International Civil Aviation Organization
ICAO South American Regional Office
Fourteenth Meeting of the Civil Aviation Authorities of the SAM Region (RAAC/14)
(Santiago, Chile, 27, 28 and 30 October 2015)

Agenda Item 2: Global and regional civil aviation requirements and challenges

REMOTELY PILOTED AIRCRAFT SYSTEMS (RPAS)

(Presented by CANSO)

SUMMARY

Remotely Piloted Aircraft System (RPAS) operations are spreading beyond the original military applications, towards other State non-military activities (e.g. police, coast guard and similar), but also into civil aviation.

CANSO´s Unmanned Aircraft Systems (UAS) Workgroup, developed and published an RPAS information document.

The information document is designed to promote awareness, to provide examples and to raise some the issues that ANSPs need to consider when integrating RPAS into their airspace.

References:

- ICAO Annexes 2, 7 and 13
- ICAO Circular 328, Unmanned Aircraft Systems (UAS)
- ANSP Considerations for RPAS Operations, information document CANSO
- GREPECAS 17

1. Introduction

1.1 Remotely Piloted Aircraft Systems (RPAS) have been increasing operations, hence, requiring greater access to airspace and interacting with the ATM system. RPAS have a variety of shapes, sizes, equipage and performance capabilities. They range in weight from a few grams to several tons and can operate at altitudes from near the surface to the edge of space.

1.2 Accepting a large number of RPAS into the ATM system poses many challenges and, from an ANSP point of view, integration of RPAS in non-segregated airspace is of particular interest.

1.3 One of the key issues that the ATM industry is currently undertaking is how best to incorporate Remotely Piloted Aircraft Systems (RPAS) seamlessly, efficiently and safely, into global air traffic management.

1.4 International regulations and standards require that any new system, procedure or operation that has an impact on the safety of ATM operations shall be subject to a risk assessment and mitigation process to support its safe introduction and operation. The goal of safely integrating RPAS seamlessly into the ATM system with other airspace users is subject to standard Safety Management System (SMS) principles.

2. Analysis

2.1 An RPA is an aircraft piloted by a licensed 'Remote Pilot' situated at a 'Remote Pilot Station' (RPS) located external to the aircraft (i.e. ground, ship, another aircraft, space) who monitors the aircraft at all times and can respond to instructions issued by Air Traffic Control (ATC), communicates via voice or data link as appropriate to the airspace or operation, and has direct responsibility for the safe conduct of the aircraft throughout its flight.

2.2 Air traffic management (ATM) integration of RPAS will be safely achieved when routine access by RPAS operations into non-segregated airspace, is transparent to ATS providers. Therefore, the remote pilot will be required to respond to ATS guidance or requests for information, and comply with any ATC instruction (e.g., fly headings, altitudes, Navaids and Waypoints and comply with standard IFR approach and departure procedures), in the same way and within the same timeframe as the pilot of a manned aircraft.

2.3 Specific procedures for RPAS should be kept to a minimum, experience shows that due to RPAS' unique attributes, such as the communications link and lack of an approved Detect and Avoid (DAA) system, at least some new or contingency procedures are required.

2.4 Ideally, RPAS would require no special handling from ATC and, therefore, would not require any additional ATC phraseology. However, the RPAS programme has not matured enough to be considered as normal ATC operations, especially for contingency operations because of the unique nature of individual RPAS. There is currently no approved, standard RPAS-related ATC phraseology, and this will have to be developed and agreed prior to operations.

2.5 RPAS emergency procedures should mirror those for manned aircraft as far as practicable. However, because of their unique attributes (mainly, although not exclusively, because the pilot is not on-board), in some cases new procedures will have to be developed by ANSPs to accommodate RPAS. Importantly, ICAO recognizes that ANSPs will need to review contingency and emergency procedures to take account of unique RPAS failure modes such as lost C2 link.

2.6 CANSO appreciates and thanks Doug Davis and the Members of the Workgroup, in particular SKYGUIDE, FAA, NAVCANADA, IFATCA, Boeing, Northrop Grumman, and New Mexico State University for the development of the ANSP Considerations for RPAS Operations document.

2.7 The ANSP Considerations for RPAS Operations information document can be downloaded via the following link: https://www.canso.org/ansp-considerations-rpas-operations

3. Suggested Action

3.1 This meeting is invited to:

a) Take note of the information presented in this working paper;
b) Raise awareness of RPAS ops to ANSPs;
c) Inform ANSPs how RPAS have been accommodated safely into ATM;
d) Identify issues to be addressed to achieve RPAS integration; and
e) Advise CAAs and ANSPs to read CANSOs document.

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