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THIRTEENTH AIR NAVIGATION CONFERENCE

Montréal, Canada, 9 to 19 October 2018

COMMITTEE A

Agenda Item 5: Emerging Issues

5.1: Operations above Flight Level 600

**PROMOTION OF A GLOBAL FRAMEWORK FOR AERONAUTICAL
OPERATIONS ABOVE FLIGHT LEVEL 600**

(Presented by the United States)

EXECUTIVE SUMMARY

The number and type of operations above Flight Level 600 (FL600) will continue to grow with the advent of new technology and business markets.

ICAO is in a position to work with Member States and industry to not only create a global framework that leverages performance-based criteria and approaches to management of operations, but to also establish clear responsibilities for operators and providers, and defines the information needed to create strategic and tactical planning as well as situational awareness.

Action: The Conference is invited to:

- a) recommend that ICAO and Member States work with industry to acknowledge the increase in innovation and international operations above FL600 and share information on current and forecasted needs;
- b) in recognition of a), recommend ICAO create a cross-panel work plan to consider needed criteria, operational considerations, and operator/provider responsibilities for operations above FL600 throughout the course of normal development and amendment of Standards and Recommended Practices; and
- c) request ICAO and Member States work with industry to consider current and future work in emerging technologies that utilize performance-based global frameworks in the areas of information management/sharing, strategic planning, separation standards, situational awareness and security to develop a complimentary framework for operations above FL600.

1. INTRODUCTION

1.1 Innovation and emerging technologies are presenting exciting opportunities and new challenges for the global aviation industry. Unmanned aircraft systems (UAS), including remotely piloted aircraft systems (RPAS), unmanned free balloons and supersonic aircraft are only samples of the way in which industry is innovating at a rapid pace to fulfil the wants of consumers and the advancing needs of society.

1.2 While research and development for small UAS and UAS traffic management (UTM) is accelerating to meet overwhelming demand, high-density operations and safety management, there is less focus on operations above FL600. Aeronautical operations above FL600 are not as prolific as UAS and UTM; however a growing desire to operate at higher altitudes for supersonic aircraft as well as to provide broad coverage of services including cellular service and internet to underserved areas, has created a need to consider operational capabilities and management of the airspace above FL600. This paper does not imply in any way that ICAO begin to develop Standards or Recommended Practices to regulate commercial space operations.

1.3 As the demands on global aviation continue to increase in terms of predictability, capacity, efficiency, safety and operational flexibility, including operations above FL600, it is vital that globally harmonized frameworks are developed. A global framework for operations above FL600 will need to consider existing standards, furthering performance-based standards and procedures, and agree upon information exchange models and provisions for increased automation.

2. DISCUSSION

2.1 The number and type of operations above FL600 will continue to grow with the advent of new technology and business markets. While currently there are limited operations above FL600, industry continues to innovate at an accelerated pace. The majority of the concepts of operations for the industry involves take off in one nation and providing services over one or many other nations. The expected duration of the operations can last between weeks and months.

2.2 Of particular note, are the many differences between today's operating environments and upper airspace. The infrastructure necessary to support these envisioned technologies and operations differ from historical communication, navigation, and surveillance (CNS) requirements, and therefore analysis is necessary to identify the specific needs.

2.3 The Federal Aviation Administration (FAA) is actively exploring changes regarding Class E airspace above FL600. Efforts are underway to analyse support for current and potential future operations at these altitudes. Current Class E (upper airspace) operations are predicated on traditional airspace usage and do not address the technical, economic, or political challenges for the operational diversity envisioned above FL600.

2.3.1 Additionally, some of the priorities scoping the FAA's research efforts related to upper airspace include, but are not limited to, the following:

- a) investigate the increasing commercial interests and opportunities;
- b) explore the development of an internationally recognized criteria for operations in the environment;

- c) investigate the increasing diversity of operations from low speed loitering to extreme velocities and durations;
- d) identify current industry members presently seeking access to the airspace, as well as entities that may not yet exist, that may require improved high altitude infrastructure from that which exists today;
- e) explore opportunities for a cooperative separation environment similar to that foreseen in the UTM paradigm. This implementation may extend multi-nationally to allow for efficient long-duration operations while limiting the cost-impact of individually managing this airspace regime on nations; and
- f) explore updates to the current operational framework that are likely needed to support the new operations.

2.4 The desire to create and apply overly prescriptive standards for evolving technologies and procedures may burden the system and discourage innovation. Indeed, a basis for the strategic and tactical management of operations above FL600 already exists via the utilization of several current air traffic management standards – particularly the UTM construct, and mature safety management systems.

2.5 Building upon this base, ICAO is in a position to work with Member States and industry to create needed criteria, as well as a single global framework that leverages a performance-based approach to the management of operations. Further, ICAO and Member States should not only establish clear responsibilities for operators and providers, but also define the information needed to create strategic and tactical planning, as well as situational awareness. Much of the ongoing work on other performance-based frameworks related to system-wide information management (SWIM), cybersecurity and UTM can be leveraged to greatly advance a framework for operations above FL600.

3. CONCLUSION

3.1 The Conference is invited to agree to the actions in the executive summary.

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