimum levels for IFR flights shall be those specified in SERA.5015 (b).

##### **SERA.3110 Cruising Levels**

The cruising levels at which a flight or a portion of a flight is to be conducted shall be in terms of:



- (a) flight levels, for flights at or above the lowest usable flight level or, where applicable, above the transition altitude;
- (b) altitudes, for flights below the lowest usable flight level or, where applicable, at or below the transition altitude.

### **SERA.3115 Dropping or Spraying**

Dropping or spraying from an aircraft in flight shall only be conducted in accordance with:

- (a) Union legislation or, where applicable, national legislation for aircraft operations regulated by Member States; and
- (b) as indicated by any relevant information, advice and/or clearance from the appropriate air traffic services unit.

### **SERA.3120 Towing**

An aircraft or other object shall only be towed by an aircraft in accordance with:

- (a) Union legislation or, where applicable, national legislation for aircraft operations regulated by Member States; and
- (b) as indicated by any relevant information, advice and/or clearance from the appropriate air traffic services unit.

### **SERA.3125 Parachute Descents**

Parachute descents, other than emergency descents, shall only be made in accordance with:

- (a) Union legislation or, where applicable, national legislation for aircraft operations regulated by Member States; and
- (b) as indicated by any relevant information, advice and/or clearance from the appropriate air traffic services unit.

### **SERA.3130 Aerobatic Flight**

Aerobatic flights shall only be carried out in accordance with:

- (a) Union legislation or, where applicable, national legislation for aircraft operations regulated by Member States; and
- (b) as indicated by any relevant information, advice and/or clearance from the appropriate air traffic services unit.

### **SERA.3135 Formation Flights**

Aircraft shall not be flown in formation except by pre-arrangement among the pilots-in-command of the aircraft taking part in the flight and, for formation flight in controlled airspace, in accordance with the conditions prescribed by the competent authority. These conditions shall include the following:

- (a) one of the pilots-in-command shall be designated as the flight leader;

- (b) the formation operates as a single aircraft with regard to navigation and position reporting;
- (c) separation between aircraft in the flight shall be the responsibility of the flight leader and the pilots-in-command of the other aircraft in the flight and shall include periods of transition when aircraft are manoeuvring to attain their own separation within the formation and during join-up and breakaway; and
- (d) For State aircraft a maximum lateral, longitudinal and vertical distance between each aircraft and the flight leader in accordance with the Chicago Convention. For other than State aircraft a distance not exceeding 1 km (0.5nm) laterally and longitudinally and 30 m (100ft) vertically from the flight leader shall be maintained by each aircraft.

#### **SERA.3140 Unmanned Free Balloons**

An unmanned free balloon shall be operated in such a manner as to minimize hazards to persons, property or other aircraft and in accordance with the conditions specified in Appendix 2.

#### **SERA.3145 Prohibited Areas and Restricted Areas**

Aircraft shall not be flown in a prohibited area, or in a restricted area, the particulars of which have been duly published, except in accordance with the conditions of the restrictions or by permission of the Member State over whose territory the areas are established.

### **Chapter 2 – Avoidance of Collisions**

#### **SERA.3201 General**

Nothing in this Regulation shall relieve the pilot-in-command of an aircraft from the responsibility of taking such action, including collision avoidance manoeuvres based on resolution advisories provided by ACAS equipment, as will best avert collision.

#### **SERA.3205 Proximity**

An aircraft shall not be operated in such proximity to other aircraft as to create a collision hazard.

#### **SERA.3210 Right-of-way**

- (a) The aircraft that has the right-of-way shall maintain its heading and speed.
- (b) An aircraft that is aware that the manoeuvrability of another aircraft is impaired shall give way to that aircraft.
- (c) An aircraft that is obliged by the following rules to keep out of the way of another shall avoid passing over, under or in front of the other, unless it passes well clear and takes into account the effect of aircraft wake turbulence.
  - (1) *Approaching head-on.* When two aircraft are approaching head-on or approximately so and there is danger of collision, each shall alter its heading to the right.

- (2) *Converging.* When two aircraft are converging at approximately the same level, the aircraft that has the other on its right shall give way, except as follows:
- (i) power-driven heavier-than-air aircraft shall give way to airships, sailplanes and balloons;
  - (ii) airships shall give way to sailplanes and balloons;
  - (iii) sailplanes shall give way to balloons;
  - (iv) power-driven aircraft shall give way to aircraft which are seen to be towing other aircraft or objects.
- (3) *Overtaking.* An overtaking aircraft is an aircraft that approaches another from the rear on a line forming an angle of less than 70 degrees with the plane of symmetry of the latter, i.e. is in such a position with reference to the other aircraft that at night it should be unable to see either of the aircraft's left (port) or right (starboard) navigation lights. An aircraft that is being overtaken has the right-of-way and the overtaking aircraft, whether climbing, descending or in horizontal flight, shall keep out of the way of the other aircraft by altering its heading to the right, and no subsequent change in the relative positions of the two aircraft shall absolve the overtaking aircraft from this obligation until it is entirely past and clear.
- (i) *Sailplanes overtaking.* A sailplane overtaking another sailplane may alter its course to the right or to the left.
- (4) *Landing.* An aircraft in flight, or operating on the ground or water, shall give way to aircraft landing or in the final stages of an approach to land.
- (i) When two or more heavier-than-air aircraft are approaching an aerodrome or an operating site for the purpose of landing, aircraft at the higher level shall give way to aircraft at the lower level, but the latter shall not take advantage of this rule to cut in front of another which is in the final stages of an approach to land, or to overtake that aircraft. Nevertheless, power-driven heavier-than-air aircraft shall give way to sailplanes.
  - (ii) *Emergency landing.* An aircraft that is aware that another is compelled to land shall give way to that aircraft.
- (5) *Taking off.* An aircraft taxiing on the manoeuvring area of an aerodrome shall give way to aircraft taking off or about to take off.

(d) Surface movement of aircraft, persons and vehicles

- (1) In case of danger of collision between two aircraft taxiing on the movement area of an aerodrome or equivalent part of an operating site, the following shall apply:

- (i) when two aircraft are approaching head on, or approximately so, each shall stop or where practicable alter its course to the right so as to keep well clear;
  - (ii) when two aircraft are on a converging course, the one which has the other on its right shall give way;
  - (iii) an aircraft which is being overtaken by another aircraft shall have the right-of-way and the overtaking aircraft shall keep well clear of the other aircraft.
- (2) At a controlled aerodrome an aircraft taxiing on the manoeuvring area shall stop and hold at all runway-holding positions unless an explicit clearance to enter or cross the runway has been issued by the aerodrome control tower.
- (3) An aircraft taxiing on the manoeuvring area shall stop and hold at all lighted stop bars and may proceed further in accordance with (2) when the lights are switched off.
- (4) Movement of persons and vehicles at aerodromes
- (i) The movement of persons or vehicles, including towed aircraft, on the manoeuvring area of an aerodrome shall be controlled by the aerodrome control tower as necessary to avoid hazard to them or to aircraft landing, taxiing or taking off.
  - (ii) In conditions where low visibility procedures are in operation:
    - (A) persons and vehicles operating on the manoeuvring area of an aerodrome shall be restricted to the essential minimum, and particular regard shall be given to the requirements to protect the ILS/MLS sensitive area(s) when Category II or Category III precision instrument operations are in progress;
    - (B) subject to the provisions in (iii) the minimum separation between vehicles and taxiing aircraft shall be as specified by the ANSP and approved by the competent authority taking into account the aids available;
    - (C) when mixed ILS and MLS Category II or Category III precision instrument operations are taking place to the same runway continuously, the more restrictive ILS or MLS critical and sensitive areas shall be protected.
  - (iii) Emergency vehicles proceeding to the assistance of an aircraft in distress shall be afforded priority over all other surface movement traffic.
  - (iv) Subject to the provisions in (iii), vehicles on the manoeuvring area shall be required to comply with the following rules:
    - (A) vehicles and vehicles towing aircraft shall give way to aircraft which are landing, taking off, taxiing or being towed;

- (B) vehicles shall give way to other vehicles towing aircraft;
- (C) vehicles shall give way to other vehicles in accordance with air traffic services unit instructions;
- (D) notwithstanding the provisions of (A), (B) and (C), vehicles and vehicles towing aircraft shall comply with instructions issued by the aerodrome control tower.

### **SERA.3215 Lights to Be Displayed by Aircraft**

- (a) Except as provided by (e), at night all aircraft in flight shall display:
  - (1) anti-collision lights intended to attract attention to the aircraft; and
  - (2) navigation lights intended to indicate the relative path of the aircraft to an observer and other lights shall not be displayed if they are likely to be mistaken for these lights; or
  - (3) in the case of balloons, position lights.
- (b) Except as provided by (e), at night:
  - (1) all aircraft moving on the movement area of an aerodrome shall display navigation lights intended to indicate the relative path of the aircraft to an observer and other lights shall not be displayed if they are likely to be mistaken for these lights;
  - (2) unless stationary and otherwise adequately illuminated, all aircraft on the movement area of an aerodrome shall display lights intended to indicate the extremities of their structure, as far as practicable;
  - (3) all aircraft taxiing or being towed on the movement area of an aerodrome shall display lights intended to attract attention to the aircraft; and
  - (4) all aircraft on the movement area of an aerodrome whose engines are running shall display lights which indicate that fact.
- (c) Except as provided by (e), all aircraft in flight and fitted with anti-collision lights to meet the requirement of (a)(1) shall display such lights also during day.
- (d) Except as provided by (e), all aircraft:
  - (1) taxiing or being towed on the movement area of an aerodrome and fitted with anti-collision lights, to meet the requirement of (b)(3) or
  - (2) on the movement area of an aerodrome and fitted with lights to meet the requirement of (b)(4)shall display such lights also during day.
- (e) A pilot shall be permitted to switch off or reduce the intensity of any flashing lights fitted to meet the requirements of (a), (b), (c) and (d) if they do or are likely to:

- (1) adversely affect the satisfactory performance of duties; or
- (2) subject an outside observer to harmful dazzle.

#### **SERA.3220 Simulated Instrument Flights**

An aircraft shall not be flown under simulated instrument flight conditions unless:

- (a) fully functioning dual controls are installed in the aircraft; and
- (b) an additional qualified pilot (in this rule called a safety pilot) occupies a control seat to act as safety pilot for the person who is flying under simulated instrument conditions. The safety pilot shall have adequate vision forward and to each side of the aircraft, or a competent observer in communication with the safety pilot shall occupy a position in the aircraft from which the observer's field of vision adequately supplements that of the safety pilot.

#### **SERA.3225 Operation on and in the Vicinity of an Aerodrome**

An aircraft operated on or in the vicinity of an aerodrome shall:

- (a) observe other aerodrome traffic for the purpose of avoiding collision;
- (b) conform with or avoid the pattern of traffic formed by other aircraft in operation;
- (c) except for balloons, make all turns to the left, when approaching for a landing and after taking off, unless otherwise indicated, or instructed by ATC;
- (d) except for balloons, land and take off into the wind unless safety, the runway configuration, or air traffic considerations determine that a different direction is preferable.

#### **SERA.3230 Water Operations**

- (a) When two aircraft or an aircraft and a vessel are approaching one another and there is a risk of collision, the aircraft shall proceed with careful regard to existing circumstances and conditions including the limitations of the respective craft.
  - (1) *Converging.* An aircraft which has another aircraft or a vessel on its right shall give way so as to keep well clear.
  - (2) *Approaching head-on.* An aircraft approaching another aircraft or a vessel head-on, or approximately so, shall alter its heading to the right to keep well clear.
  - (3) *Overtaking.* The aircraft or vessel which is being overtaken has the right of way, and the one overtaking shall alter its heading to keep well clear.
  - (4) *Landing and taking off.* Aircraft landing on or taking off from the water shall, in so far as practicable, keep well clear of all vessels and avoid impeding their navigation.

- (b) *Lights to be displayed by aircraft on the water.* At night or during any other period prescribed by the competent authority, all aircraft on the water shall display lights as required by the Convention on the International Regulations for Preventing Collisions at Sea, 1972, unless it is impractical for them to do so, in which case they shall display lights as closely similar as possible in characteristics and position to those required by the International Regulations.

### Chapter 3 – Signals

#### SERA.3301 General

- (a) Upon observing or receiving any of the signals given in Appendix 1, aircraft shall take such action as may be required by the interpretation of the signal given in that Appendix.
- (b) The signals of Appendix 1 shall, when used, have the meaning indicated therein. They shall be used only for the purpose indicated and no other signals likely to be confused with them shall be used.
- (c) A signalman/marshaller shall be responsible for providing standard marshalling signals to aircraft in a clear and precise manner using the signals shown in Appendix 1.
- (d) Only persons trained, qualified and approved as required by the relevant Union or national legislation shall carry out the functions of a signalman/marshaller.
- (e) The signalman/marshaller shall wear a distinctive fluorescent identification vest to allow the flight crew to identify that he or she is the person responsible for the marshalling operation.
- (f) Daylight-fluorescent wands, table-tennis bats or gloves shall be used for all signalling by all participating ground staff during daylight hours. Illuminated wands shall be used at night or in low visibility.

### Chapter 4 – Time

#### SERA.3401 General

- (a) Coordinated Universal Time (UTC) shall be used and shall be expressed in hours and minutes and, when required, seconds of the 24-hour day beginning at midnight.
- (b) A time check shall be obtained prior to operating a controlled flight and at such other times during the flight as may be necessary.
- (c) Wherever time is utilized in the application of data link communications, it shall be accurate to within 1 second of UTC.
- (d) Time in air traffic services

- (1) Aerodrome control towers shall, prior to an aircraft taxiing for take-off, provide the pilot with the correct time, unless arrangements have been made for the pilot to obtain it from other sources. Air traffic services units shall, in addition, provide aircraft with the correct time on request. Time checks shall be given at least to the nearest minute.

## Section 4 — Flight Plans

### SERA.4001 Submission of a Flight Plan

- (a) Information relative to an intended flight or portion of a flight, to be provided to air traffic services units, shall be in the form of a flight plan. The term “flight plan” is used to mean variously, full information on all items comprised in the flight plan description, covering the whole route of a flight, or limited information required, *inter alia*, when the purpose is to obtain a clearance for a minor portion of a flight such as to cross an airway, to take off from, or to land at a controlled aerodrome.
- (b) A flight plan shall be submitted prior to operating:
  - (1) any flight or portion thereof to be provided with air traffic control service;
  - (2) any IFR flight within advisory airspace;
  - (3) any flight within or into areas, or along routes designated by the competent authority, to facilitate the provision of flight information, alerting and search and rescue services;
  - (4) any flight within or into areas or along routes designated by the competent authority, to facilitate coordination with appropriate military units or with air traffic services units in adjacent States in order to avoid the possible need for interception for the purpose of identification
  - (5) any flight across international borders, unless otherwise prescribed by the States concerned;
  - (6) any flight planned to operate at night, if leaving the vicinity of an aerodrome.
- (c) A flight plan shall be submitted, before departure, to an air traffic services reporting office or, during flight, transmitted to the appropriate air traffic services unit or air-ground control radio station, unless arrangements have been made for submission of repetitive flight plans.
- (d) A flight plan for any flight planned to operate across international borders or to be provided with air traffic control service or air traffic advisory service shall be submitted at least sixty minutes before departure, or, if submitted during flight, at a time which will ensure its receipt by the appropriate air traffic services unit at least ten minutes before the aircraft is estimated to reach:
  - (1) the intended point of entry into a control area or advisory area; or



- (2) the point of crossing an airway or advisory route.

