



Notice of Proposed Amendment 2014-09

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

RMT.0148 (ATM.001(a)) — 3.4.2014

EXECUTIVE SUMMARY

NPA 2012-10 already proposed the subject transposition. More than 200 adverse comments were received. Hence, the Agency organised a 'focussed consultation', whose outcome was a significantly revised resulting text of the proposed rules and, therefore, the need to withdraw NPA 2012-10 and publishing instead this second NPA on the same matter.

Stakeholders were informed on this line to be taken through CRD 2012-10 of 18 November 2013 and did not react adversely.

The purpose of this second NPA on the subject is still to propose the alignment of the European common rules of the air (SERA) with Amendment 43 to Annex 2 to the Chicago Convention, in relation to RPAS and in line with Article 2.2(d) of Regulation (EC) No 216/2008.

This NPA also implements Article 4(a) and 4(b) of Regulation (EC) No 551/2004 on the organisation and use of the airspace in the single European sky. In other words, the proposed rules have a double legal basis and propose:

- rules of the air applicable to RPAS of any mass, when flown under General Air Traffic (GAT) rules;
- nothing related to airworthiness, lincensing of remote pilots and operations of RPAS outside the scope of Regulation (EC) No 216/2008 (e.g. below 150 kg).

Applicability			Process map	
Affected regulations and decisions:	Commission Regulation (EU) (SERA)	Implementing No 923/2012	Concept Paper:	No
Affected stakeholders:	Competent authorities, operators	RPAS	Terms of Reference:	29.9.2010
Driver/origin:	Legal obligation		Rulemaking group:	No
Reference:	Regulation (EC) No 551/2004 Regulation (EC) No 216/2008		RIA type:	Light
			Technical consultation during NPA drafting:	Yes
			Duration of NPA consultation:	3 months
			Review group:	No
			Focussed consultation:	Yes
			Publication date of the Opinion:	2015/Q1
			Publication date of the Decision:	2016/Q2

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1. Procedural information

1.1. The rule development procedure

The European Aviation Safety Agency (hereinafter referred to as the 'Agency') developed this Notice of Proposed Amendment (NPA) in line with Regulation (EC) No 216/2008¹ (hereinafter referred to as the 'Basic Regulation') and the Rulemaking Procedure².

This rulemaking activity is included in the Agency's [4-year Rulemaking Programme](#) under RMT.0148 (ATM.001(a))³.

NPA 2012-10⁴ of 21 August 2012 already proposed transposition of the standards concerning Remotely Piloted Aircraft Systems (RPAS) from Amendment 43 (applicable since November 2012) to Annex 2 to the Chicago Convention, into the Standard European Rules of the Air (SERA)⁵.

224 comments (mostly adverse) were received from 61 commentators. Hence, the Agency organised a 'focussed consultation' based on:

- individual interviews with Small and Medium-sized Enterprises (SMEs) involved in civil RPAS, in Paris, in December 2012;
- an 'ad hoc' meeting with authorities and stakeholders which had provided the most significant comments in March 2013; and
- a written 'peer review' of a completely revised text of the proposed rules with said authorities and stakeholders which produced 139 comments which were each individually replied in writing (and mostly accepted or at least partially accepted).

Since the resulting text of the proposed rules had been radically changed through said 'focussed consultation', the Agency decided to withdraw NPA 2012-10 and, instead, publish this second NPA on the same matter to give all authorities and stakeholders, even if not involved in the 'focussed consultation', a fair opportunity to comment.

Stakeholders were informed on this Decision through CRD 2012-10⁶ of 18 November 2013, and did not react against the idea of this second NPA which, on the contrary, was appreciated.

¹ Regulation (EC) No 216/2008 of the European Parliament and the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC (OJ L 79, 19.3.2008, p. 1), as last amended by Commission Regulation (EU) No 6/2013 of 8 January 2013 (OJ L 4, 9.1.2013, p. 34).

² The Agency is bound to follow a structured rulemaking 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'. See Management Board Decision concerning the procedure to be applied by the Agency for the issuing of Opinions, Certification Specifications and Guidance Material (Rulemaking Procedure), EASA MB Decision No 01-2012 of 13 March 2012.

³ [http://www.easa.europa.eu/rulemaking/docs/tor/atm/EASA-ToR-ATM.001\(a\)_ATM.001\(b\)-02-29092010.pdf](http://www.easa.europa.eu/rulemaking/docs/tor/atm/EASA-ToR-ATM.001(a)_ATM.001(b)-02-29092010.pdf)

⁴ <http://www.easa.europa.eu/rulemaking/docs/npa/2012/NPA%202012-10.pdf>.

⁵ [Commission Implementing Regulation \(EU\) No 923/2012](#) of 26 September 2012 laying down the common rules of the air and operational provisions regarding services and procedures in air navigation and amending Implementing Regulation (EU) No 1035/2011 and Regulations (EC) No 1265/2007, (EC) No 1794/2006, (EC) No 730/2006, (EC) No 1033/2006 and (EU) No 255/2010 (OJ L 281, 13.10.2012, p.1).

⁶ <http://www.easa.europa.eu/rulemaking/docs/crd/2012/CRD%202012-10.pdf>.

The text of this NPA has been developed by the Agency and is mainly based on the result of the above-mentioned 'focussed consultation'. It is hereby submitted for consultation of all interested parties⁷.

The process map on the title page contains the major milestones of this rulemaking activity to date and provides an outlook of the timescale of the next steps.

1.2. The structure of this NPA and related documents

Chapter 1 of this NPA contains the procedural information related to this task. Chapter 2 (Explanatory Note) explains the core technical content. Chapter 3 contains the proposed text for the new requirements. Chapter 4 contains the Regulatory Impact Assessment showing which options were considered and what impacts were identified, thereby providing the detailed justification for this NPA.

1.3. How to comment on this NPA

Please submit your comments using the automated **Comment-Response Tool (CRT)** available at <http://hub.easa.europa.eu/crt/>⁸.

The deadline for submission of comments is **3 July 2014**.

1.4. The next steps in the procedure

Following the closing of the NPA public consultation period, the Agency will review all comments.

The outcome of the NPA public consultation will be reflected in the respective Comment-Response Document (CRD).

The Agency will publish the CRD with the Opinion containing proposed changes to Commission Implementing Regulation (EU) No 923/2012 (SERA) and it is addressed to the European Commission, to be used as a technical basis in order to prepare an amendment to the EU regulation.

Following the adoption of this Regulation, the Agency will issue a Decision containing the related amendments to Acceptable Means of Compliance (AMC) and Guidance Material (GM) to SERA.

⁷ In accordance with Article 52 of the Basic Regulation and Articles 5(3) and 6 of the Rulemaking Procedure.

⁸ In case of technical problems, please contact the CRT webmaster (crt@easa.europa.eu).

2. Explanatory Note

2.1. Overview of the issues to be addressed

Remotely piloted aircraft systems (RPAS), also named UAV, UAS or drones, due to their reduced weight and cost, coupled with miniaturised electronics and relatively simple required skills for the remote pilot, are suitable for civil operations.

RPAS operations, of course, occur in the airspace where also 'manned' aviation is present. Thus, RPAS may originate risks both for people on the ground and for other airspace users.

Therefore, in 2007 ICAO initiated the development of international provisions for these new types of aircraft and in 2012 Amendment 43 to Annex 2 to the Chicago Convention was adopted. The basic principles underlying such an amendment are that:

- (a) the civil RPAS has to be airworthy (or at least safe enough for sustained flight), otherwise no flight operation can be initiated in line with Article 31 of the Chicago Convention;
- (b) the remote pilot shall be competent and, where required, licensed, in accordance with Article 32 of same Convention; and
- (c) the civil RPAS operator (commercial or non-commercial) shall be certified (or hold other form of authorisation) in line with the modern approach to aviation safety (e.g. enshrined by ICAO Annex 19);
- (d) only after (a), (b) and (c), the RPAS operator may request to access non-segregated airspace.

In summary, the ICAO standards require that RPAS are inserted in the 'total aviation system' and not just 'into the airspace' (or Air Traffic Management (ATM)).

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

Furthermore, the demarcation between model aircraft and toy falling into the definition of aircraft, which was clear until the end of last century, is today becoming blurred, due to the accelerated development and insertion in the market of more sophisticated systems, of reduced dimensions and with no pilot on board, even capable of significant performances.

While this NPA does not intend to propose common rules for model aircraft or toy aircraft, it is, nevertheless, necessary to draw a demarcation line between them and RPAS with the maximum possible legal clarity.

For more detailed analysis of the issues addressed by this proposal, please refer to the RIA section 4.1. 'Issues to be addressed'.

