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THIRTEENTH AIR NAVIGATION CONFERENCE

Montréal, Canada, 9 to 19 October 2018

COMMITTEE A

Agenda Item 5: Emerging issues
5.3: Remotely piloted aircraft system (RPAS)

OPERATIONS OF UNMANNED AIRCRAFT SYSTEMS WITHIN THE UAE

(Presented by the United Arab Emirates)

EXECUTIVE SUMMARY

The paper provides an overview of the United Arab Emirates management of unmanned aircraft systems (UAS) operations.

1. INTRODUCTION

1.1 The regulatory strategy for the utilisation of UAS within the airspace of the United Arab Emirates aims to establish the aviation regulatory environment to reap the societal benefits of this innovative technology and to deal with citizens' concerns through protective action when necessary.

1.2 It shall also set the conditions for creating a strong and competitive manufacturing and services industry with the ability to compete in the global market. UAS applications may only reach full potential once they are able and approved to fly in non-segregated airspace without adversely affecting the safety and the operation of the wider civil and military aviation system.

1.3 The progressive integration of UAS into the national airspace must be accompanied by reassurance to citizens on the development of measures to address societal concerns including safety, privacy and data protection, third-party liability, and insurance and security.

2. DISCUSSION

2.1 The regulatory environment for UAS integration into the national airspace presents specific challenges in a number of key areas, in particular:

2.2 **Security:** UAS are not immune to potential unlawful actions. Potentially, UAS could be used as weapons, the navigation or communications signals of UAS could be jammed or ground control stations hijacked.

2.3 **Safety:** The integration of UAS into the national airspace shall be based on the principle that safety will not be compromised. UAS operations must be as safe as manned aircraft insofar as they must not present or create a greater hazard to persons, property, vehicles or vessels, whilst in the air or on the ground, than those attributable to the operation of manned aircraft.

2.4 **Citizen Concerns:** UAS operations must not lead to a raising of citizen concerns, especially the right to preserving privacy with regard to private and family life and the protection of personal data. Amongst the wide range of potential UAS civil applications, a number involve collection of personal data, including images, and raise ethical, privacy and data collection concerns in particular the area of surveillance, monitoring, mapping or video recording.

2.5 **Economic and Environmental Concerns:** Thus far, international attempts to integrate UAS into the national airspace have resulted in moderate to severe disruption to commercial aircraft services. This has resulted in additional track miles for the commercial aircraft with the associated extra fuel consumption resulting in increased costs and increased aircraft emissions. Ideally, the integration of UAS into the national airspace shall reduce or at least balance the current aircraft emission levels. Further UAS operations could introduce noise pollution into areas of airspace where previously flight operations were prohibited or not feasible.

3. **UAS CLASSIFICATION**

3.1 The classification of all UAS is based upon the physical and operational parameters of the system itself, namely:

3.1.1 **Weight:** The operating weight of the vehicle including fuel, fixtures and payload shall be a primary consideration in the classification. By definition the advanced equipment required for unrestricted operations will increase the weight of the system itself.

3.1.2 **Capability:** UAS operating to higher performances e.g. speed and altitude will, by their nature, require greater levels of regulation.

3.1.3 **Type of Operator:** Not all operators shall be subject to the same regulations, requirements and operational restrictions. The confidence in an institutional UAS operator over a private user and the type of UAS operation shall mitigate the level of regulation and limitations imposed upon the UAS operator.

4. **REGULATORY PRINCIPLES**

4.1 The United Arab Emirates Civil Aviation Regulation is designed to enable the safe and efficient operation of manned aircraft in all classes of airspace, and hence for UAS operators to be permitted to operate in airspace integrated with manned aircraft they shall be required operate within the same regulatory framework.

4.2 UAS operators do not have an automatic right to airspace use. This applies particularly if accepted levels of safety provision cannot be maintained or, if such operations would have an

unreasonably negative effect on other airspace users. In order to integrate with other airspace users, UAS operators must ensure that their aircraft can demonstrate an equivalent level of safety, through compliance with the rules and procedures that apply to manned aircraft.

