



ASSEMBLY — 40TH SESSION

TECHNICAL COMMISSION

Agenda Item 30: Other issues to be considered by the Technical Commission

IMPLEMENTATION OF OPERATIONAL REQUIREMENTS FOR UNMANNED AIRCRAFT

(Presented by Venezuela and supported by the following ICAO SAM States and the LACAC States²)

EXECUTIVE SUMMARY

This paper presents ICAO's initiatives and progress in regulating and effectively establishing unmanned aircraft operations, its initiatives focused on remotely piloted aircraft (RPA), and the emerging need for harmonized documentation for the certification and approval of their operations and for the promotion of training activities and coordination meetings in the various regions to ensure an acceptable level of safety.

Action: The Assembly is invited to:

- a) note the information presented in this working paper, and
- b) consider the more specific needs for training, tools, and information for States and regions in view of the emerging safety challenges posed by RPA operations, in coordination with the ICAO Regional Offices.

<i>Strategic Objectives:</i>	This working paper relates to Strategic Objective <i>Safety</i> .
<i>Financial implications:</i>	N/A
<i>References:</i>	Report of the Thirteenth Air Navigation Conference: AN-Conf/13-WP/311 Working Papers: AN-Conf/13-WP/154, AN-Conf/13-WP/6, AN-Conf/13-WP/61, AN-Conf/13-WP/41 and AN-Conf/13-WP/121

¹ Spanish version provided by Venezuela.

² Belize, Bolivia, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Nicaragua, Panama, Peru and Uruguay

1. INTRODUCTION

1.1 With the passing of time and the development of new technologies, people, organizations and industry are showing interest in developing activities involving the use of unmanned aircraft. This trend is also accompanied by the design of more efficient remotely piloted aircraft systems (RPAS) in line with these needs.

1.2 Unmanned aircraft operations were an emerging topic of interest at the 39th Session of the ICAO Assembly. Their significance was recognized since they are enshrined in Article 8 of the Convention on International Civil Aviation, which sets out the high-level principles for pilotless aircraft that ICAO must consider in its programme of activities and in the development of provisions and the establishment of mechanisms for achieving their integration into the current international civil aviation system.

1.3 In the year 2008, ICAO created an Unmanned Aircraft Systems Study Group (UASSG) in order to share best practices and assist States in developing guidance material on unmanned aircraft systems. In 2009, the group focused its interest on RPAS³ and the development of documents such the *Manual on Remotely Piloted Aircraft Systems (RPAS)* (Doc 10019) and its predecessor, Circular 328 – *Unmanned Aircraft Systems (UAS)* (in March 2011), which were only intended for remotely piloted aircraft (RPA) in international and instrument flight rules (IFR) operations. On 6 May 2014, it was agreed to establish the Remotely Piloted Aircraft Systems Panel (RPASP), which would continue the work of the UASSG.

1.4 Additionally, the Small Unmanned Aircraft Systems Advisory Group (SUAS-AG) was created in 2015 with the mission to develop guidance material and streamline the development of provisions for use by States for UAS regulation.

1.5 Another initiative was the creation of a UAS Toolkit on the ICAO safety website to promote the exchange of information and experiences relating to safety in these types of operations. (<https://www.icao.int/safety/UA/UASToolkit>).

1.6 Furthermore, the international community's efforts in various regions are recognized, such as those by the Joint Authorities for Rulemaking on Unmanned Systems (JARUS) and by States having a considerable volume of RPA operations.

2. ANALYSIS

2.2 At the Thirteenth Air Navigation Conference held from 9 to 19 October 2018 in Montréal, Canada, concerns were expressed regarding the working paper AN-Conf/13-WP-154 presented by our State with the support of the SAM region, and regarding the papers AN-Conf/13-WP/6, AN-Conf/13-WP/61, AN-Conf/13-WP/41 and AN-Conf/13-WP/121, which led to the recommendations Recommendation 8.2/1: Remotely Piloted Aircraft Systems (RPAS) Operations and Recommendation 5.3/1: Remotely Piloted Aircraft Systems (RPAS).

³ In accordance with the taxonomy of unmanned aircraft currently described in ICAO UA Bulletin 2018/2, it is important to note that the designation RPA is generally used to designate only the unmanned aircraft used for international instrument flight (IFR) operations. Small unmanned aircraft (weighing less than 25kg) are normally designated by ICAO as UAS (small UA).

2.3 On the basis of past work and the efforts demonstrated at the Thirteenth Air Navigation Conference, challenges have been posed to ICAO, the States, and industry on topics such as the following:

a) continue the development of Standards and Recommended Practices (SARPs) and specific guidance material on aspects such as:

1. the use of gender-neutral terminology in relation to RPAS;
2. specific implementation procedures in States and regions regarding the competencies required for granting RPAS licences. This would include more specific minimum criteria for instruction and experience, such as proof of the medical fitness of pilots and other types of support personnel for RPA operations;
3. detailed requirements or standards and specific implementation procedures in States and regions regarding the competencies required for granting licences or approvals to personnel with specific competencies in the area of maintenance activities for this technology (generally associated with mechatronics);
4. common operational rules and specific implementation procedures in States and regions for certifying/accepting accredited aviation training centres for the training of unmanned aircraft pilots and other types of support personnel;
5. common, specific requirements or standards for certifying or approving the technological variants of unmanned aircraft and for ensuring airworthiness;
6. common, specific requirements or standards for classifying and registering unmanned aircraft and acceptable alternatives for identifying nationality and registration marks;
7. regulatory framework required for integrating RPAS into non-segregated airspace and aerodromes;
8. common operational rules and specific implementation procedures in States and regions for authorizing recreational operations and certifying aerial work;
9. specific guidance on the regulation and implementation of requirements related to detect and avoid (DAA) and the C2 link adapted to the technologies developed in industry;
10. common general operational rules and acceptable methods for monitoring and oversight in the different airspaces with unmanned aircraft operations. This also includes determining all possible specific contingencies and emergencies and the required procedures that would be used by the RPA operators and air navigation service providers (ANSPs);
11. criteria for the oversight by civil aviation administrations (CAAs) aimed at identifying illegal unmanned aircraft operations and the measures to be taken according to the specific cases in question. Also, the technical and legal considerations (entities having these competencies as well as the required authority) in the event that the decision is made to capture or shoot them down, and even more so for cases where the legislation of a State could determine that such methods are illegal;

12. the criteria and procedures for accepting technologies procured by air navigation service providers (aerodrome operators and ANSPs) including preventive criteria capable of detecting and preventing the operation of an unmanned aircraft, and thereby of protecting areas where aviation activities are being carried out, prohibited/restricted airspaces, and in dangerous areas or densely populated (urban) areas; and
13. the establishment of a code like the secondary surveillance radar (SSR) code for lost C2 link events.

b) promote the compilation, sharing and exchange of information:

1. with a view to future amendments aimed specifically at RPAS, there is a need to promote a greater number of training activities and specific guidance material, for each of the regions, through the various ICAO Regional Offices, on the various topics indicated in this working paper or others presented by States; and
2. continue to provide opportunities for industry to be involved in the compilation and submission to ICAO of technical data and information on remotely piloted aircraft system (RPAS) operations with a view to harmonization.

3. **CONCLUSION**

3.1 The Assembly is invited to:

- a) note the information presented, and
- b) consider the more specific needs for training, tools, and information for States and regions in view of the emerging safety challenges posed by RPA operations, in coordination with the ICAO Regional Offices.

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