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WORKING PAPER

FOURTEENTH AIR NAVIGATION CONFERENCE

Montréal, Canada, 26 August to 6 September 2024

Agenda Item 3: Air Navigation System Performance Improvement
3.1: Proposals to improve the efficiency of air navigation services contributing to LTAG

IMPROVING THE EFFICIENCY OF THE USE OF AIRSPACE WITH A MANDATORY BROADCAST ZONE (MBZ)

(Presented by the United Arab Emirates)

EXECUTIVE SUMMARY

This paper presents the implementation of mandatory broadcast zones (MBZ) as a method to enhance airspace efficiency, reduce emissions from general aviation and improve safety in complex airspace environments. This paper calls for collaboration between ICAO, Member States and the United Arab Emirates to develop necessary standards and regulations, offering the United Arab Emirates' experience as a resource.

Action: The Conference is invited to encourage the development of comprehensive standards and regulations required to implement the proposed MBZ concept globally.

1. INTRODUCTION

1.1 The rapid growth of global air traffic places pressure on the efficient use of airspace to accommodate different types of airspace users from general to commercial aviation following the principles of flexible use of airspace (FUA). This is to be achieved without compromising safety, security or adding complexity to the use of airspace while ensuring efficiency in flow of traffic.

1.2 The use of a MBZ is a well-founded solution to integrating high volumes of predominantly low-level visual flight rules (VFR) traffic operations into existing air traffic management (ATM) systems considering safety risks, especially in densely populated urban environments.

1.3 The MBZ can be seen a key enabler for scalability. It contributes to increased situation awareness beneficial for implementing Advanced Air Mobility (AAM) concept.

2. DISCUSSION

2.1 The current airspace classification described in ICAO Annex 11 – *Air Traffic Services* divides airspace into classes from A to G where class A is the most constraining and class G, least

constraining. In class G, generally classified as uncontrolled airspace, flight information service (FIS) is provided, but no clearance is required, nor separation provided, and continuous two-way communication capability is only required from aircraft following instrument flight rules (IFR). It can be argued that in constrained airspace with high volumes of low-level VFR traffic near airports with significant commercial traffic class G airspace provides freedom for users. However, it offers limited safety and efficiency under these conditions.

2.2 The United Arab Emirates proposes the establishment of the MBZ concept within class G airspace to ensure its efficient and safe use, as well as that of any adjacent airspace. The proposed MBZ would have defined boundaries, a dedicated radio frequency and VFR routes or reporting points for the benefit of the users if deemed necessary.

2.3 The proposed concept of establishing a MBZ empowers aviators to take charge of their own safety when operating in class G airspace. Within the MBZ the responsibility for passing traffic information and traffic avoidance lies with all aviators operating on the frequency dedicated for that purpose. As traffic information is available without having to contact congested air traffic control (ATC) frequencies, any unnecessary delay can be avoided, reducing environmental impact of general aviation.

2.4 Provision of FIS is not required within an MBZ. However, the United Arab Emirates has established procedures to provide FIS on request through dedicated frequencies. Additionally, ATC can monitor and broadcast information and instructions on the respective MBZ frequencies. The proposed concept has had a positive impact on ATC workload by relieving congestion on busy frequencies thereby enhancing efficiency and reducing aviation-induced emissions.

2.5 The United Arab Emirates has promulgated MBZ specific procedures in the United Arab Emirates aeronautical information publication (AIP), including recommended routes and conflict resolution advice for VFR pilots. This ensures efficient flight planning reducing the environmental impact of general aviation while also improving the situation awareness of the aviators, thereby enhancing safety levels.

2.6 The proposed MBZ concept significantly improves airspace utilization. It allows aircraft to operate more efficiently while maintaining or improving the level of safety.

3. CONCLUSION

3.1 The implementation of a MBZ concept represents a significant advancement in airspace management, particularly in complex and high-traffic environments. By empowering aviators to take responsibility for their own safety and providing a structured framework for communication and coordination, the MBZ enhances both the efficiency and safety of airspace usage. The United Arab Emirates' experience demonstrates that MBZs can effectively reduce the environmental impact of general aviation, alleviate ATC workload, and improve situational awareness among pilots.

3.2 This paper calls for collaborative efforts between ICAO, Member States and the United Arab Emirates to develop and standardize the necessary regulations for the global implementation of MBZs. By leveraging the United Arab Emirates' successful implementation as a model, the global aviation community can achieve safer, more efficient, and environmentally sustainable airspace management.

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