2.2. Objectives

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

The specific objectives of this proposal are to:

- (a) amend SERA to cover also RPAS flying under General Air Traffic (GAT) rules, including military or governmental non-military or other public flights⁹ when they elect to fly GAT, as well as any civil RPAS flight, regardless of the mass of the aircraft;
- (b) establish the basic principle that EU Member States shall authorise RPAS operators for the intended operations within their respective sovereign airspace¹⁰;
- (c) transpose amendment 43 to ICAO Annex 2, as mentioned in Regulatory Improvement 01 in the EU RPAS Roadmap for cross-border flights inside the EU, without prejudice to future adoption of common EU rules on mutually recognised certifications; and
- (d) establish a clear demarcation between RPAS on one hand and model aircraft and toy aircraft on the other.

⁹ The expression 'public flights' is not used in current EU legislation. It is used in the USA to include e.g. flights with prototypes built by Universities, which have a public interest, but which are not strictly 'State' flights. In the EU, there are Agencies of the Union (e.g. EMSA, FRONTEX) which are potentially interested on RPAS. No rules for these flights are proposed by this NPA, but readers should be aware that the EU Agencies are not under the jurisdiction, for aviation matters, of any EU Member State.

¹⁰ This 'operations centric' approach is already applicable in several EU Member States, as well as in Australia, Japan and other countries around the world. All current National regulations in the EU exempt small RPAS executing VLOS operations outside congested areas from airworthiness certification and formal licensing of remote pilots. Until common EU rules would become applicable, detailed rules on the implementation of the principle are under the responsibility of individual States.

2.3. Summary of the Regulatory Impact Assessment (RIA)

To pursue the specific objectives identified in the paragraph above, five options have been identified:

No	Identification	Description
0	Do nothing	Do not amend SERA implementing rules (IR) and associated AMC/GM
1	Amend SERA (IR and AMC/GM)	Amend SERA implementing rules (IR) and associated AMC/GM to accommodate RPAS on the basis of Amendment 43 to ICAO Annex 2.
2	Amend Part-SPA (IR and AMC/GM)	Amend Part-SPA ¹¹ implementing rules (IR) and associated AMC/GM to accommodate RPAS on the basis of Amendment 43 to ICAO Annex 2
3	Amend Part-SPA (IR and AMC/GM)	Amend Part-SPO ¹² implementing rules (IR) and associated AMC/GM to accommodate RPAS on the basis of Amendment 43 to ICAO Annex 2
4	Develop IR and AMC for RPAS operations	Develop new and specific Part-RPAS as Annex IX of AIR-OPS and related AMC/GM

The identified options have been compared from the safety, social, environmental, economic, proportionality and regulatory harmonisation perspectives. All the considerations have been expressed in non-dimensional coefficients according to the Multi-Criteria Analysis (MCA) methodology, with higher 'weighted' scores assigned to safety (3) and environment (2).

Option 0 ('do nothing') is extremely negative as regards the overall score, and not positive from any perspective. It is also the worst and most negative in safety terms.

Option 1 (include a minimum initial set of common RPAS rules in SERA) is the unique highly positive as regards the overall score. It is also positive from all the other perspectives, except environment, for which it is neutral. In particular, it is the only Option positive from the safety perspective.

Option 2 (include a minimum initial set of common RPAS rules in Part-SPA) is overall slightly negative, but it is negative from both the safety and economic perspectives.

Option 3 (include a minimum initial set of common RPAS rules in Part-SPO) also has a negative overall score, although being positive from the safety perspective, but highly negative from the economic and proportionality point of view.

Option 4 (develop a new Part-RPAS to be included in AIR-OPS) is also overall negative, including in terms of safety and regulatory harmonisation.

In conclusion, Option 1 (include a minimum initial set of common RPAS rules in SERA) has to be preferred.

¹¹ Annex V to Commission Regulation (EU) No 965/2012 of 5 October 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 296, 25.10.2012, p.1)

¹² Proposed by Opinion No 02/2012: [http://easa.europa.eu/agency-measures/docs/opinions/2012/02/Part-SPO%20IR%20\(Opinion%2002-2012\).pdf](http://easa.europa.eu/agency-measures/docs/opinions/2012/02/Part-SPO%20IR%20(Opinion%2002-2012).pdf).

2.4. Overview of the proposed amendments

2.4.1. General

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, also taking into account that:

- several EU Member States have already established national rules for civil RPAS (below 150 kg);
- the majority of EU Member States has not yet done so;
- a common denominator¹³ across all the promulgated rules is the central role of the RPAS operator, its responsibilities and privileges (in the case of very light RPAS even in the absence of formal airworthiness processes); and
- the conceptual approach to regulate access of RPAS to airspace and RPAS operations, should desirably be identical above and below 150 kg.

It is therefore necessary to transpose Amendment 43 to ICAO Annex 2, for uniform applicability in all Member States

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 A to this NPA. **Since this text has been adopted by the ICAO Council, no comments are invited on it.**

In summary, the proposed amendments mainly introduce new definitions specific for RPAS, draw a clear demarcation in respect of model aircraft and toy aircraft, and enshrine into EU law the principles that:

- before any civil RPAS operation, the RPAS operator needs a certificate or other form of authorisation; and
- before crossing intra-EU borders, the technical requirements in Amendment 43 to Annex 2 apply, based on Article 8 of the Chicago Convention, without prejudice on future EU common rules on mutually recognised certifications.

The envisaged changes to Commission Implementing Regulation (EU) No 923/2012 laying down the common rules of the air (SERA) and to the related AMC/GM are presented in more detail in the paragraphs below.

2.4.2. Amendment to paragraph 3.6.2.2 of ICAO Annex 2

Amendment 43 to ICAO Annex 2 included also an amendment to paragraph 3.6.2.2 (Inadvertent changes) of the same Annex.

This topic is out of the scope of this NPA, since it is included in NPA 2014-05 on SERA Part C (RMT.0609 (ATM.001(a)) and RMT.0610 (ATM.001(b))).

¹³ So called 'operations centric' approach.

2.4.3. RPAS in ICAO Annex 2: a controversial issue

Amendment 43 to Annex 2 to the Chicago Convention covers other aspects related to RPAS besides their integration in airspace, namely the principles that the RPAS shall be airworthy, the remote pilots licensed and the RPAS operator certified. However, specific ICAO standards and recommended practices (SARPs) for the airworthiness and operation of RPAS as well as for licensing of the remote pilot have not been developed yet.

After discussions at working level in the UAS Study Group, in the Air Navigation Commission (ANC) and finally in the Council, ICAO decided to insert provisions (even if limited to basic principles in few lines of text) on airworthiness, operations and licensing of remote pilots in the rules of the air.

During the process, a school of thought correctly stated that pilot licensing, operations and airworthiness are beyond the scope of Annex 2.

The opposite school of thought, without denying the factual truth contained in the position of the former school of thought, however, observed that:

- sufficient time (several years) was needed before having SARPs in Annexes 1, 6, 8 and 10 to the Chicago Convention;
- nevertheless, civil RPAS operations were emerging in several ICAO Contracting States and, therefore, a quick solution was needed, to avoid too much mismatch among the national rules, which would have made future standardisation even more difficult;
- in particular, RPAS had to be inserted into the 'total aviation system' (i.e. starting from airworthiness and licensing of remote pilots) and not simply into airspace/ATM and, since this was not clear in the community, ICAO should clearly and urgently make its voice heard.

In the end, the second school of thought was enshrined by ICAO in amendment 43 to Annex 2, which indeed goes beyond the 'purist' approach. In paragraph 2. of Appendix 4 therein in fact, the message is extremely clear:

2. Certificates and licensing

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) an 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.'

In the future, ICAO intends to remove from Annex 2 the paragraphs which do not strictly belong to the rules of the air. According to Article 2.2.(d) of Basic Regulation, the Agency will take into account these developments, and launch appropriate RMTs as required to equally remove some material from SERA and associated AMC/GM.

But, for the time being, it is important to note that ICAO SARPs only apply to international global civil aviation (i.e. mainly to products and operations flying from continent to continent). The stringent requirements mentioned above may, therefore, apply to operations Beyond Visual Line-of-Sight (BVLOS) and above 500 ft, regardless of the mass of the RPA, since Very Low Level (VLL) operations or VLOS operations have no relevance on the global scale.

This NPA follows the same approach; i.e.:

- a ‘quick and dirty’ solution into SERA, which, on one hand is based on current experience in Member States, and on the other hand fixes some basic principles (e.g. before flying, the RPAS operator needs to be authorised by the competent authority);
- nothing preventing Member States to establish less stringent rules for simpler operations (e.g. VLOS), which in fact is already happening today¹⁴.

