International Civil Aviation Organization

AN-Conf/13-WP/154[1]
27/9/18

WORKING PAPER

THIRTEENTH AIR NAVIGATION CONFERENCE

Montréal, Canada, 9 to 19 October 2018

COMMITTEE B

Agenda Item 8: Emerging safety issues
8.2: Emerging safety issues

IMPLEMENTATION OF UNMANNED AIRCRAFT OPERATIONAL REQUIREMENTS IN THE STATES OF THE REGION

(Presented by Venezuela, supported by SAM States[2])

EXECUTIVE SUMMARY

This working paper presents ICAO's initiatives and the progress it has made to effectively regulate and implement unmanned aircraft operations, its initiatives focused on remotely piloted aircraft (RPA), the emerging need for harmonized documentation to certify and approve these operations, and the promotion of training activities and coordination meetings in the different regions to ensure an acceptable level of safety.

Action: The Conference is invited to:
a) take note of the information presented in this working paper; and
b) consider the more specific training needs, tools and information required by States and regions to address the emerging safety challenges posed by RPA operations, in coordination with the ICAO Regional Offices.

1. INTRODUCTION

1.1 With the passing of time and the development of new technologies, people and organizations from industry are showing interest in developing activities that use unmanned aircraft. This is also leading to the design of more efficient remotely piloted aircraft systems that meet these needs.

1.2 The operation of unmanned aircraft systems was an emerging topic of interest that was addressed at the 39th Session of the ICAO General Assembly. Its prevalence was recognized since it is already covered by Article 8 of the Convention on International Civil Aviation, which sets out high-level principles for pilotless aircraft that ICAO should take into account in its programme of activities, its development of provisions and mechanisms to achieve the integration of unmanned aircraft systems into the current civil aviation system.

[1] Spanish version provided by Venezuela (Bolivarian Republic of).
[2] Supported by 13 Contracting States (Argentina, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Ecuador, Guyana, Panama, Paraguay, Peru, Suriname, Uruguay and Venezuela (Bolivarian Republic of)).

1.3 ICAO set up an Unmanned Aircraft Systems Study Group (UASSG) as of 2008, in order to share best practices and assist States to develop guidance material for unmanned aircraft systems (UAS) operations. In 2009, this group narrowed its focus on remotely piloted aircraft systems (RPAS)[3] and produced documents such as Doc 10019, *Manual on Remotely Piloted Aircraft Systems (RPAS)* and its predecessor, Circ 328, *Unmanned Aircraft Systems (UAS)* (March 2011), which were solely intended to cover RPA used for international, instrument flight rules (IFR) operations. On 6 May 2014, it was agreed to establish the Remotely Piloted Aircraft Systems Panel (RPASP), which would continue with the UASSG's work.

1.4 The Unmanned Aircraft Systems Advisory Group (UAS-AG) was also established in 2015, with the mission of developing guidance material and expediting the development of provisions to be used by States to regulate UAS.

1.5 Another initiative worthy of mention has been the creation of the *ICAO UAS Toolkit* on the ICAO Safety website to encourage the exchange of safety information and experiences with this type of operation (https://www.icao.int/safety/UA/UASToolkit).

1.6 Furthermore, we recognize the efforts of the international community in various regions, such as the efforts undertaken by the Joint Authorities for Rulemaking on Unmanned Systems (JARUS) and States that have a considerable volume of RPA operations.

2. DISCUSSION

2.1 Although RPAS-related amendments have already been approved in Annex 1 — *Personnel Licensing*, Annex 2 — *Rules of the Air*, Annex 7 — *Aircraft Nationality and Registration Marks* and Annex 13 — *Aircraft Accident and Incident Investigation*, as well as general guidance material, concerns still remain on subjects such as:

a) Specific implementation procedures in States and regions regarding the competencies required for granting RPAS licences. This would include more specific training and minimum experience criteria, as well as proof of medical fitness for pilots and other types of support personnel involved in RPA operations.

b) Detailed requirements or standards and specific implementation procedures in States and regions regarding the competencies required for granting licences or authorizations to personnel with specific competencies in the field of maintenance activities for this technology (usually related to mechatronics).

c) Joint operating rules and specific implementation procedures in States and regions to certify/approve aviation training centres authorized to train unmanned aircraft pilots and other types of support personnel.

d) Joint specific requirements or standards to certify or approve technological variants of unmanned aircraft and ensure airworthiness.

[3] Note: In accordance with the categorization of unmanned aircraft, currently described in *ICAO UA Bulletin 2018/2*, it is important to point out that the term RPA is commonly used to designate solely unmanned aircraft intended for international, instrument flight rules (IFR) operations. ICAO normally refers to small unmanned aircraft (less than 25 kg) as SUA (small UA).

e) Joint specific requirements or standards to classify or register unmanned aircraft and acceptable alternative ways of identifying the nationality and registration mark.

f) Joint operating rules and specific implementation procedures in States and regions to authorize recreational operations and certify aerial work.

g) Joint general operating rules and acceptable methods for monitoring and oversight of separate airspaces for unmanned aircraft operations. This also includes the definition of all of the possible, specific contingency and emergency procedures that RPA operators and air navigation service providers (ANSPs) would be required to handle.

h) Civil aviation authority (CAA) oversight criteria to identify illegal unmanned aircraft operations and identify which measures to take in a given case. Also, technical and legal considerations (for organizations with these responsibilities and the required authority) in the event of a decision being taken to capture or down these illegal unmanned aircraft, especially, if a State's legislation could deem such measures to be illegal.

i) The acceptance criteria and procedures for technologies acquired by air service providers (aerodrome operators and ANSPs) with preventive criteria capable of detecting and avoiding the operation of an unmanned aircraft and thus, protect areas in which aeronautical activities are taking place as well as in prohibited/restricted airspace and dangerous zones or densely populated (urban) areas.

3. CONCLUSION

3.1 Experience with this type of operation, which is continually increasing, has shown that there are emerging hazards, and States and regions, together with industry, are being asked to pursue more effective implementation of regulatory activities, certification and oversight of unmanned aircraft operations, in particular RPAS.

3.2 Furthermore, the 39th General Assembly, held from 27 September to 7 October 2016, requested that ICAO develop a global baseline of provisions and guidance material for the proper harmonization of regulations applicable to UAS not currently covered by the international standards (SARPs), to include the various categories of unmanned aircraft, and the recently incorporated IFRs.

3.3 Looking ahead to future amendments specifically aimed at RPAS, more training activities and more specific guidance material need to be developed in each of the regions, through the various ICAO Regional Offices, on the different topics indicated in Section 2 of this working paper or other topics raised by States.

— END —