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COMMITTEE B

Agenda Item 6: Organizational safety issues
Agenda Item 6.2: Implementation of safety management
6.2.2: Safety management systems

SAFETY MANAGEMENT SYSTEMS FOR SPACE OPERATORS

(Presented by the Civil Air Navigation Services Organisation (CANSO))

EXECUTIVE SUMMARY

This paper presents the case for commercial space and near space operators to use safety management systems (SMS) to allow for integration into the aviation system.

Action: The Conference is invited to advise ICAO that commercial space and near space operators should fall under the scope of Annex 19 — *Safety Management*, similar to the proposed provisions to be included in Annex 19 and Doc 9859, *Safety Management Manual (SMM)* for remotely piloted aircraft systems (RPAS).

1. INTRODUCTION

1.1 Commercial space operations are becoming more prevalent, with commercial space operators planning to increase the frequency and variety of launches. As these operations enter controlled airspace, they can be treated in one of two ways:

a) they can be managed as hazards, which must be blocked off and mitigated; or

b) they can be incorporated into the civil aviation system with minimal airspace restrictions by adopting and maintaining an effective safety management system (SMS), using the Standards and Recommended Practices (SARPs) outlined in ICAO's Annex 19 — *Safety Management*.

1.2 The best approach to the safe integration of commercial space operations into existing airspace is to have these operators adopt robust SMS which can proactively address and mitigate risks. This can only be achieved if ICAO includes space and near-space operators in Annex 19 and the guidelines in Doc 9859, *Safety Management Manual (SMM)*.

2. BACKGROUND

2.1 As the ICAO SMM states, safety is "the state in which the possibility of harm to persons or of property damage is reduced to, and maintained at or below, an acceptable level through the continuing process of hazard identification and safety risk management." Commercial space and near space operators can take this same approach to safety to more effectively manage the hazards associated with their operations, based on how general aviation, airports and airlines manage their own risk as part of an incredibly safe mode of transportation.

2.2 Every State must develop, implement, and maintain a State safety programme (SSP) to ensure an acceptable level of risk. Operators and air navigation service providers (ANSPs) should implement and maintain an SMS, which provides a consistent framework for measuring and addressing safety risk. This has become critically important as airspace becomes increasingly complex and congested. Nowhere is this more evident than for new entrants to airspace, such as commercial space operations, coupled with an increase in traditional operators. In 2013, ICAO published Annex 19 which consolidated material on safety management from existing documentation. Annex 19 enumerates the high-level SMS requirements that each State must achieve.

2.3 The ICAO Remotely Piloted Aircraft Systems Panel (RPASP) and Safety Management Panel (SMP) are proposing to include remotely piloted aircraft systems (RPAS) operators in Annex 19. They suggest there should be equally protective measures of safety management requirements for RPAS operators which want to perform operations in the most complex RPAS operations category as is required for commercial operations with manned aircraft, in particular for cargo operations. For those RPAS operators, the existing Annex 19 SMS framework is considered adequate and, consequently, these RPAS operators shall be added to the list of operators of airplanes and helicopters that are already subject to sub-sections 3.3.2 and 4.1.4 of Annex 19. The intent is to apply the full SMS framework found in Appendix 2 to Annex 19 to the appropriate scope of (certified) RPAS operators performing operations as covered in the ICAO Annex 6 — *Operation of Aircraft*, Part IV — *International RPAS Operations*. In doing so, one also needs to consider maintenance organisations providing services to operators which are authorised to conduct such operations. CANSO suggests measures with equivalent safety protection for commercial space and near space operators.

3. CONCLUSION

3.1 The introduction, and expected increase, of commercial space operations creates the need to address such requirements for new operators to be included as a part of each State's SMS or SSP, thus requiring operators to operate under a State approved SMS. Operators unfamiliar with ICAO safety management-related SARPs may introduce additional safety risk into the aviation system. Being required to adhere to safety standards and provide assurance of continuing to meet those standards will further reduce the risk to other airspace users and the public. Commercial space operators must be required to adopt robust SMSs to mitigate risk to the public by operating within a defined level of risk and assure requirements are achieved and States must ensure their adherence and performance. For this reason the Civil Air Navigation Services Organisation (CANSO) suggests that ICAO create SARPs and guidelines in Annex 19 and Doc 9859 that requires States to include space and near-space operators' requirements in their SSP and require those operators to implement and maintain an SMS.

3.2 Additionally, inclusion of these operations into the ICAO Annex 19 and the guidance material contained in Doc 9859 will create a level of confidence for States and ANSPs that operations are in accordance with the global aviation safety regulations included in ICAO Annex 19 and Doc 9859.

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