All the above, without prejudice to future EU common rules on RPAS safety, which, as today in several Member States will be based on the principle of proportionality: i.e. simplified requirements and simplified administrative procedures for flights within the airspace under sovereignty of the EU Member States for the simpler operations out of congested areas, as necessary to build the internal market, is in line with Article 2.2(b), (c) and (f) of Basic Regulation.

2.4.4. NPA and CRD 2012-10

2.4.4.1 Consultation on NPA 2012-10

NPA 2012-10 received 224 comments from 61 commentators. The comments were mostly adverse to the proposals contained therein for a number of reasons.

As a result, the Agency decided to launch a ‘focussed consultation’, as described in paragraph 1.1.

2.4.4.2 Focussed consultation

Based on the comments received on NPA 2012-10 and said ‘focussed consultation’, the Agency concluded that:

- (a) the vast majority of commentators supported that option 2A in said former NPA (i.e. publish as soon as possible common rules to transpose Amendment 43 to ICAO Annex 2 into SERA) in the RIA, would be the way forward;
- (b) stakeholders agreed that the scope of the Agency is not limited to international civil aviation;
- (c) stakeholders also agreed that toy aircraft and model aircraft should not be covered by detailed common EU rules, but subject to a general obligation to minimise hazards to third parties;

¹⁴ According to informal contacts with UVS International <http://uvs-info.com/> more than 1 000 civil RPAS operators are legally authorised to execute commercial or non-commercial operations in the European States, on the basis of various forms of approval issued by the competent authorities at national level, but often in the absence of a formal airworthiness approval for the RPAS.

- (d) transposition should be focussed on the special authorisation to operate RPAS internationally;
- (e) AMC/GM (not included in NPA 2012-10) could be provided on other aspects, including airworthiness, licensing of remote pilots and operations, for which, however, specific EU common rules do not yet exist.

2.4.4.3 CRD 2012-10

The Agency, based on the above conclusions, developed a new text of the proposed rules, as proposed by this NPA. This new text represents a radical departure from the text proposed by NPA 2012-10. Consequently, the Agency intends to submit the resulting text of the proposed Opinion and Decision through this new NPA to give stakeholders, who were not directly involved in the focussed consultation, a fair opportunity to comment.

This intention was expressed in CDR 2012-10.

Ten reactions were received on the CRD, in general supporting the idea of a second NPA on the same subject, but also highlighting that:

- much more rulemaking activity is required on RPAS, harmonised with the planned development of amendments to ICAO Annexes 1 (licence of remote pilots), 6 (RPAS commercial and non-commercial operations, including aerial work), 8 (airworthiness) and 10 ('command and control', alias C2 link and 'detect and avoid'), which indeed is in the scope of the integrated project 'IniRPAS', for which the Terms of Reference are under development;
- the insertion of RPAS into airspace, should not oblige aircraft flying under normal VFR or IFR rules to carry additional equipment, and indeed, nothing in this NPA goes in that direction;
- the community of aero-modelists was in favour of clear demarcation between their models and the 'professional' RPAS, with only the latter subject to more stringent and common rules, which is in fact embedded in the rules proposed by this NPA;
- the transposition of the amendment to paragraph 3.6.2.2 (adherence to flight plan) of ICAO Annex 2 should be anticipated, which indeed is covered by NPA 2014-05, already published on 18 February 2014; and
- that also this NPA should include a specific RIA, considering that the options are different from those in NPA 2012-10 (in fact. the new RIA is contained in Chapter 4 below).

2.4.5. Amendments to SERA rules to accommodate RPAS proposed by this NPA

2.4.5.1 A much simpler and shorter implementing rule

NPA 2012-10 proposed a text counting 1 671 words of implementing rules (excluding preamble and supplement). This NPA proposes a much shorter text.

2.4.5.2 Double Legal basis

Also, the draft Regulation proposed by this NPA, as the already approved common rules of the air, has a double legal basis: the Basic Regulation and Regulation (EC) No 551/2004 (the 'airspace Regulation'). This means that the proposed rules of the air apply to all RPAS (civil or not), flying under General Air Traffic (GAT) rules, regardless of the mass (above or below 150 kg).

However, the proposed rules contain no provisions related to airworthiness, flight operations and remote crews of RPAS out of the scope of the Basic Regulation (e.g. below 150 kg).

2.4.5.3 Recitals

A new set of recitals is proposed for the future Regulation implementing Amendment 43 to ICAO Annex 2 and amending Commission Implementing Regulation (EU) No 923/2012.

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.

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.

Recital (4) recalls Article 8 of the Chicago Convention, requiring 'special authorisation' flights by aircraft without pilot on board, if crossing borders.

Recital (5) links Article 8 of the Chicago Convention with the proposed rules.

Recital (6) reminds that specific ICAO SARPs for airworthiness and operations of RPAS, as well as for remote pilots, do not yet exist.

Recital (7) announces that common rules for airworthiness, personnel competence and RPAS operations will be developed in due time by the Agency, but always within the limits of the scope of competence in the Basic Regulation. Before promulgation of such rules, national rules adopted by the State of Registry and/or the State of Operator apply.

Recitals (8) and (9) refer to the procedure leading to adoption of the proposed rules.

2.4.5.4 Model aircraft and toy aircraft

2.4.5.4.1 Model aircraft

Significant debate took place in the community, in the comments to NPA 2012-10, in the subsequent 'focussed consultation', but also in several other forums, regarding the relationship and demarcation between model aircraft and RPAS. The discussion was complicated by the facts that:

- in the past the demarcation between model aircraft and 'real' aircraft was clear, since the latter were manned;
- traditionally manned general aviation may include 'professional' applications (e.g. transport of business persons on business jets), but also 'recreational' uses;
- traditionally the rules on manned non-commercial aviation were less stringent than those on commercial air transport, in order to grant a higher level of protection to paying passengers;
- in the case of RPAS, which carry on board no humans, there is instead no justification to apply less stringent rules to non-commercial operations, since the risk for third parties (on the ground or in the air) is identical.

Finally, it was concluded that:

- model aircraft are those exclusively used for recreational, sport or similar purposes (regardless of mass, authorised operations and on-board sensors); and
- RPAS are those used for 'professional' purposes (commercial, non-commercial, corporate, aerial work).

The Agency does not intend to propose detailed common rules for model aircraft, since there is no evidence that the current regime, based on national rules, is unsafe.

This position was appreciated, through an informal exchange of mails, with prominent members of the aero-modelist community:

'I am so pleased to see that you are proposing to keep the definition of model aircraft simple and easy to understand. It is something I have continually strived to achieve within Europe and you seem to have grasped this need from the comments received on NPA 2012-10.

You are totally correct in not wishing to change the status quo for model flying in any way through the introduction of RPAS, we model fliers are really proud of the excellent safety record we have achieved throughout our life span which now is more than 110 years.'

2.4.5.4.2 Toy aircraft

The 'toy Directive'¹⁵ applies to products designed or intended, whether or not exclusively, for use in play by children under 14 years of age.

Some of these toys are capable of flight and fall under the definition of aircraft.

The Directive aims at protecting the 'user' of the toy from any possible hazard (e.g. toxic materials), but it does not cover risks for third parties on the ground or in the air.

It is, hence, necessary to link the SERA also to 'toy aircraft', however, even in this case, leaving the responsibility to possibly adopt more detailed rules of the Member States.

This is also necessary taking into account the evolution of the state of art which allows to offer on the market sophisticated products able of sustained flight and equipped with cameras, which are so easy to use, that they can be marked under the toy Directive.

2.4.5.4.3 Operation of model aircraft and toy aircraft

This NPA, hence, proposes a new paragraph 4 in Article 1 of Commission Implementing Regulation (EU) No 923/2012, giving the Member States the responsibility to adopt rules on the use of model aircraft and toy aircraft similarly to the principle of 'due regard' already applied to State flights.

No new rules are deemed necessary in the Annex (Rules of the Air) to this Regulation, since rule SERA.3101 (Negligent or reckless operation of aircraft) is already sufficient and applicable to model aircraft and toy aircraft:

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

2.4.5.5 New definitions in Article 2

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) remote pilot;
- (b) remote pilot station (RPS);
- (c) remotely piloted aircraft (RPA);

¹⁵ Directive 2009/48/EC of the European Parliament and of the Council of 18 June 2009 on the safety of toys (OJ L 170, 30.6.2009, p. 1)

- (d) remotely piloted aircraft system (RPAS);
- (e) RPA observer; and
- (f) visual line-of-sight (VLOS) operations.

All the wording for the proposed definitions listed above is identical to the ICAO expressions.

