



TWELFTH AIR NAVIGATION CONFERENCE

Montréal, 19 to 30 November 2012

Agenda Item 4: Optimum Capacity and Efficiency – through global collaborative ATM 4.2: Dynamic management of special use airspace

PROVISION OF FLIGHT SAFETY AND UNIFORMITY OF FLIGHT PERFORMANCE BY REMOTELY PILOTED AIRCRAFT

(Presented by the Interstate Aviation Committee)

SUMMARY

In this working paper the issue of the provision of flight safety, harmonization and coordination of remotely piloted aircraft within non-segregated airspace is considered.

Action: The Conference is invited to develop high-level Standards, which could form a basis for the development of detailed State and industry technical standards.

1. INTRODUCTION

1.1 During the last years there has been a qualitative leap within the field of unmanned aircraft systems (UAS), objective conditions were formed under which unmanned aircraft could be successfully used in civil aviation. At the same time there are a number of serious peculiarities and problems of a technical as well as a legal aspect; if these problems are not solved, work in this field will slow down.

1.2 A civil market of UAS already exists but it is limited due to the fact that at present there is no respective regulatory basis of technological tools of certification which is necessary for the provision of flight safety and gradual implementation of unmanned aircraft systems into operation.

¹ English and Russian translation provided by the Interstate Aviation Committee (IAC).

2. BACKGROUND

2.1 Monitoring functions of UAS are demanded in the civil sector of the economy. With the assistance of the UAS technical abilities, safety and functioning of objects located at large distances as well as extended objects can be monitored.

2.2 Typical tasks of monitoring and surveillance are the following: border and maritime patrolling, search and rescue, fishing control, forest fire detection, natural disasters detection, evaluation of the level of pollution, road traffic surveillance, power transmission facilities and pipeline inspection as well as geological surveillance.

2.3 The application potential for UAS has emerged: for chemical treatment of infrastructure objects in order to counteract the influence of aggressive and other materials in emergency situations as well as under scheduled activities including weather modification; as a prospective component of twenty-four-hour aerospace monitoring, as well as for retransmission of radio relay signals within regions which do not have wire, relay lines and other modes of communication; for prompt cargo delivery to hard-to-reach areas which do not have ground transport communication.

2.4 In most countries, flights of unmanned aircraft within the common airspace are not conducted. According to the rules such flights may be conducted under temporary or locally established conditions as well as short-time limitations in the interest of the users of airspace which organize unmanned aircraft flights.

2.5 Remotely piloted aircraft systems (as a subcategory of UAS) are now intensively developed. In the near future remotely piloted aircraft will perform flights within the monitored airspace where all air traffic participants are known and where ATM service is able to provide necessary separation between these aircraft and other aircraft by cooperation with an external pilot of a remotely piloted aircraft.

2.6 ICAO coordination on the development of a regulatory basis for remotely piloted aircraft systems interaction with other aircraft and the ATM system is becoming more and more in demand.

2.7 Integration of remotely piloted aircraft systems into existing flight practice must not violate fundamental principles of the flight rules; the pilot (the external pilot) of the remotely piloted aircraft must see other aircraft, prevent mid-air collisions, maintain necessary separation, must not create hazards of mid-air collision and must follow established traffic rules.

2.8 It is necessary to improve provisions which regulate ATM which must take into account specific performance of remotely piloted aircraft, their level of automation, and IFR/VFR flight capability. As well, to review emergency and non-standard procedures for remotely piloted aircraft such as control line failure and flight termination.

2.9 ATM procedures for remotely piloted aircraft must be as much as possible harmonized with the procedures for aircraft with pilot on board and must take into account peculiarities of remotely piloted aircraft operation. Data exchange between the ATM service and external pilot (within the airspace planned for remotely piloted aircraft flight) must be conducted with the same level of reliability, continuity and integrity which is established for aircraft flights with the pilot on board.

2.10 Remotely piloted aircraft certification must be conducted comprehensively with the external pilot stations certification as well as all necessary elements of remotely piloted aircraft systems taking into account their possible location in different countries.

2.11 Control data exchange between the remotely piloted aircraft and external pilot station requires high level of readiness, reliability, continuity and integrity of communication considering available ATM.

2.12 It is necessary to describe oversight procedures for respective State authorities taking into account remotely piloted aircraft systems operation and peculiarities.

3. ACTION BY THE CONFERENCE

3.1 The Conference is invited to:

- a) recommend that ICAO, within the framework of the Aviation System Block Upgrades (ABSUs), establish a working group for the development of necessary amendments and supplements to the Standards and Recommended Practices (SARPs) and Procedures for Air Navigation Services (PANS) in order to ensure flight safety, harmonization and coordination of remotely piloted aircraft systems utilization within the non-segregated airspace; and
- b) entrust this group with the development of standardized terminology for its universal use in the documentation on remotely piloted aircraft.

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