



WORKING PAPER

THIRTEENTH AIR NAVIGATION CONFERENCE

Montréal, Canada, 9 to 19 October 2018

COMMITTEE A

Agenda Item 5: Emerging issues

5.2: Operations below 1000 feet

ENABLING UNMANNED AIRCRAFT OPERATIONS OVER THE HIGH SEAS

(Presented by the United States)

EXECUTIVE SUMMARY

As the market for unmanned aircraft systems (UAS)¹ continues to develop rapidly and experiences significant growth, an emerging issue involves UAS flights over the high seas. The present framework governing high seas operations does not provide for States and/or their appropriate authorities to authorize non-certificated UAS to access this airspace safely, and this paper recommends an approach for ICAO and States to address this shortfall to accommodate the continued safe integration of these new, non-traditional entrants into the aviation sector.

Action: The Conference is invited to agree to the recommendation presented in paragraph 3.1.

1. INTRODUCTION

1.1 Worldwide, rapid growth in demand for unmanned aircraft systems (UAS) operations is spurring thousands of new entrants to aviation and a multitude of new products and services requiring incorporation into the global aviation framework. An emerging issue involves offshore UAS flights. In this environment, UAS have been involved in commercial ventures such as fish spotting, atmospheric research, and oil platform inspections; and in government operations including in situ weather measurement, fishery compliance, search and rescue, and security operations.

1.2 The *Convention on International Civil Aviation* (Doc 7300) recognizes that States have sovereignty over the airspace above their territory, where territory includes the land areas and territorial waters adjacent thereto. Airspace beyond the territorial waters of a State is considered international or high seas airspace and aircraft engaged in international navigation are subject to certification requirements, including the carriage of a certificate of airworthiness in the aircraft.² However, international aviation Standards and guidance material applicable to the high seas were not written with UAS in mind, and compliance with existing requirements may be difficult, impractical, or, in some instances, impossible to meet.

¹ Excluding unmanned free balloons

² Articles 31 and 29 of the *Convention on International Civil Aviation*, respectively.

2. DISCUSSION

2.1 As the number of UAS operating globally continues to multiply, the demand for offshore UAS activities is sure to increase. Enabling UAS operations over the high seas would support many economically significant enterprises such as ocean shipping and the oil and gas industries. ICAO and Member States must work together to ensure that regulatory measures keep pace with developments and support a safe and efficient global aviation system.

2.2 Provisions currently exist for UAS operations over the high seas by State aircraft and certificated Remotely Piloted Aircraft Systems³, but establishing type and airworthiness certification procedures for the rapidly growing UAS industry presents significant challenges for States and in many instances may not be a necessary safety measure based on aircraft characteristics or operational capabilities. Certification may not be practical or reasonable for those UAS that will not, for example, transport passengers or cargo or operate beyond the visual line of sight of the remote pilot. In lieu of certification, a variety of other risk-based operational safety measures are available to States, such as establishing limits on when and where UAS flights may be allowed or requiring operators to demonstrate they can fly safely without endangering people or property on the ground or in the air.

2.3 International aviation Standards and guidance material⁴ include requirements for the implementation of safety management systems by aviation service providers to ensure that risks are systematically analyzed, assessed, and controlled to an acceptable level. Nevertheless, the present framework governing high seas operations does not afford States and/or their appropriate authorities providing air traffic services (ATS) in the high seas the ability to establish procedures enabling non-certificated UAS to access this airspace safely and therefore, States are unable to address many prospective offshore UAS activities. In particular, States are constrained from promulgating procedures for the permit or authorization of UAS operations, as well as operational procedures and associated guidance material.

2.4 This paper identifies a shortfall in existing provisions that requires action by ICAO and States to enable continued progress in the safe integration of UAS, and recommends an approach to provide for States and/or their appropriate authorities to enable expanded UAS operations in the high seas while continuing to ensure the safety of other aircraft operations in this airspace.

3. CONCLUSION

3.1 In light of the above, the Conference is invited to agree to the following recommendation:

Recommendation 5.2/xx – Enabling Unmanned Aircraft Operations over the High Seas

That the Conference:

- a) request ICAO, as a matter of urgency, to develop a solution addressing non-certificated UAS within existing provisions of the Convention on International Civil Aviation applicable to international air navigation, which will enable States to authorize operations in high seas airspace and facilitate the continued safe integration of these new entrants into the global aviation framework; and

³ Annex 2 Rules of the Air defines RPAS as follows: 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.

⁴ Annex 19 Safety Management and the Safety Management Manual, respectively.

- b) urge States to support ICAO in developing a solution to approve operations over the high seas by non-certificated UAS, including development of procedures that are consistent with safety management principles and taking into account aircraft performance capabilities and operations risk assessments.

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