Furthermore, a definition of 'Unmanned Aircraft' is included, modelled on ICAO Circular 328 published in 2011 and, as resulting from the comments to NPA 2012-10 and from the 'focussed consultation'. Two additional definitions which are not standardised by ICAO, are included as well, since they are of no global relevance, but necessary in the EU.

- (a) model aircraft;
- (b) toy aircraft (modelled from the 'toy Directive').

Finally, two more definitions are 'copied and pasted' from the single European sky implementing rule on the 'flexible use of the airspace'¹⁶ to refer to 'reserved' or 'restricted' airspace. They both can be considered 'segregated' airspace. Conversely, 'non-segregated' airspace is airspace other than reserved or restricted.

2.4.5.6 New rule SERA.3138 on RPAS

2.4.5.6.1 Minimise hazards

The new rule SERA.3138 on remotely piloted aircraft is proposed. Paragraph (a) therein mentions the principle of minimising hazards for third parties. This provision is modelled on standard 3.1.9 which was introduced by ICAO through Amendment 43 to Annex 2.

2.4.5.6.2 Authorisation to RPAS operators

Draft SERA.3138(b) contains the principle that any civil RPAS operations has to be authorised, upon request by the RPAS operator.

This principle is already harmonised across all the national rules adopted so far by several EU Member States which all are 'operations centric', with simplified requirements and procedures for the simplest cases, in which the only official necessary authorisation (approval or certification) is issued to the RPAS operator.

Criteria and processes for such authorisation, which can be issued in various forms, are not contained in the proposed rule, but left to the discretion of the Member States, until more detailed common EU provisions on RPAS operations would not be adopted and published.

In parallel to promulgation of common rules on RPAS airworthiness, remote pilot licensing and RPAS operator and operations, some material from text proposed by this NPA, will be removed from SERA.

2.4.5.6.3 Authorisation to fly over a State other than the State of the registry (or operator)

Proposed rule SERA.3138(c) transposes Article 8 of the Chicago Convention and, therefore, it is applicable when an RPAS operator wishes to fly beyond the border of the State of Registry (if the RPAS is subject to registration) or the State of Operator, until such time that common RPAS rules will become applicable in the EU.

¹⁶ Commission Regulation (EC) No 2150/2005 of 23 December 2005 laying down common rules for the flexible use of airspace (OJ L 342, 24.12.2005, p. 20)

2.4.5.6.4 Coordination for flying over high seas

SERA.3138(d) of the proposed common rules introduce the provision of coordination with ATS to fly over high seas. However, according to the airspace classification (e.g. no prior notice to ATS necessary for flying into Class G), such coordination is believed necessary only to enter controlled airspace.

2.4.5.6.5 Procedures for authorisation

Finally, SERA.3138(e) mandates the competent authorities to establish procedures for granting, or justifying denial of authorisations to RPAS operators. This already happens in the EU Member States that have promulgated rules for RPAS.

To achieve the objective of 'uniform' safety, it is necessary to establish a legal basis to mandate also the remaining States to do so.

This rule is worded to allow States to exercise, in addition to the technical and operational assessment, the discretionary powers granted to them by Article 8 of the Chicago Convention. Since these powers are totally discretionary, neither AMC nor GM is proposed to explain them, until such time that common RPAS rules on mutually recognised certifications will become applicable in the EU.

2.4.5.7 Amendment to SERA supplement

The proposed amendment to the supplement of SERA, contains only one difference, connected to rule SERA.3138(c) mentioned above.

2.4.6. Amendments to SERA AMC/GM to accommodate RPAS

2.4.6.1 Proposed new GM1 to SERA 3101 (model aircraft and toy aircraft)

Neither detailed rules nor AMC are proposed for model aircraft or toy aircraft. However, from the consultation held so far, the need emerged to include, for clarity and illustrative purposes, a new GM1 to SERA.3101.

This GM includes in particular the concept that model aircraft and toy aircraft remain such, even if equipped with sensors necessary for flight or with cameras or similar, providing the use of the model remains exclusively for recreational, sport or competition purposes.

The Agency believes that, in the light of the current state of the art, this clarification is necessary.

2.4.6.2 Taxonomy of operations

GM1 SERA.3138(a) introduces a taxonomy of RPAS operations not based on the mass, but triggered by the EU 'roadmap'¹⁷ on RPAS.

This taxonomy, although only proposed as GM, is most important since in the future it may be used to establish 'proportionate' rules for RPAS not based on the mass, like was done by the aviation pioneers last century, but on the growing complexity of different types of operations.

2.4.6.3 Authorisation to fly in a State other than the State of registry or operator

On the contrary, AMC1 and AMC2 to SERA.3138(c), transpose the requirements established by ICAO, but only within the limits of competence of that organisation.

Furthermore, Appendix to AMC2 proposes a form which States and RPAS operators may use to file a request for authorisation to cross borders, until such time that common RPAS rules on mutually recognised certificates will become applicable in the EU.

¹⁷ http://ec.europa.eu/enterprise/sectors/aerospace/uas/index_en.htm

2.4.6.4 Coordination with ATS

AMC1 SERA.3138(d) relates to the need of coordination with ATS, after the competent authority has granted its approval, and before the actual flight.

2.4.6.5 Authorisation to fly in the State of Registry or of the Operator

AMC1 and AMC2 to SERA.3138(e) propose to establish a few simple principles to guide Member States when establishing rules for RPAS operations.

These principles neither mention airworthiness, nor pilot licensing. Furthermore, they do not include the long list of requirements established by ICAO to cross borders.

3. Proposed amendments

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

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

3.1. Draft Regulation (Draft EASA Opinion)

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

amending Commission Implementing Regulation (EU) No 923/2012 laying down the common rules of the air and operational provisions regarding services and procedures in air navigation and amending Regulations (EU) 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)¹⁸, 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 Basic Regulation)¹⁹, and in particular Articles 8 and 8b thereof and Annex Vb thereto,

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 taking into account Standards and Recommended Practices (SARPs) 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 923/2012 on common rules of the air and operational provisions regarding services and procedures in air navigation. This Regulation implemented SARPs contained in Annex 2 to the Convention on International Civil Aviation (Chicago Convention of 7 December 1944).
- (3) By State Letter AN 13/1.1-12/19 of 10 April 2012 ICAO 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).

¹⁸ 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) (Text with EEA relevance) - Commission statement OJ L 96, 31.3.2004, p. 20–25 Regulation as last amended by Regulation (EC) No 1070/2009 of the European Parliament and of the Council of 21 October 2009 (OJ L 300, 14.11.2009, p. 34).

¹⁹ OJ L 79, 19.3.2008, p. 1 as amended by Commission Regulation (EC) No 690/2009 (OJ L 199, 31.07.2009, p. 6), Regulation 1108/2009 (OJ L 309, 24.11.2009, p. 51) and Commission Regulation (EU) No 6/2013 (OJ L 4, 09.01.2013, p. 34).

- (4) Article 8 of the Chicago Convention requires that pilotless aircraft may only fly over the territory of a contracting State after having obtained a special authorisation granted by that State and in accordance with the terms of such authorisation.
- (5) Article 11 of the Basic Regulation, on the mutual recognition of certificates, will in the future facilitate the application of Article 8 of the Chicago Convention;
- (6) In order to amend Commission Implementing Regulation (EU) No 923/2012 so as to reflect Amendment 43 to Annex 2 to the Chicago Convention, in full respect for the principle contained in Article 8 of the Chicago Convention, 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 sovereignty of a different Member State is hereby introduced.
- (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. However, specific ICAO SARPs for the airworthiness, operation and pilot licensing in the field of RPAS have not been developed yet.
- (8) As the entry into force of common European requirements on airworthiness, air operations and pilot licensing in the field of RPAS, and in the limits of competence of the Basic Regulation is pending, Member States' national regulations continue to apply. Until the adoption and applicability of such common EU requirements, RPAS will be operated in accordance with the conditions specified by the State of Registry and the State of the Operator, as well as by the State(s) in which the flight is to operate.
- (9) 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.
- (10) The measures provided for in this Regulation are in accordance with the opinion of the Committee established by Article 5 of Regulation (EC) No 549/2004²⁰,

HAS ADOPTED THIS REGULATION:

Article 1

Commission Implementing Regulation (EU) No 923/2012 is amended as follows:

1. In Article 1 a new paragraph 4 is added as follows:
 4. Member States shall ensure that model aircraft and toy aircraft are operated in such a manner as to minimise hazards to persons, property or other aircraft.
2. In Article 2, the following definitions are added:
 - 24a 'airspace reservation' means a defined volume of airspace temporarily reserved for exclusive or specific use by categories of users;
 - 24b 'airspace restriction' means a defined volume of airspace within which, variously, activities dangerous to the flight of aircraft may be conducted at specified times (a 'danger area'); or such airspace situated above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain

²⁰ Regulation (EC) No 549/2004 of the European Parliament and of the Council of 10 March 2004 laying down the framework for the creation of the single European sky (the framework Regulation) (Text with EEA relevance) - Statement by the Member States on military issues related to the single European sky (OJ L 96, 31.3.2004, p. 1).

specified conditions (a 'restricted area'); or airspace situated above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited (a 'prohibited area');

95a 'model aircraft' means a non-human-carrying aircraft capable of sustained flight in the atmosphere and used exclusively for air display, recreational, sport or competition activity;

108a. 'remote pilot' means a person charged by the operator with duties essential to the operation of a remotely piloted aircraft and who manipulates the flight controls from a remote pilot station, during flight operations;

108b. 'remote pilot station' (RPS) means a 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 and it is neither a model aircraft, nor a toy aircraft;

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;

129a. 'toy aircraft' means a product designed or intended, whether or not exclusively, for use in play by children under 14 years of age and falling under the definition of aircraft.

