



**ASSEMBLY — 39TH SESSION**

**TECHNICAL COMMISSION**

**Agenda Item 33: Aviation safety and air navigation monitoring and analysis**

**THE NEED FOR STANDARDS IN SUPPORT OF HARMONIZED UAS OPERATIONS**

(Presented by Airports Council International, Civil Air Navigation Services Organisation, the International Air Transport Association, the International Coordinating Council of Aerospace Industry Association, the International Federation of Air Line Pilots' Associations, the International Federation of Air Traffic Controllers' Associations, the International Council of Aircraft Owner and Pilot Associations)

**EXECUTIVE SUMMARY**

Unmanned Aircraft System (UAS) are increasingly being used for different purposes in civil applications such as; aircraft and aerodrome inspection and surveillance, fishery operations, farming, disaster response, law enforcement patrols, fire patrols, and parcel delivery. There is also an increasing use of UAS for recreation. With this expanded use, the number of incidents of close UAS encounters near airports and aircraft have exponentially increased. This paper will focus as a priority on UAS that are used for commercial and recreational purposes.

**Action:** The Assembly is invited to:

Request that ICAO extend the scope and mandate of the Small Unmanned Aircraft System Advisory Group (SUAS-AG) to:

- a) study the effect of and the risk posed by UAS operations on the safety, security, and efficiency of civil aviation operations, particularly the risk of UAS collision;
- b) develop a baseline of standards and definitions to ensure global harmonization of regulations for the safe use of UAS;
- c) define requirements for States to gather data on hazards and risks associated with UAS effect on aircraft operation and sharing of reports of UAS sightings and near misses; and
- d) define requirements for States to ensure that adequate training and awareness for UAS users are part of the national legislations and regulations imposed on all UAS manufacturers (companies and individuals).

<i>Strategic Objectives:</i>	This working paper relates to the Safety Strategic Objective
<i>Financial implications:</i>	The cost of extending the work of the SUAS-AG and of processing the resulting SARPS
<i>References:</i>	Doc 10046, <i>Report of the Second High-Level Safety Conference (2015)</i> , Recommendation 2/1

<sup>1</sup> English, Arabic, Chinese, French, Russian and Spanish versions provided by IATA.

## 1. INTRODUCTION

1.1. In addition to their use for military purpose, Unmanned Aircraft System (UAS), are increasingly being used for different civil applications due to their affordability, accessibility, and flexibility; for example, aircraft and aerodrome inspections, fishery operations, farming, disaster response, law enforcement patrols, fire patrols, and parcel delivery. There is also an exponential proliferation of their use for recreational purposes.

1.2. For the purpose of this paper, the priority focus is Unmanned Aircraft Systems (UAS) that are used for commercial and recreational purposes. The use of UAS for additional purposes, for example, aerodrome inspections, disaster response, law enforcement patrols, and fire patrols should be considered at the appropriate time.

1.3. UAS operators often do not have the required level of understanding of aviation safety and security measures. This increases the risks to civil aviation.

1.4. ICAO established the RPAS Panel in 2014, with the objective to facilitate the safe, secure and efficient integration of remotely piloted aircraft (RPA) into non-segregated airspace and aerodromes while maintaining the existing level of safety for manned aviation. The focus of the Panel is RPAS operating in accordance with Instrument Flight Rules (IFR) in controlled airspace.

1.5. ICAO recently established the Small Unmanned Aircraft System Advisory Group (SUAS – AG). The scope of this group is separate from that of the RPAS Panel, focusing on the consolidation of best practices and education for States that need to promulgate regulations regarding UAS.

## 2. DISCUSSION

2.1. The industry partners presenting this working paper welcome ICAO's efforts to address the priorities and concerns pertaining to UAS. The SUAS-AG was a much needed initiative. At the same time, we recognize that additional work is needed beyond the current remit of the advisory group.

2.2. Although a number of States are moving to establish regulatory controls and launch safety awareness campaigns, the industry is concerned that unless these controls are put into place in an expeditious, harmonized, effective, and enforceable manner, an UAS related accident will certainly occur affecting civil aviation.

2.3. Between 2014 and 2016, there has been an exponential increase in reports of UAS operating in close vicinity of aircraft and airports. After a review of safety reports obtained from six official sources<sup>2</sup> mainly from North America, it was observed that:

2.4. Collisions and near-collisions between UAS and commercial aircraft have occurred with no correlation to altitude or distance from airports.

2.5. Failed adherence to established procedures or regulations was a recurring theme.

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<sup>2</sup> The data sources were FAA, Canada (CADORS), NASA, UK CAA, Australia (ATSB), and IATA STEADES

2.6. In theory and if unregulated, a UAS can fly without limitations and beyond line of sight. The DJI Phantom 3 can fly as high as 1640 ft (500m) before losing connection with its remote control station. Custom-built consumer UAS, however, can fly much higher.

2.7. The unauthorized operation of UAS in the vicinity of aerodromes is not a question of integration, but rather how the unauthorized use of UAS can be effectively excluded from the airspace where they pose the greatest safety threat to civil aviation.

2.8. Some States are introducing airspace assessments to identify zoning areas. This would provide “no drone zones” around aerodromes, heliports, hospitals, nuclear power stations, etc..

2.9. Presently many States have established some UAS regulations and even though the basic assumptions are often the same, minor differences from one State to another regarding weight limits, distance from aerodromes and operating altitudes can limit the ability of the UAS industry to effectively educate their customers on safe and legal operations.

2.10. UAS represent a hazard to civil aviation, as they might operate near aerodromes and are used by people unfamiliar with the safety risks, or have little awareness of civil aviation and its regulation.

2.11. While it is recognized that the ICAO role is limited to international aviation, Article 44 of the Chicago convention mentions the need to “Insure the safe and orderly growth of international civil aviation throughout the world”. As available safety reports contain evidence of collisions and near-collisions between manned aircraft and UASs and the temporary cessation of airport operations, we feel that it is necessary for ICAO to establish or incorporate by reference standards to provide a common framework for States, as well as verification of compliance through USOAP and CMA.

2.12. The industry partners presenting this working paper understand that the laws governing the operation of UAS are national and domestic. However, because of the potential safety risks and implications for international civil aviation operations, ICAO’s leadership is paramount to ensure harmonized and enforceable standards.

2.13. Experience to date shows that the nature of UAS operations is so diverse and is changing so rapidly that it is not possible to develop a solution that suits all types of operations. The expertise gathered in the ICAO SUAS-AG provides the basis to develop guidance that will be adaptable to the environment and needs.

2.14. The same partners are fully conscious of the positive impact that the UAS can have on the global economy. Yet, the use of UAS should not happen at the expense of manned aviation safety that is a driver for so many economic benefits around the world. We therefore call on ICAO to help maintain current trends in aviation safety as it addresses UAS while also leaving reasonable room for a promising new sector of the economy to emerge.

### 3. CONCLUSION

3.1. The rapid proliferation of UAS for commercial and recreational use requires more than guidance material to States on how to establish regulations as each passing day increases the safety risk to

international civil aviation. It is necessary for ICAO to develop standards and recommended practices allowing for harmonized regulations by States.

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