#### **SERA.4005 Contents of a Flight Plan**

- (a) A flight plan shall comprise information regarding such of the following items as are considered relevant by the competent authority:
  - (1) Aircraft identification
  - (2) Flight rules and type of flight
  - (3) Number and type(s) of aircraft and wake turbulence category
  - (4) Equipment
  - (5) Departure aerodrome or operating site
  - (6) Estimated off-block time
  - (7) Cruising speed(s)
  - (8) Cruising level(s)
  - (9) Route to be followed
  - (10) Destination aerodrome or operating site and total estimated elapsed time
  - (11) Alternate aerodrome(s) or operating site(s)
  - (12) Fuel endurance
  - (13) Total number of persons on board
  - (14) Emergency and survival equipment
  - (15) Other information.
- (b) For flight plans submitted during flight, the departure aerodrome or operating site provided shall be the location from which supplementary information concerning the flight may be obtained, if required. Additionally, the information to be provided in lieu of the estimated off-block time shall be the time over the first point of the route to which the flight plan relates.

#### **SERA.4010 Completion of a Flight Plan**

- (a) A flight plan shall contain information, as applicable, on relevant items up to and including “Alternate aerodrome(s) or operating site(s)” regarding the whole route or the portion thereof for which the flight plan is submitted.
- (b) It shall, in addition, contain information, as applicable, on all other items when so prescribed by the competent authority or when otherwise deemed necessary by the person submitting the flight plan.

**SERA.4015 Changes to a Flight Plan**

- (a) Subject to the provisions of SERA.8020 (b) all changes to a flight plan submitted for an IFR flight, or a VFR flight operated as a controlled flight, shall be reported as soon as practicable to the appropriate air traffic services unit. For other VFR flights, significant changes to a flight plan shall be reported as soon as practicable to the appropriate air traffic services unit.
- (b) Information submitted prior to departure regarding fuel endurance or total number of persons carried on board, if incorrect at time of departure, constitutes a significant change to the flight plan and as such shall be reported.

**SERA.4020 Closing a Flight Plan**

- (a) An arrival report shall be made in person, by radiotelephony, via data link or by other means as prescribed by the competent authority at the earliest possible moment after landing, to the appropriate air traffic services unit at the arrival aerodrome, by any flight for which a flight plan has been submitted covering the entire flight or the remaining portion of a flight to the destination aerodrome.
  - (1) Submission of an arrival report is not required after landing on an aerodrome where air traffic services are provided on condition that radio communication or visual signals indicate that the landing has been observed.
- (b) When a flight plan has been submitted only in respect of a portion of a flight, other than the remaining portion of a flight to destination, it shall, when required, be closed by an appropriate report to the relevant air traffic services unit.
- (c) When no air traffic services unit exists at the arrival aerodrome or operating site, the arrival report, when required, shall be made as soon as practicable after landing and by the quickest means available to the nearest air traffic services unit.
- (d) When communication facilities at the arrival aerodrome or operating site are known to be inadequate and alternate arrangements for the handling of arrival reports on the ground are not available, the following action shall be taken. Immediately prior to landing the aircraft shall, if practicable, transmit to the appropriate air traffic services unit, a message comparable to an arrival report, where such a report is required. Normally, this transmission shall be made to the aeronautical station serving the air traffic services unit in charge of the flight information region in which the aircraft is operated.
- (e) Arrival reports made by aircraft shall contain the following elements of information:
  - (1) aircraft identification;
  - (2) departure aerodrome or operating site;
  - (3) destination aerodrome or operating site (only in the case of a diversionary landing);
  - (4) arrival aerodrome or operating site;

(5) time of arrival.

NOT FOR COMMENTING

## Section 5 — Visual Meteorological Conditions, Visual Flight Rules, Special VFR and Instrument Flight Rules

### SERA.5001 VMC Visibility and Distance from Cloud Minima

VMC visibility and distance from cloud minima are contained in Table S5-1.

Table S5-1*			
Altitude band	Airspace class	Flight visibility	Distance from cloud
At and above 3 050 m (10 000 ft) AMSL	A*** B C D E F G	8 km	1 500 m horizontally 300 m (1 000 ft) vertically
Below 3 050 m (10 000 ft) AMSL and above 900 m (3 000 ft) AMSL, or above 300 m (1 000 ft) above terrain, whichever is the higher	A***B C D E F G	5 km	1 500 m horizontally 300 m (1 000 ft) vertically
At and below 900 m (3 000 ft) AMSL, or 300 m (1 000 ft) above terrain, whichever is the higher	A***B C D E	5 km	1 500 m horizontally 300 m (1 000 ft) vertically
	F G	5 km**	Clear of cloud and with the surface in sight

\* When the height of the transition altitude is lower than 3 050 m (10 000 ft) AMSL, FL 100 shall be used in lieu of 10 000 ft.

\*\* When so prescribed by the competent authority:

a) flight visibilities reduced to not less than 1 500 m may be permitted for flights operating:

- 1) at speeds of 140 kts IAS or less to give adequate opportunity to observe other traffic or any obstacles in time to avoid collision; or
- 2) in circumstances in which the probability of encounters with other traffic would normally be low, e.g. in areas of low volume traffic and for aerial work at low levels.

b) HELICOPTERS may be permitted to operate *in less than 1 500 m* but not less than 800 m flight visibility, if manoeuvred at a speed that will give adequate opportunity to observe other traffic or any obstacles in time to avoid collision. Flight visibilities lower than 800 m may be permitted for special cases, such as medical flights, search and rescue operations and fire-fighting.

\*\*\* The VMC minima in Class A airspace are included for guidance to pilots and do not imply acceptance of VFR flights in Class A airspace.

**SERA.5005 Visual Flight Rules**

- (a) Except when operating as a special VFR flight, VFR flights shall be conducted so that the aircraft is flown in conditions of visibility and distance from clouds equal to or greater than those specified in Table S5-1.
- (b) Except when a special VFR clearance is obtained from an air traffic control unit, VFR flights shall not take off or land at an aerodrome within a control zone, or enter the aerodrome traffic zone or aerodrome traffic circuit when the reported meteorological conditions at that aerodrome are below the following minima:
- (1) the ceiling is less than 450 m (1 500 ft); or
  - (2) the ground visibility is less than 5 km.
- (c) When so prescribed by the competent authority, VFR flights at night may be permitted under the following conditions:
- (1) if leaving the vicinity of an aerodrome, a flight plan shall be submitted in accordance with SERA.4001 (b)(6));
  - (2) flights shall establish and maintain two-way radio communication on the appropriate ATS communication channel, when available;
  - (3) the VMC visibility and distance from cloud minima as specified in Table S5-1 shall apply except that:
    - i) the ceiling shall not be less than 450 m (1 500 ft);
    - ii) except as specified in (c)(4), the reduced flight visibility provisions specified in Table S5-1 a) and b) shall not apply;
    - iii) in airspace classes B, C, D, E, F and G, at and below 900 m (3000 ft) above MSL or 300 m (1000 ft) above terrain, whichever is the higher, the pilot shall maintain continuous sight of the surface;
    - iv) for helicopters in airspace classes F and G at and below 900 m (3000 ft) above MSL or 300 m (1000 ft) above terrain, whichever is the higher, flight visibility shall not be less than 3 km, provided that the pilot maintains continuous sight of the surface and if manoeuvred at a speed that will give adequate opportunity to observe other traffic or obstacles in time to avoid collision; and
    - v) for mountainous terrain, higher VMC visibility and distance from cloud minima may be prescribed by the Competent Authority.
  - (4) ceiling, visibility and distance from cloud minima lower than those specified in (3) may be permitted for helicopters in special cases, such as medical flights, search and rescue operations and fire-fighting.
  - (5) except when necessary for take-off or landing, or except when specifically authorised by the competent authority, a VFR flight at night shall be flown at a

level which is not below the minimum flight altitude established by the State whose territory is overflowed, or, where no such minimum flight altitude has been established:

- i) over high terrain or in mountainous areas, at a level which is at least 600 m (2 000 ft) above the highest obstacle located within 8 km of the estimated position of the aircraft;
  - ii) elsewhere than as specified in i), at a level which is at least 300 m (1 000 ft) above the highest obstacle located within 8 km of the estimated position of the aircraft.
- (d) Unless authorised by the competent authority in accordance with Regulation (EC) 730/2006, VFR flights shall not be operated:
- (1) above FL 195;
  - (2) at transonic and supersonic speeds.
- (e) Authorisation for VFR flights to operate above FL 285 shall not be granted where a vertical separation minimum of 300 m (1 000 ft) is applied above FL 290.
- (f) Except when necessary for take-off or landing, or except by permission from the competent authority, a VFR flight shall not be flown:
- (1) over the congested areas of cities, towns or settlements or over an open-air assembly of persons at a height less than 300 m (1 000 ft) above the highest obstacle within a radius of 600 m from the aircraft;
  - (2) elsewhere than as specified in (1), at a height less than 150 m (500 ft) above the ground or water, or 150 m (500 ft) above the highest obstacle within a radius of 150 m (500 ft) from the aircraft.
- (g) Except where otherwise indicated in air traffic control clearances or specified by the competent authority, VFR flights in level cruising flight when operated above 900 m (3 000 ft) from the ground or water, or a higher datum as specified by the competent authority, shall be conducted at a cruising level appropriate to the track as specified in the table of cruising levels in Appendix 3.
- (h) VFR flights shall comply with the provisions of Section 8:
- (1) when operated within Classes B, C and D airspace;
  - (2) when forming part of aerodrome traffic at controlled aerodromes; or
  - (3) when operated as special VFR flights.
- (i) A VFR flight operating within or into areas or along routes designated by the competent authority, in accordance with SERA.4001 (b)(3) or (4), shall maintain continuous air-ground voice communication watch on the appropriate communication channel of, and report its position as necessary to, the air traffic services unit providing flight information service.

- (j) An aircraft operated in accordance with the visual flight rules which wishes to change to compliance with the instrument flight rules shall:
- (1) if a flight plan was submitted, communicate the necessary changes to be effected to its current flight plan; or
  - (2) as required by SERA.4001 (b), submit a flight plan to the appropriate air traffic services unit as soon as practicable and obtain a clearance prior to proceeding IFR when in controlled airspace.

#### **SERA.5010 Special VFR in control zones**

Special VFR flights may be authorised to operate within a control zone, subject to an ATC clearance. Except when permitted by the competent authority for helicopters in special cases such as medical flights, search and rescue operations and fire-fighting, the following additional conditions shall be applied:

- (a) by the pilot:
  - (1) clear of cloud and with the surface in sight;
  - (2) the flight visibility is not less than 1 500 m or, for helicopters, not less than 800 m;
  - (3) at speed of 140 kts IAS or less to give adequate opportunity to observe other traffic and any obstacles in time to avoid a collision; and
- (b) by ATC:
  - (1) during day only, unless otherwise permitted by the competent authority;
  - (2) the ground visibility is not less than 1 500 m or, for helicopters, not less than 800 m;
  - (3) the ceiling is not less than 180 m (600 ft).

#### **SERA.5015 Instrument Flight Rules (IFR) - Rules Applicable to All IFR Flights**

(a) Aircraft Equipment

Aircraft shall be equipped with suitable instruments and with navigation equipment appropriate to the route to be flown and in accordance with the applicable air operations legislation.

(b) Minimum Levels

Except when necessary for take-off or landing, or except when specifically authorised by the competent authority, an IFR flight shall be flown at a level which is not below the minimum flight altitude established by the State whose territory is overflown, or, where no such minimum flight altitude has been established:

- (1) over high terrain or in mountainous areas, at a level which is at least 600 m (2 000 ft) above the highest obstacle located within 8 km of the estimated position of the aircraft;
  - (2) elsewhere than as specified in a), at a level which is at least 300 m (1 000 ft) above the highest obstacle located within 8 km of the estimated position of the aircraft.
- (c) Change from IFR Flight to VFR Flight
- (1) An aircraft electing to change the conduct of its flight from compliance with the instrument flight rules to compliance with the visual flight rules shall notify the appropriate air traffic services unit specifically that the IFR flight is cancelled and communicate thereto the changes to be made to its current flight plan.
  - (2) When an aircraft operating under the instrument flight rules is flown in or encounters visual meteorological conditions it shall not cancel its IFR flight unless it is anticipated, and intended, that the flight will be continued for a reasonable period of time in uninterrupted visual meteorological conditions.

#### **SERA.5020 IFR - Rules Applicable to IFR Flights within Controlled Airspace**

- (a) IFR flights shall comply with the provisions of Section 8 when operated in controlled airspace.
- (b) An IFR flight operating in cruising flight in controlled airspace shall be flown at a cruising level, or, if authorised by ATS unit to employ cruise climb techniques, between two levels or above a level, selected from the table of cruising levels in Appendix 3, except that the correlation of levels to track prescribed therein shall not apply whenever otherwise indicated in air traffic control clearances or specified by the competent authority in Aeronautical Information Publications.

#### **SERA.5025 IFR - Rules Applicable to IFR Flights Outside Controlled Airspace**

- (a) Cruising Levels

An IFR flight operating in level cruising flight outside of controlled airspace shall be flown at a cruising level appropriate to its track as specified in the table of cruising levels in Appendix 3, except when otherwise specified by the competent authority for flight at or below 900 m (3 000 ft) above mean sea level.

- (b) Communications

An IFR flight operating outside controlled airspace but within or into areas, or along routes, designated by the Competent Authority in accordance with SERA.4001 (b)(3) or (4) shall maintain an air-ground voice communication watch on the appropriate communication channel and establish two-way communication, as necessary, with the air traffic services unit providing flight information service.



(c) Position Reports

An IFR flight operating outside controlled airspace and required by the competent authority to maintain an air-ground voice communication watch on the appropriate communication channel and establish two-way communication, as necessary, with the air traffic services unit providing flight information service, shall report position, as specified in SERA.8025 for controlled flights.

NOT FOR COMMENTING

## Section 6 – Airspace classification

### SERA.6001 Classification of airspaces

Member States shall, as appropriate to their needs, designate airspace in accordance with the following airspace classification and in accordance with Appendix 4:

- (a) *Class A.* IFR flights only are permitted. All flights are provided with air traffic control service and are separated from each other. Continuous air-ground voice communications are required for all flights. All flights shall be subject to ATC clearance.
- (b) *Class B.* IFR and VFR flights are permitted. All flights are provided with air traffic control service and are separated from each other. Continuous air-ground voice communications are required for all flights. All flights shall be subject to ATC clearance.
- (c) *Class C.* IFR and VFR flights are permitted. All flights are provided with air traffic control service and IFR flights are separated from other IFR flights and from VFR flights. VFR flights are separated from IFR flights and receive traffic information in respect of other VFR flights and traffic avoidance advice on request. Continuous air-ground voice communications are required for all flights. For VFR flights a speed limitation of 250 kts indicated airspeed (IAS) applies below 3 050 m (10 000 ft) AMSL, except where approved by the Competent Authority for aircraft types, which for technical or safety reasons, cannot maintain this speed. All flights shall be subject to ATC clearance.
- (d) *Class D.* IFR and VFR flights are permitted and all flights are provided with air traffic control service. IFR flights are separated from other IFR flights, receive traffic information in respect of VFR flights and traffic avoidance advice on request. VFR flights receive traffic information in respect of all other flights and traffic avoidance advice on request. Continuous air-ground voice communications are required for all flights and a speed limitation of 250 kts IAS applies to all flights below 3 050 m (10 000 ft) AMSL, except where approved by the Competent Authority for aircraft types, which for technical or safety reasons, cannot maintain this speed. All flights shall be subject to ATC clearance.
- (e) *Class E.* IFR and VFR flights are permitted. IFR flights are provided with air traffic control service and are separated from other IFR flights. All flights receive traffic information, as far as is practical. Continuous air-ground voice communications are required for IFR flights. A speed limitation of 250 kts IAS applies to all flights below 3 050 m (10 000 ft) AMSL, except where approved by the Competent Authority for aircraft types, which for technical or safety reasons, cannot maintain this speed. All IFR flights shall be subject to ATC clearance. Class E shall not be used for control zones.
- (f) *Class F.* IFR and VFR flights are permitted. All participating IFR flights receive an air traffic advisory service and all flights receive flight information service if requested. Continuous air-ground voice communications are required for IFR flights participating in the advisory service and all IFR flights shall be capable of establishing air-ground voice communications. A speed limitation of 250 kts IAS

applies to all flights below 3 050 m (10 000 ft) AMSL, except where approved by the Competent Authority for aircraft types, which for technical or safety reasons, cannot maintain this speed. ATC clearance is not required.