137a. 'unmanned aircraft' means an aircraft intended to be operated with no pilot on board;

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 on Rules of the Air:

SERA.3138 Remotely piloted aircraft

Until common technical rules on RPAS become applicable:

- (a) An RPAS, shall be operated in such a manner as to minimise hazards to persons, property or other aircraft.
- (b) The operator of an RPAS shall only operate an RPAS after receiving appropriate authorisation from the competent authority designated by the Member State where the RPA is registered, or, in the case of an RPA not required to be registered, from the competent authority designated by the Member State where the operator resides or has its principal place of business.
- (c) the operator of an RPAS shall only operate an RPA in the airspace under the sovereignty of a State other than the one issuing the authorisation in (b) when appropriately authorised by the competent authority designated by that State.
- (d) The operator of an RPAS shall not operate an RPA over the high seas, in controlled airspace, without prior coordination with the appropriate Air Traffic Service Provider (ATSP).
- (e) Competent authorities shall establish procedures for granting authorisations to RPAS operators, including requirements for application, issuance, suspension, limitation, revocation and approval of changes of such authorisations. These

procedures shall ensure that an authorisation is only granted or denied on the basis of specific, valid and documented criteria.

4. The heading of the supplement to the Annex is amended as follows:

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 (10th edition, up to and including Amendment 423) to the Convention on International Civil Aviation

5. A new difference is introduced in the supplement to the ANNEX as follows:

<p>Difference A2-09 ICAO Annex 2 Appendix 4, paragraph 1.3</p>	<p>Commission Implementing Regulation (EU) No 923/2012, paragraph SERA.3138(d), specifies (with the addition to ICAO Standard in Annex 2, Appendix 4, 1.3 of the underlined text):</p> <p>The operator of an RPAS shall not operate an RPA over the high seas, <u>in controlled airspace</u>, without prior coordination with the appropriate Air Traffic Service Provider (ATSP).</p> <p>The words 'in controlled airspace' are introduced, since no prior coordination is required to fly e.g. in uncontrolled airspace (Class F or G) over the high seas.</p>
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Article 2

1. This Regulation shall enter into force on the 20th day following its publication in the *Official Journal of the European Union*.
2. It shall apply from [four months after publication in the *Official Journal of the European Union*].

3.2. Draft Acceptable Means of Compliance and Guidance Material (Draft EASA Decision)

Draft Amendment to Acceptable Means of Compliance and Guidance Material to Commission Implementing Regulation (EU) No 923/2012

GM1 SERA.3101 Negligent or reckless operation of aircraft

OPERATION OF MODEL AIRCRAFT AND TOY AIRCRAFT

- (a) Directive 2009/48/EC²¹ (the 'Toy Directive') lays down rules on the safety of toys and on their free movement in the internal market to protect their users, but not third parties as a consequence of the use of toy aircraft.
- (b) States have the responsibility to ensure that a model aircraft or toy aircraft, is operated in such a manner as to minimise hazards to persons, property or other aircraft.¹
- (c) Model aircraft and toy aircraft remain such, even if equipped with sensors necessary for flight (e.g. altimeter) or with cameras or similar, providing the use of the model or toy aircraft remains exclusively for recreational, sport or competition purposes.
- (d) The intent of the term 'aircraft capable of being flown without a pilot' within Article 8 of the Chicago Convention is to refer to aircraft capable of being flown without a pilot-in-command on board (i.e. either an RPA or a model aircraft or a toy aircraft).
- (e) The responsibility recalled in (b) is similar to the obligation for 'due regard' for the safety of navigation of civil aircraft, in Article 3 d) of the same Convention, addressed to state aircraft.
- (f) When equipped with any device capable of getting data from the outside world (e.g. cameras, radars, microphones, etc.), EU and national regulations on privacy and data protection apply.

GM1 SERA.3138(a) Remotely piloted aircraft

TAXONOMY OF OPERATIONS

RPA typical flight pattern may comprise a wide range of scenarios, which could be categorised in the following types of operations:

- (a) Very low level (VLL) operations below the minimum heights prescribed for normal IFR or VFR operations: for instance below 500 ft (~150 m) above ground level (AGL); they comprise:
 - (1) operations of tethered aircraft;
 - (2) Visual Line of Sight (VLOS) within a range from the remote pilot, in which the remote pilot maintains direct unaided visual contact with the RPA and which is not greater than 500 metres;
 - (3) Extended Visual Line of Sight (E-VLOS) where the remote pilot is supported by one or more observers and in which the remote crew maintains direct unaided visual contact with the RPA;
 - (4) Beyond VLOS (B-VLOS) where neither the remote pilot nor the observer maintain direct unaided visual contact with the RPA.
- (b) Operations of tethered aircraft, above the minimum heights in (a);

²¹ Directive 2009/48/EC of the European Parliament and of the Council of 18 June 2009 on the safety of toys (OJ L 170, 30.6.2009, p. 1)

- (c) Operations of non-tethered RPA above minimum heights in (a); they comprise:
- (1) E-VLOS operations above the minimum heights in (a);
 - (2) operations in which the RPAS operator directly manages the communication equipment necessary to link the RPA and the RPS;
 - (3) operations in which the RPAS operator contracts a Communication Service Provider to operate the communication equipment necessary to link the RPA and the RPS.
- (d) An increasing level of complexity corresponds to the different operations identified. Since not all the key technologies required for RPAS to fly in a mixed environment, where also 'manned' aviation is present, are today mature and standardised, the insertion of RPA into airspace should be based on a case-by-case assessment of the safety of the proposed operations, compiled by the RPAS operator or by a qualified entity.

AMC1 SERA.3138(c) Remotely piloted aircraft

CONDITIONS FOR AUTHORISATION TO RPAS FOR FLIGHT INTO, WITHIN OR OUT OF AIRSPACE UNDER THE SOVEREIGNTY OF A MEMBER STATE OTHER THAN THE STATE OF REGISTRY OR THE STATE OF THE OPERATOR

Authorisation by the competent authority should be granted to the RPAS operator provided that:

- (a) the operator complies with all the applicable requirements in the Annexes to Regulation (EC) No 216/2008;
- (b) the operator holds a valid RPAS operator certificate or equivalent and is capable of executing the intended operation in a safe manner;
- (c) the organisation and management of the RPAS operator, when this is an entity constituted by two or more persons, are suitable and properly matched to the scale and scope of the operation;
- (d) all the RPAs involved in the intended operation, if applicable, have a valid certificate of registration and a valid certificate of airworthiness;
- (e) all RPAS, if applicable, are approved, taking into account the interdependencies of the components specified in the type design, including command and control links;
- (f) all RPAS hold a valid radio station licence, if applicable;
- (g) all the RPAS involved in the intended operation are equipped with communications, navigation and surveillance systems, appropriate to the airspace in which the flight is intended to be operated;
- (h) in the case of operations which are beyond VLOS in non-segregated airspace, all the involved RPAS are equipped with detect and avoid function of adequate performance, to remain well clear of other traffic and to minimise the risk of mid-air collisions;
- (i) all the pilots involved in the intended operation, if applicable, hold a valid remote pilot's licence with appropriate ratings and endorsements;
- (j) the security of the command and control link is adequately ensured, as well as the physical security of the RPS; and
- (k) the operator has adequate insurance coverage.

