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Agenda Item 24: Aviation Safety and Air Navigation Priority Initiatives

MANAGING UNMANNED AIRCRAFT SYSTEM (UAS) SYSTEM OPERATION WITHIN KUALA LUMPUR AND KOTA KINABALU FLIGHT INFORMATION REGIONS

(Presented by Malaysia)

EXECUTIVE SUMMARY

This paper presents information on Malaysia's initiatives to enhance the safety of unmanned aircraft systems (UAS) operations within the Kuala Lumpur and Kota Kinabalu Flight Information Regions (KLFIR and KKFIR). It provides details on the designation of segregated airspace for UAS operations, including its objectives and airspace management with relevant ICAO provisions.

Malaysia has experienced a significant increase in UAS registration and approval activities, alongside a surge of applications that resulted in more than 3 000 NOTAMs being issued in 2024 compared to about 2 000 the year before. In light of this, Malaysia is seeking to reduce reliance on NOTAM publications by allowing low-risk activities to proceed alongside regular air traffic without the need for repeated notices.

<i>Strategic Goals:</i>	This working paper relates to <i>Every Flight is Safe and Secure</i> and <i>The Economic Development of Air Transport Assures the Delivery of Economic Prosperity and Societal Well-Being for All</i> .
<i>Financial implications:</i>	Nil.
<i>References:</i>	Annex 2 — <i>Rules of the Air</i> Annex 11 — <i>Air Traffic Services</i> Doc 4444, PANS-ATM Circ 328, <i>Unmanned Aircraft Systems (UAS)</i> Civil Aviation Directives (CAD) 6011 - UAS Operations AIP Malaysia - ENR 5.1 Prohibited, Restricted, and Danger Areas ICAO Model Regulations – Part 101 and 102

1. INTRODUCTION

1.1 The rapid proliferation of unmanned aircraft systems (UAS) has revolutionised various industries, from commercial, research, agriculture, governmental purposes, infrastructure inspection, to logistics and emergency response. In line with this trend, Malaysia has observed a consistent year-on-year increase in the number of applications submitted for UAS activities. This is further reflected in the steady growth of UAS registrations and operational approvals across the country. With this increasing demand, it is required the allocation of dedicated airspace to ensure operational safety and efficiency.

1.2 In line with ICAO recommendations and national regulations, Malaysia has designated segregated airspace within KLFIR and KKFIR specifically for UAS activities. These segregated areas are established to mitigate risks of collision and interference with manned aircraft, while enabling UAS operators to conduct operations under controlled conditions.

1.3 This approach enables improved airspace control, enhanced risk management, and more streamlined approval processes, particularly for high-volume or recurring drone activities.

2. BACKGROUND

2.1 UAS operations in Malaysia are subject to the Civil Aviation Act 1969, Civil Aviation Regulations 2016, and relevant Civil Aviation Directives (CAD). The Civil Aviation Authority of Malaysia (CAAM) is responsible for ensuring that UAS operations comply with safety and operational requirements in accordance with ICAO provisions.

2.2 To accommodate complex and higher-risk UAS missions, CAAM, in collaboration with relevant stakeholders, has implemented the use of segregated airspace.

2.3 The establishment of segregated airspace for Unmanned Aircraft Systems (UAS) aims to:

- a) Enhance Airspace Management - Improve safety and air traffic flow by separating UAS operations from manned aircraft.
- b) Improve Safety and Risk Mitigation - Reduce the risk of mid-air collisions by providing a controlled environment for UAS operations.
- c) Support Regulatory Compliance - Align with ICAO and CAAM regulations for safe and orderly UAS operations.
- d) Streamline Permit and NOTAM Processes - Enable faster approvals and reduce the number of NOTAMs issued, addressing ICAO concerns about excessive declarations. Malaysia has observed that NOTAM issuances increased from approximately 2 000 in the previous year to 3 000 in 2024, underscoring the urgency of improving efficiency.
- e) Preparation for Web-based UAS Management System - Foster the development of a UAS Traffic Management System (UASTMS) for managing future drone operations.

- f) Support reduction of routine NOTAM dependency by implementing risk-based segregation, Malaysia seeks to minimise excessive NOTAM publications and permit low-risk UAS operations to safely continue without unnecessary disruption to normal air traffic.

3. SEGREGATED AIRSPACE FOR UAS OPERATIONS

3.1 Segregated airspace for UAS operations refers to a designated portion of airspace reserved for UAS operations, where they are permitted to operate without the need for NOTAM promulgation. The Segregated airspace for UAS operations excludes prohibited areas, restricted areas and danger areas or otherwise obtained authorization from the air traffic services unit (ATSU).

3.2 Colour coding is applied to indicate the vertical limits and operational conditions within the UAS segregated airspace, as follows:

- a) Red – The Red Zone within the segregated airspace is designated as a no-fly area for general UAS operations and is restricted to critical activities only, such as LiDAR surveys, governmental purpose and aerial mapping conducted by authorized government agencies. All such activities shall not operate without authorization from the ATS unit responsible for that airspace and require NOTAM promulgation.
- b) Yellow – UAS activities at or below 300ft AMSL are permitted and do not require a NOTAM promulgation. Any UAS activities above this altitude requires authorization and a NOTAM promulgation.
- c) Green – UAS activities at or below 400ft AMSL are permitted and do not require a NOTAM promulgation. Any UAS activities above this altitude require authorization and NOTAM promulgation.

3.3 Operations within these areas are conducted under strict compliance with the approved safety risk assessment, operational procedures, and communication protocols.

4. CONCLUSION

4.1 Establishing segregated airspace ensures a safe operating environment for UAS while minimising risks to other airspace users. It facilitates operational planning and provides certainty for both UAS operators and ATSU. This approach is also expected to support a long-term reduction in excessive NOTAM issuance while maintaining flexibility for low-risk operations in parallel with normal air traffic.

4.2 Malaysia's approach to designating segregated airspace for UAS operations provides a structured and safe mechanism for accommodating unmanned aircraft within KLFIR and KKFIR.

4.3 The experience gained will inform future developments towards a harmonized integration of UAS and manned aircraft operations.