- (g) *Class G.* IFR and VFR flights are permitted and receive flight information service if requested. All IFR flights shall be capable of establishing air-ground voice communications. A speed limitation of 250 kts IAS applies to all flights below 3 050 m (10 000 ft) AMSL, except where approved by the Competent Authority for aircraft types, which for technical or safety reasons, cannot maintain this speed. ATC clearance is not required.
- (h) Implementation of Class F shall be considered as a temporary measure until such time as it can be replaced by alternative classification.

#### **SERA.6005 Requirements for communications and SSR transponder**

- (a) Radio Mandatory Zone (RMZ)
  - (1) VFR flights operating in parts of Classes E, F or G airspace and IFR flights operating in parts of Classes F or G airspace designated as a radio mandatory zone (RMZ) by the competent authority shall maintain continuous air-ground voice communication watch and establish two-way communication, as necessary, on the appropriate communication channel, unless in compliance with alternative provisions prescribed for that particular airspace by the ANSP.
  - (2) Before entering a radio mandatory zone, an initial call containing the designation of the station being called, call sign, type of aircraft, position, level, the intentions of the flight and other information as prescribed by the competent authority, shall be made by pilots on the appropriate communication channel.
- (b) Transponder Mandatory Zone (TMZ)
  - (1) All flights operating in airspace designated by the competent authority as a transponder mandatory zone (TMZ) shall carry and operate SSR transponders capable of operating on Modes A and C or on Mode S, unless in compliance with alternative provisions prescribed for that particular airspace by the ANSP.
- (c) Airspaces designated as radio mandatory zone and/or transponder mandatory zone shall be duly promulgated in the Aeronautical Information Publications.

### **Section 7 – Air Traffic Services**

#### **SERA.7001.General - Objectives of the air traffic services**

The objectives of the air traffic services shall be to:

- (a) prevent collisions between aircraft;

- (b) prevent collisions between aircraft on the manoeuvring area and obstructions on that area;
- (c) expedite and maintain an orderly flow of air traffic;
- (d) provide advice and information useful for the safe and efficient conduct of flights;
- (e) notify appropriate organisations regarding aircraft in need of search and rescue aid, and assist such organisations as required.

#### **SERA.7005 Coordination between the aircraft operator and air traffic services**

- (a) Air traffic services units, in carrying out their objectives, shall have due regard for the requirements of the aircraft operators consequent on their obligations as specified in the relevant Union legislation on Air Operations, and, if so required by the aircraft operators, shall make available to them or their designated representatives such information as may be available to enable them or their designated representatives to carry out their responsibilities.
- (b) When so requested by an aircraft operator, messages (including position reports) received by air traffic services units and relating to the operation of the aircraft for which operational control service is provided by that aircraft operator shall, so far as practicable, be made available immediately to the aircraft operator or a designated representative in accordance with locally agreed procedures.

### **Section 8 – Air Traffic Control Service**

#### **SERA.8001 Application**

Air traffic control service shall be provided:

- (a) to all IFR flights in airspace Classes A, B, C, D and E;
- (b) to all VFR flights in airspace Classes B, C and D;
- (c) to all special VFR flights;
- (d) to all aerodrome traffic at controlled aerodromes.

#### **SERA.8005 Operation of air traffic control service**

- (a) In order to provide air traffic control service, an air traffic control unit shall:
  - (1) be provided with information on the intended movement of each aircraft, or variations therefrom, and with current information on the actual progress of each aircraft;
  - (2) determine from the information received, the relative positions of known aircraft to each other;

- (3) issue clearances and information for the purpose of preventing collision between aircraft under its control and of expediting and maintaining an orderly flow of traffic;
- (4) coordinate clearances as necessary with other units:
  - (i) whenever an aircraft might otherwise conflict with traffic operated under the control of such other units;
  - (ii) before transferring control of an aircraft to such other units.
- (b) Clearances issued by air traffic control units shall provide separation:
  - (1) between all flights in airspace Classes A and B;
  - (2) between IFR flights in airspace Classes C, D and E;
  - (3) between IFR flights and VFR flights in airspace Class C;
  - (4) between IFR flights and special VFR flights;
  - (5) between special VFR flights unless otherwise prescribed by the competent authority;

except that, when requested by the pilot of an aircraft and agreed by the pilot of the other aircraft and if so prescribed by the competent authority for the cases listed under b) above in airspace Classes D and E, a flight may be cleared subject to maintaining own separation in respect of a specific portion of the flight below 3 050 m (10 000 ft) during climb or descent, during day in visual meteorological conditions.

- (c) Except for cases when a reduction in separation minima in the vicinity of aerodromes can be applied, separation by an air traffic control unit shall be obtained by at least one of the following:
  - (1) vertical separation, obtained by assigning different levels selected from the table of cruising levels in Appendix 3 to the Annex to this Regulation, except that the correlation of levels to track as prescribed therein shall not apply whenever otherwise indicated in appropriate aeronautical information publications or air traffic control clearances. The vertical separation minimum shall be a nominal 300 m (1 000 ft) up to and including FL 410 and a nominal 600 m (2 000 ft) above this level;
  - (2) horizontal separation, obtained by providing:
    - (i) longitudinal separation, by maintaining an interval between aircraft operating along the same, converging or reciprocal tracks, expressed in time or distance; or
    - (ii) lateral separation, by maintaining aircraft on different routes or in different geographical areas.

**SERA.8010 Separation minima**

- (a) The selection of separation minima for application within a given portion of airspace shall be made by the ANSP responsible for the provision of air traffic services and approved by the competent authority concerned.
- (b) For traffic that will pass from one into the other of neighbouring airspaces and for routes that are closer to the common boundary of the neighbouring airspaces than the separation minima applicable in the circumstances, the selection of separation minima shall be made in consultation between the ANSPs responsible for the provision of air traffic services in neighbouring airspace.
- (c) Details of the selected separation minima and of their areas of application shall be notified:
  - (1) to the air traffic services units concerned; and
  - (2) to pilots and aircraft operators through aeronautical information publications, where separation is based on the use by aircraft of specified navigation aids or specified navigation techniques.

**SERA.8015 Air traffic control clearances**

- (a) Air traffic control clearances shall be based solely on the requirements for providing air traffic control service.
- (b) Operation subject to clearance
  - (1) An air traffic control clearance shall be obtained prior to operating a controlled flight, or a portion of a flight as a controlled flight. Such clearance shall be requested through the submission of a flight plan to an air traffic control unit.
  - (2) The pilot-in-command of an aircraft shall inform ATC if an air traffic control clearance is not satisfactory. In such cases, ATC will issue an amended clearance, if practicable.
  - (3) Whenever an aircraft has requested a clearance involving priority, a report explaining the necessity for such priority shall be submitted, if requested by the appropriate air traffic control unit.
  - (4) *Potential reclearance in flight.* If, prior to departure, it is anticipated that, depending on fuel endurance and subject to reclearance in flight, a decision may be taken to proceed to a revised destination aerodrome, the appropriate air traffic control units shall be so notified by the insertion in the flight plan of information concerning the revised route (where known) and the revised destination.
  - (5) An aircraft operated on a controlled aerodrome shall not taxi on the manoeuvring area without clearance from the aerodrome control tower and shall comply with any instructions given by that unit.

(c) Clearances for transonic flight

- (1) The air traffic control clearance relating to the transonic acceleration phase of a supersonic flight shall extend at least to the end of that phase.
- (2) The air traffic control clearance relating to the deceleration and descent of an aircraft from supersonic cruise to subsonic flight shall seek to provide for uninterrupted descent at least during the transonic phase.

(d) Contents of clearances

An air traffic control clearance shall indicate:

- (1) aircraft identification as shown in the flight plan;
- (2) clearance limit;
- (3) route of flight;
- (4) level(s) of flight for the entire route or part thereof and changes of levels if required;
- (5) any necessary instructions or information on other matters such as approach or departure manoeuvres, communications and the time of expiry of the clearance.

(e) Read-back of clearances and safety-related information

- (1) The flight crew shall read back to the air traffic controller safety-related parts of ATC clearances and instructions which are transmitted by voice. The following items shall always be read back:
  - (i) ATC route clearances;
  - (ii) clearances and instructions to enter, land on, take off from, hold short of, cross, taxi and backtrack on any runway; and
  - (iii) runway-in-use, altimeter settings, SSR codes, newly assigned communication channels, level instructions, heading and speed instructions; and
  - (iv) transition levels, whether issued by the controller or contained in ATIS broadcasts.
- (2) Other clearances or instructions, including conditional clearances and taxi instructions, shall be read back or acknowledged in a manner to clearly indicate that they have been understood and will be complied with.
- (3) The controller shall listen to the read-back to ascertain that the clearance or instruction has been correctly acknowledged by the flight crew and shall take immediate action to correct any discrepancies revealed by the read-back.
- (4) Voice read-back of CPDLC messages shall not be required, unless otherwise specified by the ANSP.

## (f) Coordination of clearances

- (1) An air traffic control clearance shall be coordinated between air traffic control units to cover the entire route of an aircraft or a specified portion thereof as described in provisions (2) to (6).
- (2) An aircraft shall be cleared for the entire route to the aerodrome of first intended landing:
  - (i) when it has been possible, prior to departure, to coordinate the clearance between all the units under whose control the aircraft will come; or
  - (ii) when there is reasonable assurance that prior coordination will be effected between those units under whose control the aircraft will subsequently come.
- (3) When coordination as in (2) has not been achieved or is not anticipated, the aircraft shall be cleared only to that point where coordination is reasonably assured; prior to reaching such point, or at such point, the aircraft shall receive further clearance, holding instructions being issued as appropriate.
- (4) When prescribed by the ATS unit, aircraft shall contact a downstream air traffic control unit, for the purpose of receiving a downstream clearance prior to the transfer of control point.
  - (i) Aircraft shall maintain the necessary two-way communication with the current air traffic control unit whilst obtaining a downstream clearance.
  - (ii) A clearance issued as a downstream clearance shall be clearly identifiable as such to the pilot.
  - (iii) Unless coordinated, downstream clearances shall not affect the aircraft's original flight profile in any airspace, other than that of the air traffic control unit responsible for the delivery of the downstream clearance.
- (5) When an aircraft intends to depart from an aerodrome within a control area to enter another control area within a period of thirty minutes, or such other specific period of time as has been agreed between the area control centres concerned, coordination with the subsequent area control centre shall be effected prior to issuance of the departure clearance.
- (6) When an aircraft intends to leave a control area for flight outside controlled airspace, and will subsequently re-enter the same or another control area, a clearance from the point of departure to the aerodrome of first intended landing may be issued. Such clearance or revisions thereto shall apply only to those portions of the flight conducted within controlled airspace.

**SERA.8020 Adherence to Flight Plan**

- (a) Except as provided for in (b) and (d) an aircraft shall adhere to the current flight plan or the applicable portion of a current flight plan submitted for a controlled flight



unless a request for a change has been made and clearance obtained from the appropriate air traffic control unit, or unless an emergency situation arises which necessitates immediate action by the aircraft, in which event as soon as circumstances permit, after such emergency authority is exercised, the appropriate air traffic services unit shall be notified of the action taken and that this action has been taken under emergency authority.

- (1) Unless otherwise authorised by the competent authority, or directed by the appropriate air traffic control unit, controlled flights shall, in so far as practicable:
    - (i) when on an established ATS route, operate along the defined centre line of that route; or
    - (ii) when on any other route, operate directly between the navigation facilities and/or points defining that route.
  - (2) Unless otherwise authorised by the competent authority, or directed by the appropriate air traffic control unit, an aircraft operating along an ATS route segment defined by reference to very high frequency omnidirectional radio ranges shall change over for its primary navigation guidance from the facility behind the aircraft to that ahead of it at, or as close as operationally feasible to, the changeover point, where established.
  - (3) Deviation from the requirements in (2) shall be notified to the appropriate air traffic services unit.
- (b) *Inadvertent changes.* In the event that a controlled flight inadvertently deviates from its current flight plan, the following action shall be taken:
- (1) Deviation from track: if the aircraft is off track, action shall be taken forthwith to adjust the heading of the aircraft to regain track as soon as practicable.
  - (2) Variation in true airspeed: if the average true airspeed at cruising level between reporting points varies or is expected to vary by plus or minus 5 per cent of the true airspeed, from that given in the flight plan, the appropriate air traffic services unit shall be so informed.
  - (3) Change in time estimate: if the time estimate for the next applicable reporting point, flight information region boundary or destination aerodrome, whichever comes first, is found to be in error in excess of 3 minutes from that notified to air traffic services, or such other period of time as is prescribed by the competent authority or on the basis of ICAO regional air navigation agreements, a revised estimated time shall be notified as soon as possible to the appropriate air traffic services unit.
  - (4) Additionally, when an ADS-C agreement is in place, the air traffic services unit shall be informed automatically via data link whenever changes occur beyond the threshold values stipulated by the ADS-C event contract.
- (c) *Intended changes.* Requests for flight plan changes shall include information as indicated hereunder:

- (1) Change of cruising level: aircraft identification; requested new cruising level and cruising speed at this level, revised time estimates (when applicable) at subsequent flight information region boundaries.
- (2) Change of route:
  - (i) *Destination unchanged:* aircraft identification; flight rules; description of new route of flight including related flight plan data beginning with the position from which requested change of route is to commence; revised time estimates; any other pertinent information.
  - (ii) *Destination changed:* aircraft identification; flight rules; description of revised route of flight to revised destination aerodrome including related flight plan data, beginning with the position from which requested change of route is to commence; revised time estimates; alternate aerodrome(s); any other pertinent information.
- (d) *Weather deterioration below the VMC.* When it becomes evident that flight in VMC in accordance with its current flight plan will not be practicable, a VFR flight operated as a controlled flight shall:
  - (1) request an amended clearance enabling the aircraft to continue in VMC to destination or to an alternative aerodrome, or to leave the airspace within which an ATC clearance is required; or
  - (2) if no clearance in accordance with a) can be obtained, continue to operate in VMC and notify the appropriate ATC unit of the action being taken either to leave the airspace concerned or to land at the nearest suitable aerodrome; or
  - (3) if operated within a control zone, request authorisation to operate as a special VFR flight; or
  - (4) request clearance to operate in accordance with the instrument flight rules.

#### **SERA.8025 Position Reports**

- (a) Unless exempted by the competent authority or by the appropriate air traffic services unit under conditions specified by that authority, a controlled flight shall report to the appropriate air traffic services unit, as soon as possible, the time and level of passing each designated compulsory reporting point, together with any other required information. Position reports shall similarly be made in relation to additional points when requested by the appropriate air traffic services unit. In the absence of designated reporting points, position reports shall be made at intervals prescribed by the competent authority or specified by the appropriate air traffic services unit.
  - (1) Controlled flights providing position information to the appropriate air traffic services unit via data link communications shall only provide voice position reports when requested.