AMC2 SERA.3138(c) Remotely piloted aircraft

REQUEST FOR AUTHORISATION FOR FLIGHT INTO, WITHIN OR OUT OF AIRSPACE UNDER THE SOVEREIGNTY OF A MEMBER STATE OTHER THAN THE STATE OF REGISTRY OR OF THE STATE OF THE RPAS OPERATOR

- (a) To obtain the authorisation to fly into, within or out of airspace under sovereignty of a Member State other than the State of registry or of the State of operator, the RPAS operator should apply to the competent authority of the former State, using the form in the Appendix to this AMC, until common rules on mutually recognised certificates become available.
- (b) The application should be made not less than seven days before the date of the intended first flight, unless otherwise specified by the Member State and in accordance with the notification requirements specified by the competent authority.
- (c) The application should include at least the following:
- (1) name and contact information of the operator;
 - (2) copy of the RPAS operator certificate or equivalent approval;
 - (3) 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 or area of operations, cruising speed(s), cruising level(s), route to be followed, maximum duration/frequency of flight;
 - (4) copy of the approval of the RPAS and of the certificate of airworthiness of the RPA, if applicable;
 - (5) copy of certificate of registration if applicable;
 - (6) copy of the remote pilot(s) licence(s) if applicable;
 - (7) copy of the RPA radio station licence, if applicable;
 - (8) RPA characteristics (type of aircraft, maximum take-off mass, number of engines, wing span);
 - (9) RPA identification to be used in radiotelephony, if applicable;
 - (10) take-off and landing requirements;
 - (11) RPA performance characteristics, including:
 - (i) operating speeds;
 - (ii) typical and maximum climb rates;
 - (iii) typical and maximum descent rates;
 - (iv) typical and maximum turn rates;
 - (v) other relevant performance data (e.g. limitations regarding wind, icing, precipitation); and
 - (vi) aircraft endurance.
 - (12) communications, navigation and surveillance capabilities:
 - (i) aeronautical safety communications frequencies and equipment, including:
 - ATC communications, including any alternate means of communication;

- command and control links including operating frequencies, performance parameters and designated operational coverage area;
 - communications between remote pilot and RPA observer, if applicable.
- (ii) navigation equipment; and
 - (iii) surveillance equipment.
- (13) detect and avoid capabilities in the case of operations which are beyond VLOS and in non-segregated airspace.
- (14) emergency or contingency procedures, including:
- (i) communications failure with ATC;
 - (ii) command and control (C2) link failure;
 - (iii) identification and mitigation of any failure condition which could cause hazards to the safety of persons or other aircraft;
 - (iv) remote pilot/RPA observer communications failure, if applicable.
- (15) number and location of remote pilot stations as well as handover procedures between remote pilot stations, if applicable;
- (16) document attesting noise certification that is consistent with the provisions of Article 6 of Regulation (EC) No 216/2008, if applicable to an RPA with an operating mass of 150 kg or more;
- (17) confirmation of compliance with system security standards to include security measures relevant to the RPAS operation, as appropriate;
- (18) payload information/description; and
- (19) proof of adequate insurance/liability coverage.
- (d) The certificates or other documents identified in (c) should be presented in one or more of the official language(s) of the Union, acceptable to the relevant competent authority in accordance with the procedures approved by the competent authority.

AMC1 SERA.3138(d) Remotely piloted aircraft**COORDINATION WITH AIR TRAFFIC SERVICES**

Once the authorisations in rule SERA.3138 paragraph (b) and, where necessary, paragraph (c) have been obtained, the RPAS operator should notify and coordinate with the relevant air traffic service provider to operate in controlled airspace.

AMC1 SERA.3138(e) Remotely piloted aircraft**AUTHORISATION TO RPAS TO OPERATE IN RESERVED OR RESTRICTED AIRSPACE**

- (a) The competent authority should, before authorising RPAS to operate in reserved or restricted airspace (e.g. for testing or for flight instruction), assess that such activity sufficiently minimises hazards to persons on the surface and property.
- (b) The competent authority should also be convinced that the probability for the RPA to inadvertently exit the reserved or restricted airspace is tolerable.
- (c) The authorisation should be for a single flight, for a series of flights or for a calendar period.

AMC2 SERA.3138(e) Remotely piloted aircraft

AUTHORISATION TO RPAS TO OPERATE IN AIRSPACE OTHER THAN RESERVED OR RESTRICTED

- (a) The competent authority should, before authorising RPAS to operate in airspace other than reserved or restricted, assess that the RPAS is equipped with the minimum mandatory technical equipment for the airspace classification it is intended to enter and that such activity sufficiently minimises hazards to persons and property on the surface and to other airspace users.
- (b) The authorisation should either be for a single flight, a series of flights, a specific calendar period or an unlimited period, providing that the RPAS operator continues to comply with the applicable requirements and is subject to regulatory oversight.

Appendix to AMC2 SERA.3138(c) Remotely piloted aircraft

FORM TO REQUEST FOR AUTHORISATION TO FLY INTO, WITHIN OR OUT OF AIRSPACE UNDER SOVEREIGNTY OF A MEMBER STATE OTHER THAN THE STATE OF REGISTRY OR OF THE STATE OF THE RPAS OPERATOR

Operator information		
1. Name of operator	2. State of operator	
3. Mailing Address		
4. Contact number	5. E-mail address	
6. State of the operator, RPAS Operator Certificate Number (attach copy of RPAS operator certificate)	Alternative documents	
RPAS Information		
7. State of registry and aircraft registration (attach copies of certificate of registration and certificate of airworthiness)	Alternative airworthiness documents (attach copy)	
8. Aircraft Radio Station License Numbers (attach copy of aircraft radio station license)		
9. Noise certificate (attach copy of certificate)		
Remote Pilot(s) and RPA observer(s) information		
10. Name	11. Type of licenses or certificates and number (attach copy of licenses or certificates)	12. Experience of pilot or observer (detailed description)
A.		
B.		
C.		
D.		
E.		
F.		
RPA performance characteristics (including appropriate units of measurement) (attach picture or sketch of RPA)		
13. Type of aircraft	14. Maximum	15. Wake turbulence category

	<i>Take-off Mass</i>	
16. <i>Number and type of engine(s)</i>	17. <i>RPA dimensions (Wing span/rotor diameter)</i>	18. <i>Maximum speed</i>
19. <i>Minimum speed</i>	20. <i>Cruising speed</i>	
21. <i>Typical and maximum climb rates</i>	22. <i>Typical and maximum descent rates</i>	
23. <i>Typical and maximum turn rates</i>	24. <i>Maximum aircraft endurance</i>	
25. <i>Other relevant performance data or information to declare (maximum operating altitude)</i>		
26. <i>CNS capabilities (including alternate means of communication with remote pilot station(s))</i>		
<u>Communication</u> CPDLC <input type="checkbox"/> VHF <input type="checkbox"/> UHF <input type="checkbox"/> SATCOM <input type="checkbox"/> HF <input type="checkbox"/> Telephone: Landline <input type="checkbox"/> Mobile phone <input type="checkbox"/> <u>Navigation</u> DME <input type="checkbox"/> VOR <input type="checkbox"/> GNSS <input type="checkbox"/> ADF <input type="checkbox"/> ILS <input type="checkbox"/> GBAS <input type="checkbox"/> RNAV/RNP _____ <u>Surveillance</u> Transponder Mode(s) _____ <input type="checkbox"/> ADS-B <input type="checkbox"/> ADS-C <input type="checkbox"/> ACAS <input type="checkbox"/> <i>Other:</i>		
27. <i>Detect and avoid capabilities</i>		

Operations	
28. Purpose of operation	29. Aircraft identification to be used in radiotelephony, if applicable
30. Date of flight(s)	31. Duration/frequency of flight
32. Flight rules <input type="checkbox"/> I <input type="checkbox"/> Y <input type="checkbox"/> V <input type="checkbox"/> Z	33. Type of operation <input type="checkbox"/> VLOS <input type="checkbox"/> beyond VLOS
34. Number and location of Remote Pilot Station(s)	35. Handover procedure between Remote Pilot Stations
36. Point of departure	37. Point of destination
38. Take off and landing requirements	
39. Route	
40. Cruising level	
41. Payload information/description	
Use of communication capabilities	
42. ATS communications	
43. Command and control link	
44. Communications between remote pilot and RPA observer, if applicable	
45. Payload data link	
Emergency procedures	
46. Failure of ATC communications (partial or total)	
47. Failure of Command and Control link (partial or total)	
48. Failure of remote pilot/RPA observer communications	
49. Other emergency	

Security measures associated with the RPA operation		
50. <i>Physical security of remote pilot station</i>		
51. <i>Physical security of RPA while on the ground</i>		
52. <i>Security of command and control data link</i>		
Liability and insurance		
53. <i>Document number of liability insurance (attach copy of liability insurance document)</i>		
Past experiences (Note: also include unsuccessful operations)		
54. <i>Date</i>	55. <i>Location</i>	56. <i>Purpose and brief description of operation</i>
57. Attachments: <ul style="list-style-type: none"> <input type="checkbox"/> <i>copy of certificate of registration (one for each involved RPA)</i> <input type="checkbox"/> <i>copy of certificate of airworthiness (one for each involved RPA)</i> <input type="checkbox"/> <i>copy of associated RPAS components certificate(s)</i> <input type="checkbox"/> <i>copy of RPAS approval</i> <input type="checkbox"/> <i>copy of RPAS operator certificate</i> <input type="checkbox"/> <i>copy of Aircraft Radio Station Licenses</i> <input type="checkbox"/> <i>copy of licenses or certificates of Remote Pilot(s) and RPA Observer(s)</i> <input type="checkbox"/> <i>sketch of RPA</i> <input type="checkbox"/> <i>copy of insurance documents</i> <input type="checkbox"/> <i>copy of RPA noise certificate</i> <input type="checkbox"/> <i>other attachment(s):</i> 		
58. Signature of Applicant:		
59. Date:		

4. Regulatory Impact Assessment (RIA)

4.1. Issues to be addressed

Remotely piloted aircraft systems (RPAS), also named UAV, UAS or drones, have been known in aviation for about 100 years²². 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 out of the scope of the Agency as per Article 1.2 of the Basic Regulation.