4.3 UAS operators requesting to operate in integrated airspace, shall be required to submit a risk assessment to the General Civil Aviation Authority (GCAA) for review and approval, prior to conducting the UAS operation.

4.4 UAS operators wishing to operate in segregated airspace, shall submit an application through the GCAA CAAP 41 E-Service – Special Airspace Use request, for GCAA review and approval, prior to conducting the UAS operation in segregated airspace.

4.5 UAS operators should recognise the expectations of other airspace users. As such, the routine flight of any UAS outside of segregated airspace cannot be permitted to increase the risk to existing users and should not deny use of the airspace to them.

5. INTERACTION WITH AIR TRAFFIC CONTROL

5.1 Unless special provision is made with the appropriate air traffic control (ATC) unit handling the UAS activity, the provision of an air traffic service (ATS) to a UAS shall be transparent to the air traffic controller. In other words, the controller shall not have to do anything different in the use of R/T or landlines other than he would for other aircraft under his control nor should he have to apply different rules or work to different criteria.

5.2 UAS operator who has obtained a GCAA UAS operation approval, shall comply with all conditions indicated on the approval

5.3 UAS operator intending to operate in controlled airspace shall submit an appropriate flight plan for the intended flight, prior to operation.

5.4 The UAS operator shall be able to comply with all ATC clearances and instructions from the ATC unit and with the minimum equipment requirements applicable to the class of airspace within which they intend to operate.

5.5 On first contact with the ATC unit the operator must ensure that air traffic controllers are fully aware that they are dealing with a UAS flight. Controllers may decide to allocate the UAS pilot with a special callsign or transponder code to highlight they are operating an unmanned aircraft (UA).

5.6 Where “special provisions or conditions” are agreed to with the ATC unit, it is essential that these do not reduce the situational awareness of other airspace users.

5.7 For all UAS flights entering controlled airspace, the aircraft performance and all communications with the ATS provider must be continuously monitored by the UAS operator.

5.8 To comply with ATC instructions in a timescale comparable with that of a manned aircraft, it is imperative that the capability of taking immediate active control of the aircraft exists at all times.

5.9 Any requirement for special equipment (e.g. SSR Transponder mode S) mandated for manned aircraft in certain classifications of airspace shall also be mandated as a minimum requirement for a UAS intending to fly in such airspace.

6. UAS OPERATIONS MANUAL

6.1 Standard operating procedures (SOP) will be required for any organisation proposing to operate a UAS within controlled airspace; these will normally be contained within an organisations UAS operations manual.

7. OPERATOR TRAINING

7.1 Training is essential to the establishment of safe and efficient operations in any sector of the aviation industry. A recognised difficulty in the establishment of an acceptable standard of training criteria for UAS operations is the wide variety of UA types, sizes, technology and diversity of operations to be undertaken. Some criteria will apply to all UAS while others will be type or class specific.

7.2 Where the classification of the UA so requires, operators shall have completed a GCAA on-line UAS briefing and have the appropriate certificate with them when operating as UA.

7.3 UAS operators should have completed thorough ground instruction appropriate to enable the UAS operators to be able to demonstrate a level of competency to safely operate the UA correctly and responsibly. The depth of knowledge will depend on the specific type of UA, its operating performances and limitations, type of operations and operating environment.

8. ACCIDENT / SERIOUS INCIDENT REPORTING

8.1 Accidents/serious incidents involving the operation of UAS are to be reported to GCAA through the Report of Safety Incident (ROSI) in accordance with the requirements of CAAP 22. Access to the ROSI is available through the GCAA website www.gcaa.gov.ae.

9. CONCLUSION

9.1 The meeting is invited to note the United Arab Emirates' approach to managing UAS operations in the airspace.

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