**SERA.8030 Termination of Control**

A controlled flight shall, except when landing at a controlled aerodrome, advise the appropriate ATC unit as soon as it ceases to be subject to air traffic control service.

**SERA.8035 Communications**

- (a) An aircraft operated as a controlled flight shall maintain continuous air-ground voice communication watch on the appropriate communication channel of, and establish two-way communication as necessary with, the appropriate air traffic control unit, except as may be prescribed by the relevant ANSP in respect of aircraft forming part of aerodrome traffic at a controlled aerodrome.
  - (1) The requirement for an aircraft to maintain an air-ground voice communication watch shall remain in effect when CPDLC has been established.
- (b) The Member States shall comply with the appropriate provisions on communication failures as have been adopted under the Chicago Convention. The Commission shall propose common European procedures by 31 December 2015 at latest, for implementation of the said ICAO provisions in Union law.

**Section 9 — Flight information service****SERA.9001 Application**

- (a) Flight information service shall be provided by the appropriate air traffic services units to all aircraft which are likely to be affected by the information and which are:
  - (1) provided with air traffic control service; or
  - (2) otherwise known to the relevant air traffic services units.
- (b) The reception of flight information service does not relieve the pilot-in-command of an aircraft of any responsibilities and the pilot-in-command shall make the final decision regarding any suggested alteration of flight plan.
- (c) Where air traffic services units provide both flight information service and air traffic control service, the provision of air traffic control service shall have precedence over the provision of flight information service whenever the provision of air traffic control service so requires.

**SERA.9005 Scope of flight information service**

- (a) Flight information service shall include the provision of pertinent:
  - (1) SIGMET and AIRMET information;

- (2) information concerning pre-eruption volcanic activity, volcanic eruptions and volcanic ash clouds;
  - (3) information concerning the release into the atmosphere of radioactive materials or toxic chemicals;
  - (4) information on changes in the availability of radio navigation services;
  - (5) information on changes in condition of aerodromes and associated facilities, including information on the state of the aerodrome movement areas when they are affected by snow, ice or significant depth of water;
  - (6) information on unmanned free balloons;
- and of any other information likely to affect safety.
- (b) Flight information service provided to flights shall include, in addition to that outlined in (a), the provision of information concerning:
- (1) weather conditions reported or forecast at departure, destination and alternate aerodromes;
  - (2) collision hazards, to aircraft operating in airspace Classes C, D, E, F and G;
  - (3) for flight over water areas, in so far as practicable and when requested by a pilot, any available information such as radio call sign, position, true track, speed, etc., of surface vessels in the area.
- (c) Flight information service provided to VFR flights shall include, in addition to that outlined in (a), the provision of available information concerning traffic and weather conditions along the route of flight that are likely to make operation under the visual flight rules impracticable.

#### **SERA.9010 Automatic Terminal Information Service (ATIS)**

- (a) Use of the ATIS messages in directed request/reply transmissions
- (1) When requested by the pilot, the applicable ATIS message(s) shall be transmitted by the appropriate air traffic services unit.
  - (2) Whenever Voice-ATIS and/or D-ATIS is provided:
    - (i) aircraft shall acknowledge receipt of the information upon establishing communication with the ATS unit providing approach control service, the aerodrome control tower or Aerodrome Flight Information Service (AFIS), as appropriate; and
    - (ii) the appropriate air traffic services unit shall, when replying to an aircraft acknowledging receipt of an ATIS message or, in the case of arriving aircraft, at such other time as may be prescribed by the competent authority, provide the aircraft with the current altimeter setting.

- (3) Information contained in a current ATIS, the receipt of which has been acknowledged by the aircraft concerned, need not be included in a directed transmission to the aircraft, with the exception of the altimeter setting, which shall be provided in accordance with (2).
- (4) If an aircraft acknowledges receipt of an ATIS that is no longer current, any element of information that needs updating shall be transmitted to the aircraft without delay.

(b) ATIS for arriving and departing aircraft

ATIS messages containing both arrival and departure information shall contain the following elements of information in the order listed:

- (1) name of aerodrome;
- (2) arrival and/or departure indicator;
- (3) contract type, if communication is via D-ATIS;
- (4) designator;
- (5) time of observation, if appropriate;
- (6) type of approach(es) to be expected;
- (7) the runway(s) in use; status of arresting system constituting a potential hazard, if any;
- (8) significant runway surface conditions and, if appropriate, braking action;
- (9) holding delay, if appropriate;
- (10) transition level, if applicable;
- (11) other essential operational information;
- (12) surface wind direction and speed, including significant variations and, if surface wind sensors related specifically to the sections of runway(s) in use are available and the information is required by aircraft operators, the indication of the runway and the section of the runway to which the information refers;
- (13) visibility and, when applicable, RVR; <sup>(4)</sup>
- (14) present weather; <sup>(\*)</sup>

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<sup>4</sup> (\*) These elements are replaced by the term 'CAVOK' when the following conditions occur simultaneously at the time of observation: a) visibility, 10 km or more, and the lowest visibility not reported; b) no cloud of operational significance; and c) no weather of significance to aviation.

- (15) cloud below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility when available; (\*)
- (16) air temperature;
- (17) dew point temperature;
- (18) altimeter setting(s);
- (19) any available information on significant meteorological phenomena in the approach and climb-out areas including wind shear, and information on recent weather of operational significance;
- (20) trend forecast, when available; and
- (21) specific ATIS instructions.

(c) ATIS for arriving aircraft

ATIS messages containing arrival information only shall contain the following elements of information in the order listed:

- (1) name of aerodrome;
- (2) arrival indicator;
- (3) contract type, if communication is via D-ATIS;
- (4) designator;
- (5) time of observation, if appropriate;
- (6) type of approach(es) to be expected;
- (7) main landing runway(s); status of arresting system constituting a potential hazard, if any;
- (8) significant runway surface conditions and, if appropriate, braking action;
- (9) holding delay, if appropriate;
- (10) transition level, if applicable;
- (11) other essential operational information;
- (12) surface wind direction and speed, including significant variations and, if surface wind sensors related specifically to the sections of runway(s) in use are available and the information is required by aircraft operators, the indication of the runway and the section of the runway to which the information refers;
- (13) visibility and, when applicable, RVR; (\*)

- (14) present weather; <sup>(5)</sup>
  - (15) cloud below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility when available; (\*)
  - (16) air temperature;
  - (17) dew point temperature;
  - (18) altimeter setting(s);
  - (19) any available information on significant meteorological phenomena in the approach area including wind shear, and information on recent weather of operational significance;
  - (20) trend forecast, when available; and
  - (21) specific ATIS instructions.
- (d) ATIS for departing aircraft

ATIS messages containing departure information only shall contain the following elements of information in the order listed:

- (1) name of aerodrome;
- (2) departure indicator;
- (3) contract type, if communication is via D-ATIS;
- (4) designator;
- (5) time of observation, if appropriate;
- (6) runway(s) to be used for take-off; status of arresting system constituting a potential hazard, if any;
- (7) significant surface conditions of runway(s) to be used for take-off and, if appropriate, braking action;
- (8) departure delay, if appropriate;
- (9) transition level, if applicable;
- (10) other essential operational information;

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<sup>5</sup> (\*) These elements are replaced by the term 'CAVOK' when the following conditions occur simultaneously at the time of observation: a) visibility, 10 km or more, and the lowest visibility not reported; b) no cloud of operational significance; and c) no weather of significance to aviation.

- (11) surface wind direction and speed, including significant variations and, if surface wind sensors related specifically to the sections of runway(s) in use are available and the information is required by aircraft operators, the indication of the runway and the section of the runway to which the information refers;
- (12) visibility and, when applicable, RVR; (\*)
- (13) present weather; (<sup>6</sup>)
- (14) cloud below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility when available; (\*)
- (15) air temperature;
- (16) dew point temperature;
- (17) altimeter setting(s);
- (18) any available information on significant meteorological phenomena in the climb-out area including wind shear;
- (19) trend forecast, when available; and
- (20) specific ATIS instructions.

## Section 10 – Alerting service

### SERA.10001 Application

- (a) Alerting service shall be provided by the air traffic services units:
  - (1) for all aircraft provided with air traffic control service;
  - (2) in so far as practicable, to all other aircraft having filed a flight plan or otherwise known to the air traffic services; and
  - (3) to any aircraft known or believed to be the subject of unlawful interference.

### SERA.10005 Information to aircraft operating in the vicinity of an aircraft in a state of emergency

- (a) When it has been established by an air traffic services unit that an aircraft is in a state of emergency, other aircraft known to be in the vicinity of the aircraft involved shall, except as provided in (b), be informed of the nature of the emergency as soon as practicable.

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<sup>6</sup> (\*) These elements are replaced by the term 'CAVOK' when the following conditions occur simultaneously at the time of observation: a) visibility, 10 km or more, and the lowest visibility not reported; b) no cloud of operational significance; and c) no weather of significance to aviation



- (b) When an air traffic services unit knows or believes that an aircraft is being subjected to unlawful interference, no reference shall be made in ATS air-ground communications to the nature of the emergency unless it has first been referred to in communications from the aircraft involved and it is certain that such reference will not aggravate the situation.

## **Section 11 – Interference, Emergency Contingencies and Interception**

### **SERA.11001 Unlawful Interference**

- (a) An aircraft which is being subjected to unlawful interference shall endeavour to set the transponder to Code 7500 and notify the appropriate ATS unit of, any significant circumstances associated therewith and any deviation from the current flight plan necessitated by the circumstances, in order to enable the ATS unit to give priority to the aircraft and to minimize conflict with other aircraft.
- (b) If an aircraft is subjected to unlawful interference, the pilot-in-command shall attempt to land as soon as practicable at the nearest suitable aerodrome or at a dedicated aerodrome assigned by the competent authority unless considerations aboard the aircraft dictate otherwise.

### **SERA.11005 Service to aircraft in the event of an emergency**

- (a) In the case of an aircraft known or believed to be in a state of emergency, including being subjected to unlawful interference, air traffic services units shall give the aircraft maximum consideration, assistance and priority over other aircraft as may be necessitated by the circumstances.
- (b) When an occurrence of unlawful interference with an aircraft takes place or is suspected, air traffic services units shall attend promptly to requests by the aircraft. Information pertinent to the safe conduct of the flight shall continue to be transmitted and necessary action shall be taken to expedite the conduct of all phases of the flight, especially the safe landing of the aircraft.
- (c) When an occurrence of unlawful interference with an aircraft takes place or is suspected, air traffic services units shall, in accordance with locally agreed procedures, immediately inform the appropriate authority designated by the State and exchange necessary information with the aircraft operator or its designated representative.

### **SERA.11010 In-flight contingencies**

#### **Strayed or unidentified aircraft**

- (a) As soon as an air traffic services unit becomes aware of a strayed aircraft it shall take all necessary steps as outlined in (1) and (3) to assist the aircraft and to safeguard its flight.
  - (1) If the aircraft's position is not known, the air traffic services unit shall:

- (i) attempt to establish two-way communication with the aircraft, unless such communication already exists;
  - (ii) use all available means to determine its position;
  - (iii) inform other air traffic services units into whose area the aircraft may have strayed or may stray, taking into account all the factors which may have affected the navigation of the aircraft in the circumstances;
  - (iv) inform, in accordance with locally agreed procedures, appropriate military units and provide them with pertinent flight plan and other data concerning strayed aircraft;
  - (v) request from the units referred to in (iii) and (iv) and from other aircraft in flight every assistance in establishing communication with the aircraft and determining its position.
- (2) The requirements in (1)(iv) and (1)(v) shall apply also to air traffic services units informed in accordance with (1)(iii).
- (3) When the aircraft's position is established, the air traffic services unit shall:
- (i) advise the aircraft of its position and corrective action to be taken. This advice shall be immediately provided when ATS is aware that there is a possibility of interception or other hazard to the safety of the aircraft; and
  - (ii) provide, as necessary, other air traffic services units and appropriate military units with relevant information concerning the strayed aircraft and any advice given to that aircraft.
- (b) As soon as an air traffic services unit becomes aware of an unidentified aircraft in its area, it shall endeavour to establish the identity of the aircraft whenever this is necessary for the provision of air traffic services or required by the appropriate military authorities in accordance with locally agreed procedures. To this end, the air traffic services unit shall take such of the following steps as are appropriate in the circumstances:
- (1) attempt to establish two-way communication with the aircraft;
  - (2) inquire of other air traffic services units within the flight information region about the flight and request their assistance in establishing two-way communication with the aircraft;
  - (3) inquire of air traffic services units serving the adjacent flight information regions about the flight and request their assistance in establishing two-way communication with the aircraft;
  - (4) attempt to obtain information from other aircraft in the area.
  - (5) the air traffic services unit shall, as necessary, inform the appropriate military unit as soon as the identity of the aircraft has been established.

- (c) In the case of a strayed or unidentified aircraft, the possibility of the aircraft being subject of unlawful interference shall be taken into account. Should the air traffic services unit consider that a strayed or unidentified aircraft may be the subject of unlawful interference, the appropriate authority designated by the State shall immediately be informed, in accordance with locally agreed procedures.

### SERA.11015 Interception

- (a) Except for intercept and escort service provided on request to an aircraft, interception of civil aircraft shall be governed by appropriate regulations and administrative directives issued by Member States in compliance with the Convention on International Civil Aviation, and in particular Article 3(d) under which ICAO Contracting States undertake, when issuing regulations for their State aircraft, to have due regard for the safety of navigation of civil aircraft.
- (b) The pilot-in-command of a civil aircraft, when intercepted, shall:
- (1) immediately follow the instructions given by the intercepting aircraft, interpreting and responding to visual signals in accordance with the specifications in Tables S11-1 and S11-2;
  - (2) notify, if possible, the appropriate air traffic services unit;
  - (3) attempt to establish radio-communication with the intercepting aircraft or with the appropriate intercept control unit, by making a general call on the emergency frequency 121.5 MHz, giving the identity of the intercepted aircraft and the nature of the flight; and if no contact has been established and if practicable, repeating this call on the emergency frequency 243 MHz;
  - (4) if equipped with SSR transponder, select Mode A, Code 7700, unless otherwise instructed by the appropriate air traffic services unit.
  - (5) if equipped with ADS-B or ADS-C, select the appropriate emergency functionality, if available, unless otherwise instructed by the appropriate air traffic services unit.

**Table S11 – 1**

**Signals Initiated by Intercepting Aircraft and Responses by Intercepted Aircraft**

<i>Series</i>	<i>INTERCEPTING Aircraft Signals</i>	<i>Meaning</i>	<i>INTERCEPTED Aircraft Responds</i>	<i>Meaning</i>
1	DAY or NIGHT — Rocking aircraft and flashing navigational lights at irregular intervals (and landing lights in the case of a helicopter) from a position slightly above and ahead of, and normally to the left of, the intercepted aircraft (or to the right if the intercepted aircraft is a helicopter) and, after acknowledgement, a slow level turn, normally to the left (or to	You have been intercepted. Follow me.	DAY or NIGHT — Rocking aircraft, flashing navigational lights at irregular intervals and following.	Understood, will comply.