Since these machines are relatively cheap and easy to operate, although implementing sophisticated automation and sensors, the purchase and operation becomes affordable even for civil physical persons or civil small or medium-sized enterprises (SMEs).

Commercial and non-commercial operations of civil RPAS are already proliferating in the EU today, without any common rules, and often beyond the areas used by aircraft under normal VFR and IFR rules (e.g. below 500 ft above ground level).

Several EU Member States already adopted national rules on civil RPAS (below 150 kg). More than 1 000 authorisations have been issued so far to RPAS operators using in almost the totality of cases RPA below 25 kg of total mass. All these States have promulgated rules or guidance material specific for RPAS (not just amended existing rules or guidance applicable to manned aviation). No catastrophic accidents have yet occurred.

One may argue that a 'high' safety level has already been achieved, but unfortunately the statistical data base is not yet sufficient to substantiate such optimistic statement. Besides that, the EU legislator tasked the Agency not only to pursue 'high' safety, but also 'uniform' safety across the 28 EU Member States.

An initial set of rules is, hence, necessary to initiate the long road towards establishing such 'uniform' safety.

Already in 2007 ICAO identified a similar need and initiated the development of international standards for these new types of aircraft.

The political authorities of the United States adopted in February 2012 the Federal Aviation Administration (FAA) Modernization and Reform Act of 2012²³ which:

- tasks FAA to develop a comprehensive integration plan within nine months which will result in a five-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; and
- tasks FAA to develop certification standards and air traffic requirements.

In conclusion, there are safety, legal and harmonisation reasons which dictate the initiation of filling the regulatory gap for RPAS.

4.1.1. Safety risk assessment

The proliferation of commercial and non-commercial RPAS operations without any common rules would potentially pose risks to third parties on the ground (especially in metropolitan

²² <http://www.nationalmuseum.af.mil/factsheets/factsheet.asp?id=320>.

²³ 112th Congress of the United States of America, H.R. 658, Subtitle B — Unmanned Aircraft Systems.

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.

Initial safety analysis carried out by the Agency, has identified some interesting factors in 60 RPAS accidents of which 51 were in military operations, 8 in civil operations and 1 in border protection. The key issues identified were:

- The majority of RPAS occurrences occurred during the en route phase of flight rather than during take-off and landing, which is normally the case for manned aviation;
- The most common cause was the loss of link to the autoflight system due to electrical and engine failures. One third of the accidents resulted in the aircraft crashing in non-safe areas where the safety of persons on the ground could not be guaranteed;
- Over half of the accidents involved the actions of the remote flight crew, mainly due to a lack of experience or knowledge. This was most evident in emergency situations and a number of accident reports noted that training and documentation issues contributed to the accident. It is, therefore, important that future regulation should ensure sufficient focus on training RPAS personnel for emergency situations.

It should be remembered that the majority of the accidents considered by the Agency involve military operations of RPAS, which have mainly been carried out in operational locations that might not necessarily be relevant to civil RPAS operations. However, the analysis has shown that there are many valuable lessons that can be learnt from military RPAS operations to support the fledgling civil RPAS community.

In this NPA it is assumed that:

- the statistical database (eight accidents to civil RPAS) and the absence of exposure data on the accrued number of flight hours make it, today, impossible to offer any quantitative assessment with confidence;
- in the history of aviation, in the case of fatal accidents, only one person died on the ground, as compared with a few hundred fatalities on board (two orders of magnitude difference);
- current AMC 25.1309 considers one catastrophic accident every 10 million flight hours acceptable;
- CS-23 and AIR-OPS accept that smaller airframes and general aviation can be two orders of magnitude less safe (= one fatal accident every 100 000 flight hours);
- most experts believe that RPAS have not yet reached the same rate of crashes as manned general aviation;

In this NPA it is hence assumed that:

- a civil RPAS could crash once out of 10 000 flight hours (10^{-5});
- only one crash out of 100 would fatally injure people on the ground (10^{-7}).
- For RPAS of few tens of kilos, the severity of the consequences could be catastrophic.

The above considerations can be summarised in the safety matrix below with the understanding that, when more data would be available, the results of the analysis could change.

Probability of occurrence		Severity of occurrence				
		Negligible	Minor	Major	Hazardous	Catastrophic
		1	2	3	5	8
Extremely improbable	1					
Improbable	2					X ²⁴
Remote	3					X ²⁵
Occasional	4					
Frequent	5					

Either in the case of footnote 25 or footnote 26, the current safety levels are not acceptable and, therefore, the promulgation of rules specific for RPAS should be initiated.

4.1.2. Who is affected?

The following stakeholders have been identified as possibly affected:

- competent authorities;
- civil RPAS operators.

4.1.3. How could the issue/problem evolve?

There are, today, persons or organisations flying RPAS for professional purposes and declaring that their machines are either model aircraft or toy aircraft.

Legal certainty has to be established otherwise the lack of clear rules could lead to a decrease of the safety level, which is already suboptimal.

4.2. Objectives

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

The specific objectives of this proposal are to:

- (a) amend SERA to cover also RPAS flying under General Air Traffic (GAT) rules, including military or governmental non-military or other public flights²⁶ when they

²⁴ Assuming as a benchmark the number of people potentially fatally injured on the ground.

²⁵ Assuming as a benchmark the number of crashes = one crash would fatally injure people on the ground with 100 % probability..

elect to fly GAT as well as any civil RPAS flight, regardless of the mass of the aircraft;

- (b) establish basic principles for the EU Member States to authorise RPAS operations within their respective sovereign airspace;
- (c) transpose Amendment 43 to ICAO Annex 2, for RPAS flights which cross the border between two or more Member States; and
- (d) establish a clear demarcation between RPAS on one hand and model aircraft and toy aircraft on the other.

4.3. Policy options

To pursue the specific objectives identified in the paragraph above, five options have been identified:

No.	Identification	Description
0	Do nothing	Do not amend SERA Implementing Rules (IRs) and associated AMC/GM
1	Amend SERA (IR and AMC/GM)	Amend SERA IRs and associated AMC/GM to accommodate RPAS on the basis of Amendment 43 to ICAO Annex 2.
2	Amend Part-SPA (IR and AMC/GM)	Amend Part-SPA ²⁷ IRs and associated AMC/GM to accommodate RPAS on the basis of Amendment 43 to ICAO Annex 2
3	Amend Part-SPO (IR and AMC/GM)	Amend Part-SPO ²⁸ IRs and associated AMC/GM to accommodate RPAS on the basis of Amendment 43 to ICAO Annex 2
4	Develop IR and AMC for RPAS operations	Develop new and specific Part-RPAS as Annex IX of AIR-OPS and related AMC/GM

²⁶ The expression 'public flights' is not used in current EU legislation. It is used in the USA to include e.g. flights with prototypes built by Universities, which have a public interest, but which are not strictly 'State' flights. In the EU there are Agencies of the Union (e.g. EMSA, FRONTEX) which are potentially interested on RPAS. No rules for these flights are proposed by this NPA, but readers should be aware that the EU Agencies are not under the jurisdiction, for aviation matters, of any EU member State.

²⁷ Annex V to Commission Regulation (EU) No 965/2012 of 05/10/2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council. (OJ L 296, 25.10.2012, p.1)

²⁸ Proposed by Opinion No 02/2012: [http://easa.europa.eu/agency-measures/docs/opinions/2012/02/Part-SPO%20IR%20\(Opinion%2002-2012\).pdf](http://easa.europa.eu/agency-measures/docs/opinions/2012/02/Part-SPO%20IR%20(Opinion%2002-2012).pdf).