	<p>the right in the case of a helicopter) on the desired heading.</p> <p><i>Note 1.— Meteorological conditions or terrain may require the intercepting aircraft to reverse the positions and direction of turn given above in Series 1.</i></p> <p><i>Note 2.— If the intercepted aircraft is not able to keep pace with the intercepting aircraft, the latter is expected to fly a series of race-track patterns and to rock the aircraft each time it passes the intercepted aircraft.</i></p>			
2	<p>DAY or NIGHT — An abrupt breakaway manoeuvre from the intercepted aircraft consisting of a climbing turn of 90 degrees or more without crossing the line of flight of the intercepted aircraft.</p>	<p>You may proceed.</p>	<p>DAY or NIGHT — Rocking the aircraft.</p>	<p>Understood, will comply.</p>
3	<p>DAY or NIGHT — Lowering landing gear (if fitted), showing steady landing lights and overflying runway in use or, if the intercepted aircraft is a helicopter, overflying the helicopter landing area. In the case of helicopters, the intercepting helicopter makes a landing approach, coming to hover near to the landing area.</p>	<p>Land at this aerodrome.</p>	<p>DAY or NIGHT — Lowering landing gear, (if fitted), showing steady landing lights and following the intercepting aircraft and, if, after overflying the runway in use or helicopter landing area, landing is considered safe, proceeding to land.</p>	<p>Understood, will comply.</p>

Table S11 – 2

**Signals Initiated by Intercepted Aircraft and Responses by Intercepting Aircraft**

Series	<i>INTERCEPTED</i> Aircraft Signals	Meaning	<i>INTERCEPTING</i> Aircraft Responds	Meaning
4	<p>DAY or NIGHT — Raising landing gear (if fitted) and flashing landing lights while passing over runway in use or helicopter landing area at a height exceeding 300 m (1 000 ft) but not exceeding 600 m (2 000 ft) (in the case of a helicopter, at a height exceeding 50 m (170 ft) but not exceeding 100 m (330 ft)) above the aerodrome level, and continuing to circle runway in use or helicopter landing area. If unable to flash landing lights, flash any other lights available.</p>	<p>Aerodrome you have designated is inadequate.</p>	<p>DAY or NIGHT — If it is desired that the intercepted aircraft follow the intercepting aircraft to an alternate aerodrome, the intercepting aircraft raises its landing gear (if fitted) and uses the Series 1 signals prescribed for intercepting aircraft.</p> <p>If it is decided to release the intercepted aircraft, the intercepting aircraft uses the Series 2 signals prescribed for intercepting aircraft.</p>	<p>Understood, follow me.</p> <p>Understood, you may</p>

5	DAY or NIGHT — Regular switching on and off of all available lights but in such a manner as to be distinct from flashing lights.	Cannot comply.	DAY or NIGHT — Use Series 2 signals prescribed for intercepting aircraft.	proceed. Understood.
6	DAY or NIGHT — Irregular flashing of all available lights.	In distress.	DAY or NIGHT — Use Series 2 signals prescribed for intercepting aircraft.	Understood.

- (c) If any instructions received by radio from any sources conflict with those given by the intercepting aircraft by visual signals, the intercepted aircraft shall request immediate clarification while continuing to comply with the visual instructions given by the intercepting aircraft.
- (d) If any instructions received by radio from any sources conflict with those given by the intercepting aircraft by radio, the intercepted aircraft shall request immediate clarification while continuing to comply with the radio instructions given by the intercepting aircraft.
- (e) If radio contact is established during interception but communication in a common language is not possible, attempts shall be made to convey instructions, acknowledgement of instructions and essential information by using the phrases and pronunciations in Table S11-3 and transmitting each phrase twice:

Table S11-3

<i>Phrases for use by INTERCEPTING aircraft</i>			<i>Phrases for use by INTERCEPTED aircraft</i>		
<i>Phrase</i>	<i>Pronunciation<sup>1</sup></i>	<i>Meaning</i>	<i>Phrase</i>	<i>Pronunciation</i>	<i>Meaning</i>
CALL SIGN	<u>KOL</u> SA-IN	What is your call sign?	CALL SIGN	<u>KOL</u> SA-IN	My call sign is (call sign)
FOLLOW	<u>FOL</u> -LO	Follow me	(call sign) <sup>2</sup>	(call sign)	Understood
DESCEND	<u>DEE</u> -SEND	Descend for landing	WILCO	<u>VILL</u> -KO	Unable to comply
YOU LAND	<u>YOU</u> LAAND	Land at this aerodrome	Will comply	<u>KANN</u> NOTT	Repeat your instruction
PROCEED	<u>PRO</u> -SEED	You may proceed	CAN NOT	<u>REE</u> -PEET	Position unknown
			REPEAT	<u>AM</u> LOSST	
			AM LOST		
			MAYDAY	<u>MAY</u> DAY	I am in distress
			HIJACK <sup>3</sup>	<u>HI</u> -JACK	I have been hijacked
			LAND	LAAND	I request to land at
			(place name)	(place name)	(place name)
			DESCEND	<u>DEE</u> -SEND	I require descent

1. In the second column, syllables to be emphasized are underlined.

2. The call sign required to be given is that used in radiotelephony communications with air traffic services units and corresponding to the aircraft identification in the flight plan.

3. Circumstances may not always permit, nor make desirable, the use of the phrase "HIJACK".

- (f) As soon as an air traffic services unit learns that an aircraft is being intercepted in its area of responsibility, it shall take such of the following steps as are appropriate in the circumstances:
- (1) attempt to establish two-way communication with the intercepted aircraft via any means available, including the emergency radio frequency 121.5 MHz, unless such communication already exists;
  - (2) inform the pilot of the intercepted aircraft of the interception;
  - (3) establish contact with the intercept control unit maintaining two-way communication with the intercepting aircraft and provide it with available information concerning the aircraft;
  - (4) relay messages between the intercepting aircraft or the intercept control unit and the intercepted aircraft, as necessary;
  - (5) in close coordination with the intercept control unit take all necessary steps to ensure the safety of the intercepted aircraft;
  - (6) inform air traffic services units serving adjacent flight information regions if it appears that the aircraft has strayed from such adjacent flight information regions.
- (g) As soon as an air traffic services unit learns that an aircraft is being intercepted outside its area of responsibility, it shall take such of the following steps as are appropriate in the circumstances:
- (1) inform the air traffic services unit serving the airspace in which the interception is taking place, providing this unit with available information that will assist in identifying the aircraft and requesting it to take action in accordance with (f);
  - (2) relay messages between the intercepted aircraft and the appropriate air traffic services unit, the intercept control unit or the intercepting aircraft.

## **Section 12 — Services related to meteorology — Aircraft observations and reports by voice communications**

### **SERA.12001 Types of aircraft observations**

- (a) The following aircraft observations shall be made during any phase of the flight:
- (1) special aircraft observations; and
  - (2) other non-routine aircraft observations.

**SERA.12005 Special aircraft observations**

- (a) Special observations shall be made and reported by all aircraft whenever the following conditions are encountered or observed:
- (1) moderate or severe turbulence; or
  - (2) moderate or severe icing; or
  - (3) severe mountain wave; or
  - (4) thunderstorms, without hail, that are obscured, embedded, widespread or in squall lines; or
  - (5) thunderstorms, with hail, that are obscured, embedded, widespread or in squall lines; or
  - (6) heavy dust storm or heavy sandstorm; or
  - (7) volcanic ash cloud; or
  - (8) pre-eruption volcanic activity or a volcanic eruption.
- (b) Competent authorities shall prescribe as necessary other conditions which shall be reported by all aircraft when encountered or observed.

**SERA.12010 Other non-routine aircraft observations**

When other meteorological conditions not listed under SERA.12005 (a), e.g. wind shear, are encountered and which, in the opinion of the pilot-in-command, may affect the safety or markedly affect the efficiency of other aircraft operations, the pilot-in-command shall advise the appropriate air traffic services unit as soon as practicable.

**SERA.12015 Reporting of aircraft observations by voice communication**

- (a) Aircraft observations shall be reported during flight at the time the observation is made or as soon thereafter as is practicable.
- (b) Aircraft observations shall be reported as air-reports and shall comply with the technical specifications in Appendix 5.

**SERA.12020 Exchange of air-reports**

- (a) ATS units shall transmit, as soon as practicable, special and non-routine air-reports to:
- (1) other aircraft concerned;
  - (2) the associated meteorological watch office (MWO); and

- (3) other ATS units concerned.
- (b) Transmissions to aircraft shall be repeated at a frequency and continued for a period of time which shall be determined by the ATS unit concerned.

NOT FOR COMMENTING



## APPENDIX 1

### SIGNALS

#### 1. DISTRESS AND URGENCY SIGNALS

##### 1.1. General

1.1.1. *Notwithstanding the provisions in 1.2 and 1.3, an aircraft in distress shall use any means at its disposal to attract attention, make known its position and obtain help.*

1.1.2. *The telecommunication transmission procedures for the distress and urgency signals shall be in accordance with Volume II of Annex 10 to the Chicago Convention.*

##### 1.2. Distress Signals

1.2.1. *The following signals, used either together or separately, mean that grave and imminent danger threatens, and immediate assistance is requested:*

- (a) a signal made by radiotelegraphy or by any other signalling method consisting of the group SOS (. . . — — — . . . in the Morse Code);
- (b) a radiotelephony distress signal consisting of the spoken word MAYDAY;
- (c) a distress message sent via data link which transmits the intent of the word MAYDAY;
- (d) rockets or shells throwing red lights, fired one at a time at short intervals;
- (e) a parachute flare showing a red light;
- (f) setting of the transponder to Mode A Code 7700.

##### 1.3. Urgency Signals

1.3.1. *The following signals, used either together or separately, mean that an aircraft wishes to give notice of difficulties which compel it to land without requiring immediate assistance:*

- (g) the repeated switching on and off of the landing lights; or
- (h) the repeated switching on and off of the navigation lights in such manner as to be distinct from flashing navigation lights.

1.3.2. *The following signals, used either together or separately, mean that an aircraft has a very urgent message to transmit concerning the safety of a ship, aircraft or other vehicle, or of some person on board or within sight:*

- (a) a signal made by radiotelegraphy or by any other signalling method consisting of the group XXX (— . — — . — — . — in the Morse Code);

- (b) a radiotelephony urgency signal consisting of the spoken words PAN, PAN;
- (c) an urgency message sent via data link which transmits the intent of the words PAN, PAN.

**2. VISUAL SIGNALS USED TO WARN AN UNAUTHORISED AIRCRAFT FLYING IN OR ABOUT TO ENTER A RESTRICTED, PROHIBITED OR DANGER AREA**

- 2.1. When visual signals are used to warn unauthorised aircraft flying in or about to enter a restricted, prohibited or danger area by day and by night, a series of projectiles discharged from the ground at intervals of 10 seconds, each showing, on bursting, red and green lights or stars shall indicate to an unauthorised aircraft that it is flying in or about to enter a restricted, prohibited or danger area, and that the aircraft is to take such remedial action as may be necessary.

3. 3. SIGNALS FOR AERODROME TRAFFIC

3.1. 3.1 Light and Pyrotechnic Signals

3.1.1. 3.1.1. Instructions

Table AP 1 - 1

Light	From Aerodrome Control to:		
	Aircraft in flight	Aircraft on the ground	
Directed towards aircraft concerned (see Figure A1-1).	Steady green Steady red  Series of green flashes Series of red flashes Series of white flashes	Cleared to land Give way to other aircraft and continue circling Return for landing* Aerodrome unsafe, do not land Land at this aerodrome and proceed to apron*  Notwithstanding any previous instructions, do not land for the time being	Cleared for take-off Stop  Cleared to taxi Taxi clear of landing area in use Return to starting point on the aerodrome
Red pyrotechnic	Notwithstanding any previous instructions, do not land for the time being		

\* Clearances to land and to taxi will be given in due course.

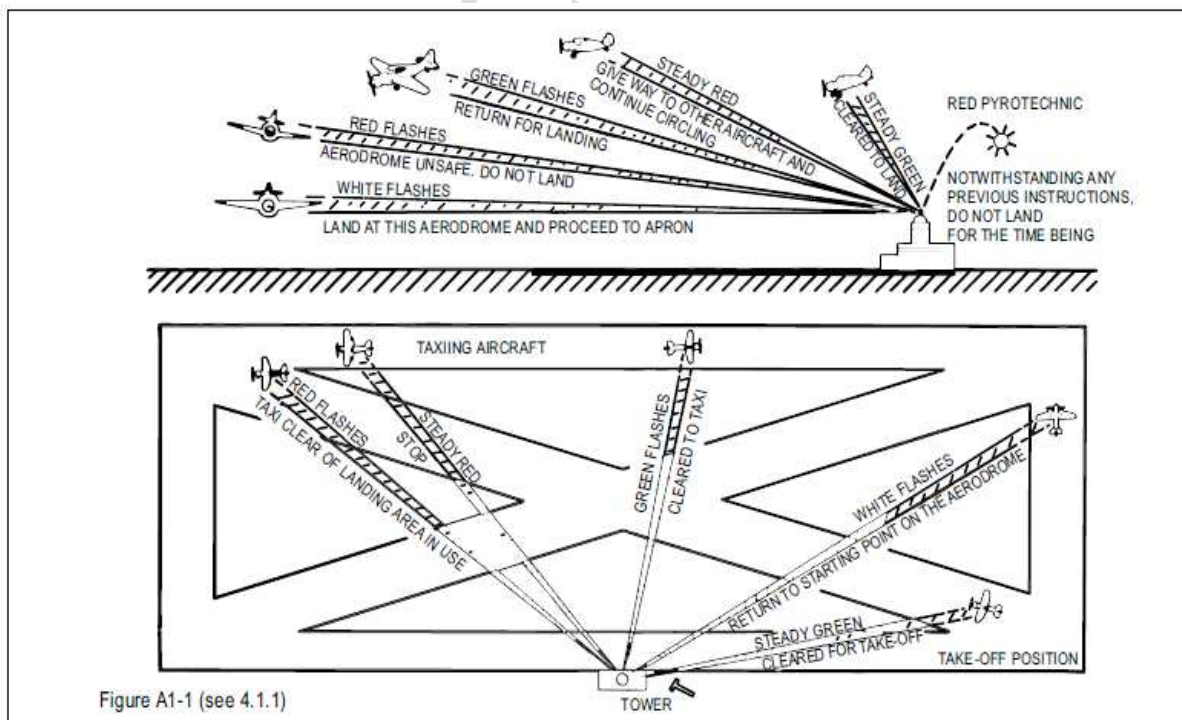


Figure A1-1 (see 4.1.1)

### 3.1.2. *Acknowledgement by an aircraft*

- (a) When in flight:
  - (1) during the hours of daylight:
    - by rocking the aircraft's wings, except for the base and final legs of the approach;
  - (2) during the hours of darkness:
    - by flashing on and off twice the aircraft's landing lights or, if not so equipped, by switching on and off twice its navigation lights.
- (b) When on the ground:
  - (1) during the hours of daylight:
    - by moving the aircraft's ailerons or rudder;
  - (2) during the hours of darkness:
    - by flashing on and off twice the aircraft's landing lights or, if not so equipped, by switching on and off twice its navigation lights.

## 3.2. **Visual Ground Signals**

### 3.2.1. *Prohibition of Landing*

- 3.2.1.1. A horizontal red square panel with yellow diagonals (Figure A1-2) when displayed in a signal area indicates that landings are prohibited and that the prohibition is liable to be prolonged.



Figure A1-2

### 3.2.2. *Need for Special Precautions while Approaching or Landing*

- 3.2.2.1. A horizontal red square panel with one yellow diagonal (Figure A1-3) when displayed in a signal area indicates that owing to the bad state of the manoeuvring area, or for any other reason, special precautions must be observed in approaching to land or in landing.



Figure A1-3

### 3.2.3. *Use of Runways and Taxiways*

- 3.2.3.1. A horizontal white dumb-bell (Figure A1-4) when displayed in a signal area indicates that aircraft are required to land, take off and taxi on runways and taxiways only.



Figure A1-4

- 3.2.3.2. The same horizontal white dumb-bell as in 3.2.3.1 but with a black bar placed perpendicular to the shaft across each circular portion of the dumb-bell (Figure A1-5) when displayed in a signal area indicates that aircraft are required to land and take off on runways only, but other manoeuvres need not be confined to runways and taxiways.



Figure A1-5

### 3.2.4. *Closed Runways or Taxiways*

- 3.2.4.1. Crosses of a single contrasting colour, yellow or white (Figure A1-6), displayed horizontally on runways and taxiways or parts thereof indicate an area unfit for movement of aircraft.



Figure A1-6

### 3.2.5. *Directions for Landing or Take-off*

- 3.2.5.1. A horizontal white or orange landing T (Figure A1-7) indicates the direction to be used by aircraft for landing and take-off, which shall be in a direction parallel to the shaft of the T towards the cross arm. When used at night, the landing T shall be either illuminated or outlined in white lights.

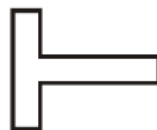


Figure A1-7

- 3.2.5.2. A set of two digits (Figure A1-8) displayed vertically at or near the aerodrome control tower indicates to aircraft on the manoeuvring area the direction for take-off, expressed in units of 10 degrees to the nearest 10 degrees of the magnetic compass.



Figure A1-8

### 3.2.6. *Right-hand Traffic*

- 3.2.6.1. When displayed in a signal area, or horizontally at the end of the runway or strip in use, a right-hand arrow of conspicuous colour (Figure A1-9) indicates that turns are to be made to the right before landing and after take-off.

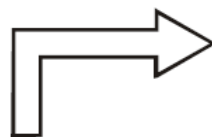


Figure A1-9

### 3.2.7. *Air Traffic Services Reporting Office*

- 3.2.7.1. The letter C displayed vertically in black against a yellow background (Figure A1-10) indicates the location of the air traffic services reporting office.



Figure A1-10

### 3.2.8. *Sailplane Flights in Operation*

- 3.2.8.1. A double white cross displayed horizontally (Figure A1-11) in the signal area indicates that the aerodrome is being used by sailplanes and that sailplane flights are being performed.



Figure A1-11


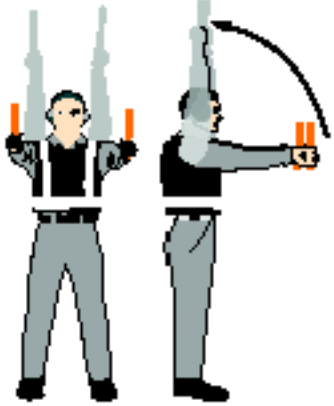
**4. MARSHALLING SIGNALS**

**4.1. From a Signaller/Marshaller to an Aircraft**




4.1.1. *The signals for use by the signaller/marshaller, with hands illuminated as necessary to facilitate observation by the pilot, and facing the aircraft in a position shall be:*


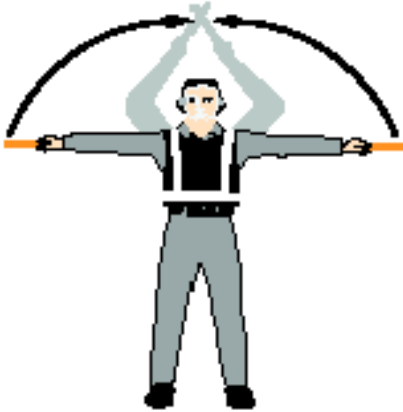

- (a) for fixed-wing aircraft, on left side of aircraft, where best seen by the pilot; and
- (b) for helicopters, where the signaller/marshaller can best be seen by the pilot.




4.1.2. *4.1.2 Prior to using the following signals, the signaller/marshaller shall ascertain that the area within which an aircraft is to be guided is clear of objects which the aircraft, in complying with SERA.3301 (a), might otherwise strike.*




	<p><b>*1. Wingwalker/guide</b></p> <p>Raise right hand above head level with wand pointing up; move left-hand wand pointing down toward body.</p> <p><i>* This signal provides an indication by a person positioned at the aircraft wing tip, to the pilot/marshaller/push-back operator, that the aircraft movement on/off a parking position would be unobstructed.</i></p>
	<p><b>2. Identify gate</b></p> <p>Raise fully extended arms straight above head with wands pointing up.</p>


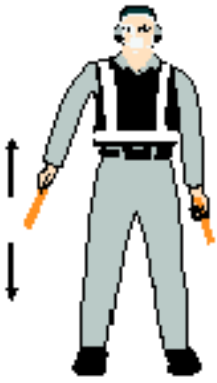






	<p><b>3. Proceed to next signalman/marshaller</b></p> <p><b>or as directed by</b></p> <p><b>tower/ground control</b></p> <p>Point both arms upward; move and extend arms outward to sides of body and point with wands to direction of next signalman/marshaller or taxi area.</p>
	<p><b>4. Straight ahead</b></p> <p>Bend extended arms at elbows and move wands up and down from chest height to head.</p>
	<p><b>5 a). Turn left</b></p> <p><b>(from pilot's point of view)</b></p> <p>With right arm and wand extended at a 90-degree angle to body, make "come ahead" signal with left hand. The rate of signal motion indicates to pilot the rate of aircraft turn.</p>


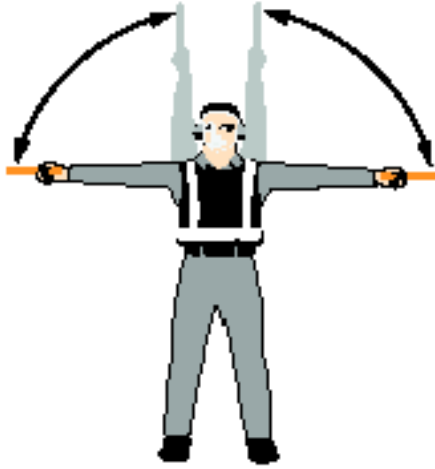
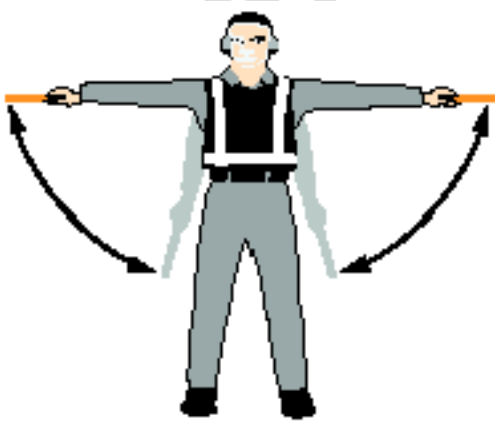
	<p><b>5 b). Turn right</b> <b>(from pilot's point of view)</b></p> <p>With left arm and wand extended at a 90-degree angle to body, make "come ahead" signal with right hand. The rate of signal motion indicates to pilot the rate of aircraft turn.</p>
	<p><b>6 a). Normal stop</b></p> <p>Fully extend arms and wands at a 90-degree angle to sides and slowly move to above head until wands cross.</p>
	<p><b>6 b). Emergency stop</b></p> <p>Abruptly extend arms and wands to top of head, crossing wands.</p>




	<p><b>7 a). Set brakes</b></p> <p>Raise hand just above shoulder height with open palm. Ensuring eye contact with flight crew, close hand into a fist. <b>Do not</b> move until receipt of “thumbs up” acknowledgement from flight crew.</p>
	<p><b>7 b). Release brakes</b></p> <p>Raise hand just above shoulder height with hand closed in a fist. Ensuring eye contact with flight crew, open palm. <b>Do not</b> move until receipt of “thumbs up” acknowledgement from flight crew.</p>
	<p><b>8 a). Chocks inserted</b></p> <p>With arms and wands fully extended above head, move wands inward in a “jabbing” motion until wands touch. <b>Ensure</b> acknowledgement is received from flight crew.</p>

	<p><b>8 b). Chocks removed</b></p> <p>With arms and wands fully extended above head, move wands outward in a “jabbing” motion. <b>Do not</b> remove chocks until authorised by flight crew.</p>
	<p><b>9. Start engine(s)</b></p> <p>Raise right arm to head level with wand pointing up and start a circular motion with hand; at the same time, with left arm raised above head level, point to engine to be started.</p>
	<p><b>10. Cut engines</b></p> <p>Extend arm with wand forward of body at shoulder level; move hand and wand to top of left shoulder and draw wand to top of right shoulder in a slicing motion across throat.</p>




	<p style="text-align: center;"><b>11. Slow down</b></p> <p>Move extended arms downwards in a “patting” gesture, moving wands up and down from waist to knees.</p>
	<p style="text-align: center;"><b>12. Slow down engine(s) on indicated side</b></p> <p>With arms down and wands toward ground, wave either <i>right</i> or <i>left</i> wand up and down indicating engine(s) on <i>left</i> or <i>right</i> side respectively should be slowed down.</p>
	<p style="text-align: center;"><b>13. Move back</b></p> <p>With arms in front of body at waist height, rotate arms in a forward motion. To stop rearward movement, use signal 6 a) or 6 b).</p>

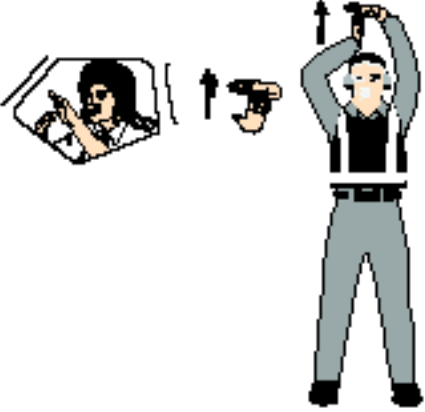
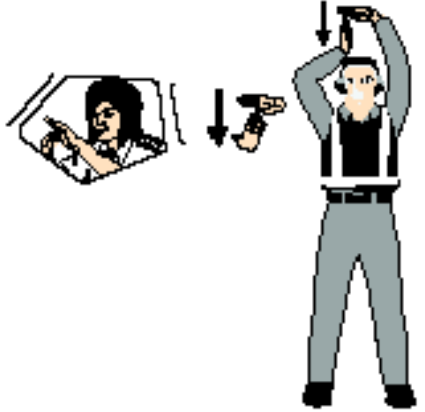
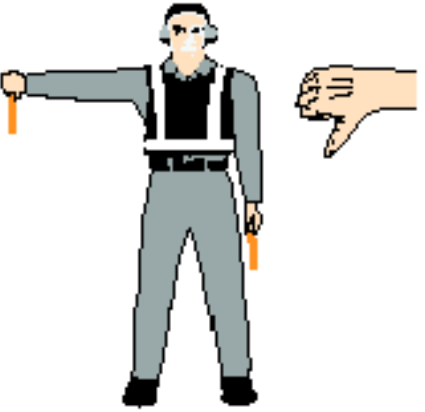
	<p><b>14 a). Turns while backing</b> <b>(for tail to starboard)</b></p> <p>Point left arm with wand down and bring right arm from overhead vertical position to horizontal forward position, repeating right-arm movement.</p>
	<p><b>14 b). Turns while backing</b> <b>(for tail to port)</b></p> <p>Point right arm with wand down and bring left arm from overhead vertical position to horizontal forward position, repeating left-arm movement.</p>
	<p><b>*15. Affirmative/all clear</b></p> <p>Raise right arm to head level with wand pointing up or display hand with “thumbs up”; left arm remains at side by knee.</p> <p><i>* This signal is also used as a technical/ servicing communication signal.</i></p>

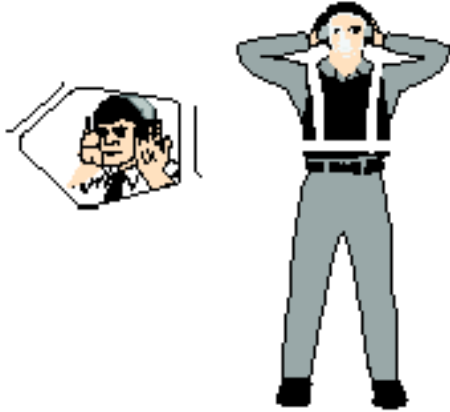

	<p><b>*16. Hover</b></p> <p>Fully extend arms and wands at a 90-degree angle to sides.</p> <p><i>* for use to hovering helicopters</i></p>
	<p><b>*17. Move upwards</b></p> <p>Fully extend arms and wands at a 90-degree angle to sides and, with palms turned up, move hands upwards. Speed of movement indicates rate of ascent.</p> <p><i>* for use to hovering helicopters</i></p>
	<p><b>*18. Move downwards</b></p> <p>Fully extend arms and wands at a 90-degree angle to sides and, with palms turned down, move hands downwards. Speed of movement indicates rate of descent.</p> <p><i>* for use to hovering helicopters</i></p>

	<p><b>*19 a). Move horizontally left</b> <b>(from pilot's point of view)</b></p> <p>Extend arm horizontally at a 90-degree angle to right side of body. Move other arm in same direction in a sweeping motion.</p> <p><i>* for use to hovering helicopters</i></p>
	<p><b>*19 b). Move horizontally right</b> <b>(from pilot's point of view)</b></p> <p>Extend arm horizontally at a 90-degree angle to left side of body. Move other arm in same direction in a sweeping motion.</p> <p><i>* for use to hovering helicopters</i></p>
	<p><b>*20. Land</b></p> <p>Cross arms with wands downwards and in front of body.</p> <p><i>* for use to hovering helicopters</i></p>



	<p><b>21. Hold position/stand by</b></p> <p>Fully extend arms and wands downwards at a 45-degree angle to sides. Hold position until aircraft is clear for next manoeuvre.</p>
	<p><b>22. Dispatch aircraft</b></p> <p>Perform a standard salute with right hand and/or wand to dispatch the aircraft. Maintain eye contact with flight crew until aircraft has begun to taxi.</p>
	<p><b>23. Do not touch controls</b></p> <p><b>(technical/servicing communication signal)</b></p> <p>Extend right arm fully above head and close fist or hold wand in horizontal position; left arm remains at side by knee.</p>

	<p><b>24. Connect ground power</b> <b>(technical/servicing communication signal)</b></p> <p>Hold arms fully extended above head; open left hand horizontally and move finger tips of right hand into and touch open palm of left hand (forming a “T”). At night, illuminated wands can also be used to form the “T” above head.</p>
	<p><b>25. Disconnect power</b> <b>(technical/servicing communication signal)</b></p> <p>Hold arms fully extended above head with finger tips of right hand touching open horizontal palm of left hand (forming a “T”); then move right hand away from the left. <b>Do not</b> disconnect power until authorised by flight crew. At night, illuminated wands can also be used to form the “T” above head.</p>
	<p><b>26. Negative</b> <b>(technical/servicing communication signal)</b></p> <p>Hold right arm straight out at 90 degrees from shoulder and point wand down to ground or display hand with “thumbs down”; left hand remains at side by knee.</p>

	<p><b>27. Establish communication via interphone (technical/servicing communication signal)</b></p> <p>Extend both arms at 90 degrees from body and move hands to cup both ears.</p>
	<p><b>*28. Open/close stairs (technical/servicing communication signal)</b></p> <p>With right arm at side and left arm raised above head at a 45-degree angle, move right arm in a sweeping motion towards top of left shoulder.</p> <p><i>* This signal is intended mainly for aircraft with the set of integral stairs at the front.</i></p>

#### 4.2. From the pilot of an aircraft to a signalman/marshaller

4.2.1. *These signals shall be used by a pilot in the cockpit with hands plainly visible to the signalman/marshaller, and illuminated as necessary to facilitate observation by the signalman/marshaller.*

##### 4.2.1.1. Brakes

- (a) *Brakes engaged:* raise arm and hand, with fingers extended, horizontally in front of face, then clench fist.
- (b) *Brakes released:* raise arm, with fist clenched, horizontally in front of face, then extend fingers.