4.4. Methodology

The first step is to identify possible alternative options, with the first one (Option 0) being always not to introduce any new or amended rule ('do nothing').

The identified options are then comparatively assessed in terms of safety, environmental, social and economic impacts, as well as proportionality and harmonisation.

All identified impacts are qualitatively assessed (RIA light) and expressed as a score, which is a numerical single digit. This is the principle of the Multi-Criteria Analysis (MCA) which allows to translate any assessment (qualitative or quantitative but not in the same units of measurement) into a non-dimensional numerical score, as in the table below:

Table 4: RIA unweighted scores

Scale for assessment of impacts	Score
Highly positive (High)	+5
Significantly positive (Medium)	+3
Slightly positive (Low)	+1
Neutral	0
Slightly negative (Low)	-1
Significantly negative (Medium)	-3
Highly negative (High)	-5

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' weight is 1.

Finally, all these scores are algebraically summed.

Significant differences in these final weighted scores, support the decision on the option to be preferred.

4.5. Analysis of impacts

4.5.1. Safety impact

The five identified options can be compared from the safety perspective in the table below:

Options	0	1	2	3	4
	Do nothing	SERA	Part-SPA	Part-SPO	Part-RPAS
Assessment	Safety of RPAS is suboptimal today and definitely not uniform across the 28 EU Member States. With the proliferation of civil RPAS operations already happening today, the situation could only become worse	'Quick and dirty' solution, which however offers some common guidelines and urges Member States which have not yet done so, to regulate RPAS.	Part-SPA is only applicable to the types of operations listed therein (e.g. PBN, RVSM, etc.) RPAS are not included. But, should they be included, Part-SPA only regulates 'additional' specific approvals for operators already authorised to carry out their operations. The rules would become confused if the normal RPAS operator approval were introduced in Part-SPA	Part-SPO has been written to cover aerial work by manned aircraft. The safety analysis highlighted above, showed that the risks for RPAS are significantly different (e.g. en route more critical than landing; loss link). Therefore, Part-SPO would not be effective in relation to RPAS operations.	The Agency (and even the community) do not possess yet sufficient experience to develop legally binding rules on RPAS operations. Therefore, an attempt to do so in the present time, would lead to long delays and discussions, as well as to the risk of not establishing proper rules.
Score (unweighted)	-5	3	-1	-3	-3
Weight	Multiply the unweighted score by: 3				
Score (weighted)	-15	9	-5	-9	-9

4.5.2. Environmental impact

All the five identified options are neutral from the environmental perspective.

4.5.3. Social impact

The five identified options can be compared from the social perspective in the table below:

Options	0	1	2	3	4
	Do nothing	SERA	Part-SPA	Part-SPO	Part-RPAS
Assessment	Missed opportunity to create highly qualified jobs in the EU Member States where no RPAS rules at all have been promulgated	'Quick and dirty' solution, allowing SMEs to grow and to spread across the 28 EU Member States, creating this way highly qualified jobs.	As for Option 1	As for Option 1	As for Option 1, but in a much longer timeframe.
Score (unweighted)	-3	3	3	3	1
Weight	Multiply the unweighted score by: 1				
Score (weighted)	-3	3	3	3	1

4.5.4. Economic impact

The five identified options can be compared from the economic perspective in the table below:

Options	0	1	2	3	4
	Do nothing	SERA	Part-SPA	Part-SPO	Part-RPAS
Assessment	Additional costs, due to uncertainty of rules, for RPAS operators wishing to operate in more than one Member State.	'Quick and dirty' solution, allowing RPAS operators to build their business case based on clearer and uniform rules when wishing to operate cross border	Less negative than Option 0, but still suboptimal, since not clarifying which is the basic approval of the RPAS operator. This confusion will drive additional cost	Improper and burdensome rules imposed on RPAS operators, leading to significant unnecessary cost.	As for Option 1, but in a much longer timeframe, so delaying the establishment of the internal market for RPAS operations.
Score (unweighted)	-3	3	-1	-5	-1
Weight	Multiply the unweighted score by: 1				
Score (weighted)	-3	3	-1	-5	-1

4.5.5. General aviation and proportionality issues

The five identified options can be compared from the proportionality perspective in the table below:

Options	0	1	2	3	4
	Do nothing	SERA	Part-SPA	Part-SPO	Part-RPAS
Assessment	SMEs operating RPAS would find it very hard to 'navigate' across several different national rules, published in several different languages.	'Quick and dirty' solution, allowing SMEs wishing to operate cross border to easily access a minimum set of common rules	As for Option 1	Burdensome rules on Part-SPO will affect even more SMEs.	As for Option 1, but in a much longer timeframe, so delaying the benefits for SMEs
Score (unweighted)	-3	1	1	-5	-1
Weight	Multiply the unweighted score by: 1				
Score (weighted)	-3	1	1	-5	-1

4.5.6. Impact on 'Better Regulation' and harmonisation

The five identified options can be compared from the proportionality perspective in the table below:

Options	0	1	2	3	4
	Do nothing	SERA	Part-SPA	Part-SPO	Part-RPAS
Assessment	Lack of harmonisation across the 28 EU Member States, especially comparing those which have adopted RPAS rules (the minority) with the majority lacking them. Missing transposition of ICAO provisions	'Quick and dirty' solution, offering a minimum set of common rules even to Member States not yet having adopted RPAS rules. Compliant with ICAO SARPs	'Quick and dirty' solution, offering a minimum set of common rules even to Member States not yet having adopted RPAS rules. Not compliant with ICAO SARPs, which require an operator certificate.	'Quick and dirty' solution, offering a minimum set of common rules even to Member States not yet having adopted RPAS rules. Not compliant with ICAO SARPs, which require specific RPAS requirements and not imposing them the same requirements applied to manned aviation.	Compliant with ICAO Annex 2, but not necessarily with Annex 6 in relation to RPAS, since the latter has not yet even been drafted.
Score (unweighted)	-5	5	-1	-3	-3
Weight	Multiply the unweighted score by: 1				
Score (weighted)	-5	5	-1	-3	-3

4.6. Comparison of options and conclusions

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

Options	0	1	2	3	4
	Do nothing	SERA	Part-SPA	Part-SPO	Part-RPAS
	Weighted score				
Safety	-15	9	-5	-9	-9
Environment	0	0	0	0	0
Social impact	-3	3	3	3	1
Economic impact	-3	3	-1	-5	-1
Proportionality	-3	1	1	-5	-1
Regulatory harmonisation	-5	5	-1	-3	-3
TOTAL	-29	21	-3	-19	-13

Option 0 ('do nothing') is extremely negative as regards the overall score, and not positive from any perspective. It is also the worst and most negative in safety terms.

Option 1 (include a minimum initial set of common RPAS rules in SERA) is the unique highly positive as regards the overall score. It is also positive from all the other perspectives, except environment, for which it is neutral. In particular, it is the only option which is positive from the safety perspective.

Option 2 (include a minimum initial set of common RPAS rules in Part-SPA) is overall slightly negative, but it is negative from both the safety and economic perspectives.

Option 3 (include a minimum initial set of common RPAS rules in Part-SPO) has a significant negative overall score, it is negative from the safety perspective, and highly negative from the economic and proportionality point of view.

Option 4 (develop a new Part-RPAS to be included in AIR-OPS) is also overall negative, including in terms of safety and regulatory harmonisation.

In conclusion Option 1 (include a minimum initial set of common RPAS rules in SERA) is the preferred one.

5. References

5.1. Affected regulations

Commission Implementing Regulation (EU) No 923/2012 of 26 September 2012 laying down the common rules of the air and operational provisions regarding services and procedures in air navigation and amending Implementing Regulation (EU) No 1035/2011 and Regulations (EC) No 1265/2007, (EC) No 1794/2006, (EC) No 730/2006, (EC) No 1033/2006 and (EU) No 255/2010 (OJ L 281, 13.10.2012, p.1-66)

5.2. Affected AMC and GM

Acceptable Means of Compliance and Guidance Material to the rules of the air (Annex to ED Decision 2013/013/R of 17 July 2013)

5.3. Reference documents

- (a) ICAO Circular 328
- (b) Amendment 43 to Annex 2 to the Chicago Convention

6. Appendix A: Extract from Amendment 43 to ICAO Annex 2

**Since this text has been adopted by the ICAO Council,
no comments are invited on it**

CHAPTER 1. DEFINITIONS

Insert new text as follows:

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.

End of new text.

CHAPTER 3. GENERAL RULES

3.1 Protection of persons and property

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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 4.3.1.9¹⁰
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 4⁵.

...

Renumber remaining paragraphs.

...

Insert new text as follows:

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.

End of new text.

APPENDIX 45. UNMANNED FREE BALLOONS

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

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