##### 4.2.1.2. Chocks

- (a) *Insert chocks:* arms extended, palms outwards, move hands inwards to cross in front of face.

- (b) *Remove chocks*: hands crossed in front of face, palms outwards, move arms outwards.

4.2.1.3. Ready to start engine(s)

- (a) Raise the appropriate number of fingers on one hand indicating the number of the engine to be started.


**4.3. Technical/servicing communication signals**



4.3.1. *Manual signals shall only be used when verbal communication is not possible with respect to technical/servicing communication signals.*

4.3.2. *Signalmen/marshalls shall ensure that an acknowledgement is received from the flight crew with respect to technical/servicing communication signals.*

**5. STANDARD EMERGENCY HAND SIGNALS**

5.1. The following hand signals are established as the minimum required for emergency communication between the ARFF incident commander/ARFF firefighters and the cockpit and/or cabin crews of the incident aircraft. ARFF emergency hand signals should be given from the left front side of the aircraft for the cockpit crew.

	<p style="text-align: center;"><b>1. Recommend Evacuation</b></p> <p>Evacuation recommended based on aircraft rescue and fire-fighting and Incident Commander's assessment of external situation.</p> <p>Arm extended from body, and held horizontal with hand upraised at eye level. Execute beckoning arm motion angled backward. Non-beckoning arm held against body.</p> <p>Night – same with wands.</p>
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	<p style="text-align: center;"><b>2. Recommend Stop</b></p> <p>Recommend evacuation in progress be halted. Stop aircraft movement or other activity in progress.</p> <p>Arms in front of head – Crossed at wrists</p> <p>Night – same with wands</p>
	<p style="text-align: center;"><b>3. Emergency Contained</b></p> <p>No outside evidence of dangerous conditions or “all-clear.”</p> <p>Arms extended outward and down at a 45 degree angle. Arms moved inward below waistline simultaneously until wrists crossed, then extended outward to starting position.</p> <p>Night – same with wands.</p>



#### 4. Fire

Move right-hand in a “fanning” motion from shoulder to knee, while at the same time pointing with left hand to area of fire.

Night – same with wands.

## APPENDIX 2

### UNMANNED FREE BALLOONS

#### 1. CLASSIFICATION OF UNMANNED FREE BALLOONS

##### 1.1. Unmanned free balloons shall be classified as (see Figure AP3-1):

- (a) *light*: an unmanned free balloon which carries a payload of one or more packages with a combined mass of less than 4 kg, unless qualifying as a heavy balloon in accordance with c) 2), 3) or 4); or
- (b) *medium*: an unmanned free balloon which carries a payload of two or more packages with a combined mass of 4 kg or more, but less than 6 kg, unless qualifying as a heavy balloon in accordance with c) 2), 3) or 4) below; or
- (c) *heavy*: an unmanned free balloon which carries a payload which:
  - (1) has a combined mass of 6 kg or more; or
  - (2) includes a package of 3 kg or more; or
  - (3) includes a package of 2 kg or more with an area density of more than 13 g per square centimetre, determined by dividing the total mass in grams of the payload package by the area in square centimetres of its smallest surface; or
  - (4) uses a rope or other device for suspension of the payload that requires an impact force of 230 N or more to separate the suspended payload from the balloon.

## 2. GENERAL OPERATING RULES

- 2.1. An unmanned free balloon shall not be operated without authorisation from the State from which the launch is made.
- 2.2. An unmanned free balloon, other than a light balloon used exclusively for meteorological purposes and operated in the manner prescribed by the competent authority, shall not be operated across the territory of another State without authorisation from the other State concerned.
- 2.3. The authorisation referred to in 2.2 shall be obtained prior to the launching of the balloon if there is reasonable expectation, when planning the operation, that the balloon may drift into airspace over the territory of another State. Such authorisation may be obtained for a series of balloon flights or for a particular type of recurring flight, e.g. atmospheric research balloon flights.
- 2.4. An unmanned free balloon shall be operated in accordance with conditions specified by the State of Registry and the State(s) expected to be overflown.
- 2.5. An unmanned free balloon shall not be operated in such a manner that impact of the balloon, or any part thereof, including its payload, with the surface of the earth, creates a hazard to persons or property.
- 2.6. A heavy unmanned free balloon shall not be operated over the high seas without prior coordination with the ANSP(s).



CHARACTERISTICS		PAYLOAD MASS (kilogrammes)					
		1	2	3	4	5	6 or more
ROPE or OTHER SUSPENSION  230 Newtons or MORE		<b>HEAVY</b>					
INDIVIDUAL PAYLOAD PACKAGE  AREA DENSITY more than 13 g/cm <sup>2</sup>	AREA DENSITY less than 13 g/cm <sup>2</sup>						
COMBINED MASS (if Suspension OR Area density OR Mass of individual package are not factors)		<b>LIGHT</b>		<b>MEDIUM</b>			

Figure AP2-1

**3. OPERATING LIMITATIONS AND EQUIPMENT REQUIREMENTS**

- 3.1. A heavy unmanned free balloon shall not be operated without authorisation from the ANSP(s) at or through any level below 18 000 m (60 000 ft) pressure-altitude at which:
  - (a) there are clouds or obscuring phenomena of more than four oktas coverage; or
  - (b) the horizontal visibility is less than 8 km.

- 3.2. A heavy or medium unmanned free balloon shall not be released in a manner that will cause it to fly lower than 300 m (1 000 ft) over the congested areas of cities, towns or settlements or an open-air assembly of persons not associated with the operation.
- 3.3. A heavy unmanned free balloon shall not be operated unless:
- (a) it is equipped with at least two payload flight-termination devices or systems, whether automatic or operated by telecommand, that operate independently of each other;
  - (b) for polyethylene zero-pressure balloons, at least two methods, systems, devices, or combinations thereof, that function independently of each other are employed for terminating the flight of the balloon envelope;
  - (c) the balloon envelope is equipped with either a radar reflective device(s) or radar reflective material that will present an echo to surface radar operating in the 200 MHz to 2 700 MHz frequency range, and/or the balloon is equipped with such other devices as will permit continuous tracking by the operator beyond the range of ground-based radar.
- 3.4. A heavy unmanned free balloon shall not be operated under the following conditions:
- (a) in an area where ground-based SSR equipment is in use, unless it is equipped with a secondary surveillance radar transponder, with pressure-altitude reporting capability, which is continuously operating on an assigned code, or which can be turned on when necessary by the tracking station; or
  - (b) in an area where ground-based ADS-B equipment is in use, unless it is equipped with an ADS-B transmitter, with pressure-altitude reporting capability, which is continuously operating or which can be turned on when necessary by the tracking station.

- 3.5. An unmanned free balloon that is equipped with a trailing antenna that requires a force of more than 230 N to break it at any point shall not be operated unless the antenna has coloured pennants or streamers that are attached at not more than 15 m intervals.
- 3.6. A heavy unmanned free balloon shall not be operated below 18 000 m (60 000 ft) pressure-altitude at night or during any other period prescribed by the competent authority, unless the balloon and its attachments and payload, whether or not they become separated during the operation, are lighted.
- 3.7. A heavy unmanned free balloon that is equipped with a suspension device (other than a highly conspicuously coloured open parachute) more than 15 m long shall not be operated during night below 18 000 m (60 000 ft) pressure-altitude unless the suspension device is coloured in alternate bands of high conspicuity colours or has coloured pennants attached.

#### **4. TERMINATION**

- 4.1. The operator of a heavy unmanned free balloon shall activate the appropriate termination devices required by 3.3 a) and b):
- (a) when it becomes known that weather conditions are less than those prescribed for the operation;
  - (b) if a malfunction or any other reason makes further operation hazardous to air traffic or to persons or property on the surface; or
  - (c) prior to unauthorised entry into the airspace over another State's territory.

#### **5. FLIGHT NOTIFICATION**

##### **5.1. Pre-flight Notification**

*5.1.1. Early notification of the intended flight of an unmanned free balloon in the medium or heavy category shall be made to the appropriate air traffic services unit not less than seven days before the date of the intended flight.*

*5.1.2. Notification of the intended flight shall include such of the following information as may be required by the appropriate air traffic services unit:*

- (a) balloon flight identification or project code name;
- (b) balloon classification and description;
- (c) SSR code, aircraft address or NDB frequency as applicable;
- (d) operator's name and telephone number;
- (e) launch site;

- (f) estimated time of launch (or time of commencement and completion of multiple launches);
- (g) number of balloons to be launched and the scheduled interval between launches (if multiple launches);
- (h) expected direction of ascent;
- (i) cruising level(s) (pressure-altitude);
- (j) the estimated elapsed time to pass 18 000 m (60 000 ft) pressure-altitude or to reach cruising level if at or below 18 000 m (60 000 ft), together with the estimated location. If the operation consists of continuous launchings, the time to be included shall be the estimated time at which the first and the last in the series will reach the appropriate level (e.g. 122136Z–130330Z);
- (k) the estimated date and time of termination of the flight and the planned location of the impact/recovery area. In the case of balloons carrying out flights of long duration, as a result of which the date and time of termination of the flight and the location of impact cannot be forecast with accuracy, the term “long duration” shall be used. If there is to be more than one location of impact/recovery, each location shall be listed together with the appropriate estimated time of impact. If there is to be a series of continuous impacts, the time to be included shall be the estimated time of the first and the last in the series (e.g. 070330Z–072300Z).

5.1.3. *Any changes in the pre-launch information notified in accordance with Paragraph 5.1 shall be forwarded to the air traffic services unit concerned not less than 6 hours before the estimated time of launch, or in the case of solar or cosmic disturbance investigations involving a critical time element, not less than 30 minutes before the estimated time of the commencement of the operation.*

## 5.2. Notification of Launch

5.2.1. *Immediately after a medium or heavy unmanned free balloon is launched the operator shall notify the appropriate air traffic services unit of the following:*

- (a) balloon flight identification;
- (b) launch site;
- (c) actual time of launch;
- (d) estimated time at which 18 000 m (60 000 ft) pressure-altitude will be passed, or the estimated time at which the cruising level will be reached if at or below 18 000 m (60 000 ft), and the estimated location; and
- (e) any changes to the information previously notified in accordance with 5.1.2 g) and h).

### 5.3. Notification of Cancellation

- 5.3.1. *The operator shall notify the appropriate air traffic services unit immediately it is known that the intended flight of a medium or heavy unmanned free balloon, previously notified in accordance with Paragraph 5.1, has been cancelled.*

## 6. POSITION RECORDING AND REPORTS

- 6.1. The operator of a heavy unmanned free balloon operating at or below 18 000 m (60 000 ft) pressure-altitude shall monitor the flight path of the balloon and forward reports of the balloon's position as requested by air traffic services. Unless air traffic services require reports of the balloon's position at more frequent intervals, the operator shall record the position every 2 hours.
- 6.2. The operator of a heavy unmanned free balloon operating above 18 000 m (60 000 ft) pressure-altitude shall monitor the flight progress of the balloon and forward reports of the balloon's position as requested by air traffic services. Unless air traffic services require reports of the balloon's position at more frequent intervals, the operator shall record the position every 24 hours.
- 6.3. If a position cannot be recorded in accordance with 6.1 and 6.2, the operator shall immediately notify the appropriate air traffic services unit. This notification shall include the last recorded position. The appropriate air traffic services unit shall be notified immediately when tracking of the balloon is re-established.
- 6.4. One hour before the beginning of planned descent of a heavy unmanned free balloon, the operator shall forward to the appropriate ATS unit the following information regarding the balloon:
- (f) the current geographical position;
  - (g) the current level (pressure-altitude);
  - (h) the forecast time of penetration of 18 000 m (60 000 ft) pressure-altitude, if applicable;
  - (i) the forecast time and location of ground impact.
- 6.5. The operator of a heavy or medium unmanned free balloon shall notify the appropriate air traffic services unit when the operation is ended.

**Appendix 3****TABLE OF CRUISING LEVELS**

1.1 The cruising levels to be observed are as follows:

TRACK*											
From 000 degrees to 179 degrees						From 180 degrees to 359 degrees					
IFR Flights			VFR Flights			IFR Flights			VFR Flights		
FL	Level Feet	Metres	FL	Level Feet	Metres	FL	Level Feet	Metres	FL	Level Feet	Metres
010	1 000	300	–	–	–	020	2 000	600	–	–	–
030	3 000	900	035	3 500	1 050	040	4 000	1 200	045	4 500	1 350
050	5 000	1 500	055	5 500	1 700	060	6 000	1 850	065	6 500	2 000
070	7 000	2 150	075	7 500	2 300	080	8 000	2 450	085	8 500	2 600
090	9 000	2 750	095	9 500	2 900	100	10 000	3 050	105	10 500	3 200
110	11 000	3 350	115	11 500	3 500	120	12 000	3 650	125	12 500	3 800
130	13 000	3 950	135	13 500	4 100	140	14 000	4 250	145	14 500	4 400
150	15 000	4 550	155	15 500	4 700	160	16 000	4 900	165	16 500	5 050
170	17 000	5 200	175	17 500	5 350	180	18 000	5 500	185	18 500	5 650
190	19 000	5 800	195	19 500	5 950	200	20 000	6 100	205	20 500	6 250
210	21 000	6 400	215	21 500	6 550	220	22 000	6 700	225	22 500	6 850
230	23 000	7 000	235	23 500	7 150	240	24 000	7 300	245	24 500	7 450
250	25 000	7 600	255	25 500	7 750	260	26 000	7 900	265	26 500	8 100
270	27 000	8 250	275	27 500	8 400	280	28 000	8 550	285	28 500	8 700
290	29 000	8 850				300	30 000	9 150			
310	31 000	9 450				320	32 000	9 750			
330	33 000	10 050				340	34 000	10 350			
350	35 000	10 650				360	36 000	10 950			
370	37 000	11 300				380	38 000	11 600			
390	39 000	11 900				400	40 000	12 200			
410	41 000	12 500				430	43 000	13 100			
450	45 000	13 700				470	47 000	14 350			
490	49 000	14 950				510	51 000	15 550			
etc.	etc.	etc.	etc.			etc.	etc.	etc.			

\* Magnetic track, or in polar areas at latitudes higher than 70 degrees and within such extensions to those areas as may be prescribed by the competent authorities, grid tracks as determined by a network of lines parallel to the Greenwich Meridian superimposed on a polar stereographic chart in which the direction towards the North Pole is employed as the Grid North.

## APPENDIX 4 — ATS AIRSPACE CLASSES — SERVICES PROVIDED AND FLIGHT REQUIREMENTS

(SERA.6001 and SERA.5025 (b) refers)

<i>Class</i>	<i>Type of flight</i>	<i>Separation provided</i>	<i>Service provided</i>	<i>Speed limitation (*)</i>	<i>Radio communication capability requirement</i>	<i>Continuous two-way air-ground voice communication required</i>	<i>Subject to an ATC clearance</i>
<b>A</b>	IFR only	All aircraft	Air traffic control service	Not applicable	Yes	Yes	Yes
<b>B</b>	IFR	All aircraft	Air traffic control service	Not applicable	Yes	Yes	Yes
	VFR	All aircraft	Air traffic control service	Not applicable	Yes	Yes	Yes
<b>C</b>	IFR	IFR from IFR IFR from VFR	Air traffic control service	Not applicable	Yes	Yes	Yes
	VFR	VFR from IFR	1) Air traffic control service for separation from IFR; 2) VFR/VFR traffic information (and traffic avoidance advice on request)	250 kts IAS below 3 050 m (10 000 ft) AMSL	Yes	Yes	Yes
<b>D</b>	IFR	IFR from IFR	Air traffic control service, traffic information about VFR flights (and traffic avoidance advice on request)	250 kts IAS below 3 050 m (10 000 ft) AMSL	Yes	Yes	Yes

<i>Class</i>	<i>Type of flight</i>	<i>Separation provided</i>	<i>Service provided</i>	<i>Speed limitation (*)</i>	<i>Radio communication capability requirement</i>	<i>Continuous two-way air-ground voice communication required</i>	<i>Subject to an ATC clearance</i>
	VFR	Nil	IFR/VFR and VFR/VFR traffic information (and traffic avoidance advice on request)	250 kts IAS below 3 050 m (10 000 ft) AMSL	Yes	Yes	Yes
<b>E</b>	IFR	IFR from IFR	Air traffic control service and, as far as practical, traffic information about VFR flights	250 kts IAS below 3 050 m (10 000 ft) AMSL	Yes	Yes	Yes
	VFR	Nil	Traffic information as far as practical	250 kts IAS below 3 050 m (10 000 ft) AMSL	No (**)	No (**)	No
<b>F</b>	IFR	IFR from IFR as far as practical	Air traffic advisory service; flight information service if requested	250 kts IAS below 3 050 m (10 000 ft) AMSL	Yes (***)	No (***)	No



<i>Class</i>	<i>Type of flight</i>	<i>Separation provided</i>	<i>Service provided</i>	<i>Speed limitation (*)</i>	<i>Radio communication capability requirement</i>	<i>Continuous two-way air-ground voice communication required</i>	<i>Subject to an ATC clearance</i>
	VFR	Nil	Flight information service if requested	250 kts IAS below 3 050 m (10 000 ft) AMSL	No (**)	No (**)	No
<b>G</b>	IFR	Nil	Flight information service if requested	250 kts IAS below 3 050 m (10 000 ft) AMSL	Yes (**)	No (**)	No
	VFR	Nil	Flight information service if requested	250 kts IAS below 3 050 m (10 000 ft) AMSL	No (**)	No (**)	No

(\*) When the level of the transition altitude is lower than 3 050 m (10 000 ft) AMSL, FL 100 should be used in lieu of 10 000 ft. Competent Authority may also exempt aircraft types, which for technical or safety reasons, cannot maintain this speed

(\*\*) Pilots shall maintain continuous air-ground voice communication watch and establish two-way communication, as necessary, on the appropriate communication channel in RMZ.

(\*\*\*) Air-ground voice communications mandatory for flights participating in the advisory service. Pilots shall maintain continuous air-ground voice communication watch and establish two-way communication, as necessary, on the appropriate communication channel in RMZ.

## APPENDIX 5

### REQUIREMENTS REGARDING SERVICES IN AIR NAVIGATION

#### TECHNICAL SPECIFICATIONS RELATED TO AIRCRAFT OBSERVATIONS AND REPORTS BY VOICE COMMUNICATIONS

#### 1. CONTENTS OF AIR-REPORTS

##### 1.1 SPECIAL AIR-REPORTS

##### 1.1.1 The elements contained in special air-reports shall be:

Message type designator

Section 1 (Position information)

Aircraft identification

Position or latitude and longitude

Time

Level or range of levels

Section 3 (Meteorological information)

Condition prompting the issuance of a special air-report, to be selected from the list presented in SERA.12005 (a).

#### 2. SPECIFIC PROVISIONS RELATED TO REPORTING WIND SHEAR AND VOLCANIC ASH

##### 2.1 Reporting of wind shear

2.1.1 When reporting aircraft observations of wind shear encountered during the climb-out and approach phases of flight, the aircraft type shall be included.

2.1.2 Where wind shear conditions in the climb-out or approach phases of flight were reported or forecast but not encountered, the pilot-in-command shall advise the appropriate air traffic services unit as soon as practicable unless the pilot-in-command is aware that the appropriate air traffic services unit has already been so advised by a preceding aircraft.

##### 2.2 Post-flight reporting of volcanic activity

- 2.2.1 On arrival of a flight at an aerodrome, the completed report of volcanic activity shall be delivered by the aircraft operator or a flight crew member, without delay, to the aerodrome meteorological office, or if such office is not easily accessible to arriving flight crew members, the completed form shall be dealt with in accordance with local arrangements made by the meteorological authority and the aircraft operator.
- 2.2.2 The completed report of volcanic activity received by a meteorological office shall be transmitted without delay to the meteorological watch office responsible for the provision of meteorological watch for the flight information region in which the volcanic activity was observed.

### Supplement to the Annex

List of commonly agreed differences to be notified to ICAO in accordance with Article 5 of this Regulation:

#### ICAO Annex 2

#### **Differences between this Regulation and the International Standards contained in Annex 2 (10<sup>th</sup> Edition, up to and including Amendment 42) to the Convention on International Civil Aviation**

<b>Difference A2-01</b>	
ICAO Annex 2 Chapter 3 3.2.2	New Provision. Regulation [This Regulation], SERA.3210 (b), specifies:  <i>“(b) An aircraft that is aware that the manoeuvrability of another aircraft is impaired shall give way to that aircraft.”</i>
<b>Difference A2-02</b>	
ICAO Annex 2 Chapter 3 3.2.3.2. b)	Regulation [This Regulation], paragraph SERA.3215 (b)(2), specifies (with the addition to ICAO Standard in Annex 2, 3.2.3.2 b) of the underlined text):  <i>“(2) unless stationary and otherwise adequately illuminated, all aircraft on the movement area of an aerodrome shall display lights intended to indicate the extremities of their structure, <u>as far as practicable</u>.”</i>
<b>Difference A2-03</b>	
ICAO Annex 2 Chapter 3 3.2.5. c) & d)	Regulation [This Regulation], paragraph SERA.3225 differs from ICAO Standard in Annex 2, 3.2.5. c) and 3.2.5. d) in that it specifies that subparagraphs (c) and (d) do not apply to balloons:  <i>“(c) <u>except for balloons</u>, make all turns to the left, when approaching for a landing and after taking off, unless otherwise indicated, or instructed by ATC;</i>  <i>(d) <u>except for balloons</u>, land and take off into the wind unless safety, the runway configuration, or air traffic considerations determine that a different direction is preferable.”</i>
<b>Difference A2-04</b>	

<p>ICAO Annex 2 Chapter 3 3.3.1.2</p>	<p>ICAO Annex 2, 3.3.1.2 is replaced with Regulation [This Regulation] SERA.4001 (b). The differences between this ICAO Standard and this Union regulation are as follows:</p> <ul style="list-style-type: none"> <li>– With regards to VFR flights planned to operate across international borders, the Union regulation (SERA.4001 (b)(5)) differs from the ICAO Standard in Annex 2, 3.3.1.2 e) with the addition of the underlined text, as follows:  <i><u>“any flight across international borders, unless otherwise prescribed by the States concerned.”</u></i></li> <li>– With regard to VFR and IFR flights planned to operate at night, an additional requirement is inserted to Union regulation SERA.4001 (b)(6) as follows:  <i>“(6) any flight planned to operate at night, if leaving the vicinity of an aerodrome”</i></li> </ul> <p>This difference is also addressed in <b>Difference A2-06</b> below for VFR.</p>
<p><b>Difference A2-05</b></p>	
<p>ICAO Annex 2 Chapter 3 3.2.2.4.</p>	<p>New Provision. Regulation [This Regulation], paragraph SERA.3210(c)(3)(i) differs from ICAO Standard in Annex 2, 3.2.2.4. by specifying that:  <i>“(i) Sailplanes overtaking. A sailplane overtaking another sailplane may alter its course to the right or to the left.”</i></p>
<p><b>Difference A2-06</b></p>	

<p>ICAO Annex 2</p> <p>Chapter 4</p> <p>4.3</p>	<p>New provision. ICAO Annex 2, 4.3, is replaced with Regulation [This Regulation] SERA.5005 (c). The difference is that Regulation [This Regulation] adds requirements under which VFR flights at night may be permitted, as follows:</p> <p><i>“(c) When so prescribed by the competent authority, VFR flights at night may be permitted under the following conditions:</i></p> <p><i>(1) if leaving the vicinity of an aerodrome, a flight plan shall be submitted;</i></p> <p><i>(2) flights shall establish and maintain two-way radio communication on the appropriate ATS communication channel, when available;</i></p> <p><i>(3) the VMC visibility and distance from cloud minima as specified in Table 3-2 shall apply except that:</i></p> <p><i>i) the ceiling shall not be less than 450 m (1 500 ft);</i></p> <p><i>ii) except as specified in 4.3 d), the reduced flight visibility provisions specified in Table 3-2 a) and b) shall not apply;</i></p> <p><i>iii) in airspace classes B, C, D, E, F and G, at and below 900 m (3000 ft) above MSL or 300 m (1000 ft) above terrain, whichever is the higher, the pilot shall maintain continuous sight of the surface;</i></p> <p><i>iv) for helicopters in airspace classes F and G, flight visibility shall not be less than 3 km, provided that the pilot maintains continuous sight of the surface and if manoeuvred at a speed that will give adequate opportunity to observe other traffic or obstacles in time to avoid collision; and</i></p> <p><i>v) for mountainous terrain, higher VMC visibility and distance from cloud minima may be prescribed.</i></p> <p><i>(4) ceiling, visibility and distance from cloud minima lower than those specified 4.3 c) above may be permitted for helicopters in special cases, such as medical flights, search and rescue operations and fire-fighting.</i></p> <p><i>(5) except when necessary for take-off or landing, or except when specifically authorised by the competent authority, a VFR flight at night shall be flown at a level which is not below the minimum flight altitude established by the State whose territory is overflown, or, where no such minimum flight altitude has been established:</i></p> <p><i>i) over high terrain or in mountainous areas, at a level which is at least 600 m (2 000 ft) above the highest obstacle located within 8 km of the estimated position of the aircraft;</i></p> <p><i>ii) elsewhere than as specified in i), at a level which is at least 300 m (1 000 ft) above the highest obstacle located within 8 km of the estimated position of the aircraft.”</i></p>
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<b>Difference A2-07</b>	
ICAO Annex 2 Chapter 4 4.6	<p>ICAO Annex 2, 4.6, is replaced with Regulation [This Regulation] SERA.5005, introducing the obstacle clearance criteria in (f), as follows:</p> <p><i>“(f) Except when necessary for take-off or landing, or except by permission from the competent authority, a VFR flight shall not be flown:</i></p> <p><i>a) over the congested areas of cities, towns or settlements or over an open-air assembly of persons at a height less than 300 m (1 000 ft) above the highest obstacle within a radius of 600 m from the aircraft;</i></p> <p><i>b) elsewhere than as specified in 4.6 a), at a height less than 150 m (500 ft) above the ground or water, or 150 m (500 ft) <u>above the highest obstacle within a radius of 150 m (500 ft) from the aircraft.</u>”</i></p>
<b>Difference A2-08</b>	
ICAO Annex 2 Chapter 3 3.8 and Appendix 2	<p>The words "in distress" of Chapter 3 Part 3.8, are not included in Union law, thus enlarging the scope of escort missions to any type of flight requesting such service. Furthermore the provisions contained in Appendix 2 Parts 1.1 to 1.3. inclusive as well as those found in Attachment A, are not contained in Union law.</p>

## ICAO Annex 11

**Differences between this Regulation and the International Standards contained in Annexes 11 (13th edition, up to and including Amendment 47-B) and 3 (17th edition, up to and including Amendment 75) to the Convention on International Civil Aviation.**

<b>Difference A11-01</b>	
ICAO Annex 11 Chapter 2 Para 2.25.5	<i>Regulation [This Regulation] SERA.3401 (d)(1) differs from ICAO Annex 11, standard 2.25.5 by stating that</i>  <i>"Time checks shall be given <u>at least</u> to the nearest <del>half</del>-minute"</i>
<b>Difference A11-02</b>	
ICAO Annex 11 Chapter 2 Para 2.6.1	Exemption possibility. Regulation [This Regulation] paragraph SERA.6001. allows aircraft to exceed the 250 knot speed limit where approved by the Competent Authority for aircraft types, which for technical or safety reasons, cannot maintain this speed
<b>Difference A11-03</b>	
ICAO Annex 11 Chapter 3	New provision. Regulation [This Regulation], paragraph SERA.8005(b), specifies:  (b) Clearances issued by air traffic control units shall provide separation:  a) between all flights in airspace Classes A and B;  b) between IFR flights in airspace Classes C, D and E;  c) between IFR flights and VFR flights in airspace Class C;  d) between IFR flights and special VFR flights;  e) between special VFR flights unless otherwise prescribed by the competent authority;  <u>except that, when requested by the pilot of an aircraft and agreed by the pilot of the other aircraft and if so prescribed by the competent authority for the cases listed under b) above in airspace Classes D and E, a flight may be cleared subject to maintaining own separation in respect of a specific portion of the flight below 3050 M (10 000 ft) during climb or descent, during day in visual meteorological conditions.</u>
<b>Difference A11-04</b>	



<p>ICAO Annex 11 Chapter 3</p>	<p>Regulation [This Regulation], paragraph SERA.8015, specifies (with the addition to ICAO Standard in Annex 11, 3.7.3.1 of the underlined text):</p> <p>(e) Read-back of clearances and safety-related information</p> <p>(1) The flight crew shall read back to the air traffic controller safety-related parts of ATC clearances and instructions which are transmitted by voice. The following items shall always be read back:</p> <p>(i) ATC route clearances;</p> <p>(ii) clearances and instructions to enter, land on, take off from, hold short of, cross, <u>taxi</u> and backtrack on any runway; and</p> <p>(iii) runway-in-use, altimeter settings, SSR codes, <u>newly assigned communication channels</u>, level instructions, heading and speed instructions; and</p> <p>(iv) transition levels, whether issued by the controller or contained in ATIS broadcasts.</p>
<p><b>Difference A11-05</b></p>	
<p>ICAO Annex 11 Chapter 3</p>	<p>Regulation [This Regulation], paragraph SERA.8015(e)(2), specifies (with the addition to ICAO Standard in Annex 11, 3.7.3.1.1 of the underlined text):</p> <p>(2) Other clearances or instructions, including conditional clearances <u>and taxi instructions</u>, shall be read back or acknowledged in a manner to clearly indicate that they have been understood and will be complied with.</p>
<p><b>Difference A11-06</b></p>	
<p>ICAO Annex 11 Chapter 3</p>	<p>New provision. Regulation [This Regulation], paragraph SERA.5010, specifies:</p> <p><b>SERA.5010 Special VFR in control zones</b></p> <p>Special VFR flights may be authorized to operate within a control zone, subject to an ATC clearance. Except when permitted by the competent authority for helicopters in special cases such as medical flights, search and rescue operations and fire-fighting, the following additional conditions shall be applied:</p> <p>a) by the pilot:</p> <p>(1) clear of cloud and with the surface in sight;</p>

	<p>(2) the flight visibility is not less than 1 500 m or, for helicopters, not less than 800 m;</p> <p>(3) at speed of 140 kts IAS or less to give adequate opportunity to observe other traffic and any obstacles in time to avoid a collision; and</p> <p>b) by ATC:</p> <p>(1) during day only, unless otherwise permitted by the competent authority;</p> <p>(2) the ground visibility is not less than 1 500 m or, for helicopters, not less than 800 m;</p> <p>(3) the ceiling is not less than 180 m (600 ft).</p>
<b>Difference A03-07</b>	
ICAO Annex 3 Chapter 5	<p>New provision. Regulation [This Regulation], paragraph SERA.12005, specifies:</p> <p>(b) Competent authorities shall prescribe as necessary other conditions which shall be reported by all aircraft when encountered or observed.</p>