



*International Civil Aviation Organization*

**MIDANPIRG/20 and RASG-MID/10 Meetings**

*(Muscat, Oman, 14-17 May 2023)*

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**Agenda Item 2.2: Update from States and International Organizations**

**UAE UTM REGULATORY FRAMEWORK DEVELOPMENTS**

*(Presented by the UAE)*

**SUMMARY**

This paper presents the history and the progress made by the United Arab Emirates to provide a regulatory framework to develop UTM Service Provider, U-Space and UTM Management regulations to support all relevant stakeholders' requirements, whether to enable operations of UA for state authorities and commercial flights in both VLOS and BVLOS environments.

Action by the meeting is at paragraph 6

**1. INTRODUCTION**

1.1 The United Arab Emirates (UAE) is in preparation for the introduction of Unmanned Aircraft Traffic Management (UTM) systems for use in areas of projected high traffic of Unmanned Aircraft (UA) operations. The aim is to provide a dynamic UTM utilising Artificial Intelligence (AI) to decongest high traffic UA zones to provide optimal airspace management, maximising UA capacity within that airspace whilst maintaining the highest safety standards.

1.2 The introduction of UA operations into the UAE airspace during the early 2000's was limited to mainly Military and State operations. These early operations were managed on a case by case basis and the operations were severely segregated from Civil Commercial operations, with commensurate restrictions within the UAE FIR.

1.3 With the continued development and introduction of civil UA operations in to the UAE, the GCAA in the mid 2010's developed special procedures and processes for managing Commercial UA operations. Mostly this meant restricting operations to below 400 ft AGL and outside of controlled or Special Use Airspace for hobbyists. As commercial operations increased, an e-service was developed to enhance the approval process for commercial operations. This was quickly followed in 2015 by the development and publication of the first Civil Aviation Regulations for unmanned aircraft. These regulations were continually developed to include UA Operator Registration and the introduction of six categories of UA Operations each with its own set of regulatory requirements. This included Demonstration flights, experimental operations, recreational flights, special events and commercial and governmental operations.

**2. DISCUSSION**

2.1 Commercial UA operations are growing rapidly with a roughly 50% growth year on year. See Figure 1 Total UA Airspace Applications / Year below:

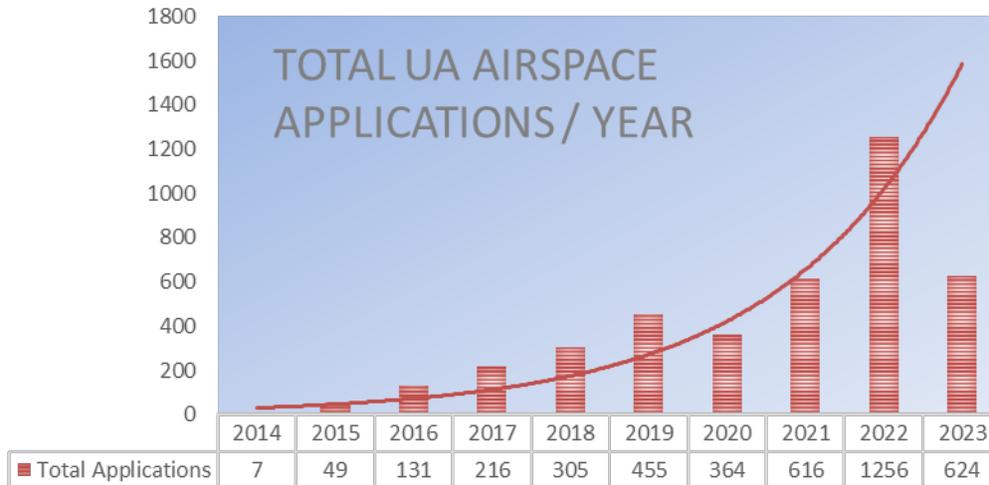


Figure 1 Total UA Airspace Applications / Year

2.2 The present regulations for UA Operations are restrictive in that they only permit daylight, visual line of sight, below 400ft Above Ground Level flights. All other UA Operations requiring Special Approvals.

2.3 To further improve the access to UA Operations, the GCAA developed a Drone Application (My Drone Hub) to simplify the UA registration as well as to include an Unmanned Aircraft Flight Zone Map which divides the UAE Airspace up into areas of four colour codes which places certain conditions on the use of these areas.



Figure 2: UAE Unmanned Aircraft Flight Zone Map

2.4 These areas bound conditions allowed the increased efficiency of the regulatory oversight of UA Operations and also allowed the expansion of commercial operations into Controlled Airspace with Multiple flights on a single approval. It also enabled the development of a process of Special Approvals for multiple UA, UA Above 400ft AGL, night, Beyond Visual Line of Sight and multiple operators in a single airspace operation as well as special experimental or demonstration flights.

### 3. REGULATORY CHALLENGES

- 3.1 Providing for scheduled UA operations;
- 3.2 Accommodating Night operations;
- 3.3 Accommodating multiple UA operations at the same time and locations;
- 3.4 Management of autonomous UA Operations, Including BVLOS;
- 3.5 Accommodating Urban Air Mobility (Drone Taxi and Delivery)

3.6 High Altitude UA Operations.

#### **4. CURRENT LAW AND REGULATION**

4.1 The current UA regulations limits operations to day light, below 400ft, and mostly outside of controlled or SUA airspace, thus limiting growth opportunities for future expansion in to delivery and passenger operations.

4.2 CAR-UAC: UA Commercial and Governmental Operations

4.3 CAR-UAD: UA Demonstration operations;

4.4 CAR-UAEV: UA Events operations;

4.5 CAR-UAX: UA Experimental operations;

4.6 CAR-UAR: UA Recreational flight.

4.7 Further in 2023 the Federal Decree-Law No. (26) of 2022, On the Regulation of the Civil Use of Unmanned Aircraft and Related Activities was promulgated by the UAE giving a new federal law governing all UA operations in the UAE. This established the requirement to start developing regulatory oversight measures to ensure the continuation of safe and secure operations of the UTM and associated UA Operations.

#### **5. UPCOMING REGULATORY DEVELOPMENTS**

5.1 The GCAA is currently developing CAR-Airspace: which is an overriding regulation for all UAE Airspace, which will contain all the provisions for UA designated airspace namely “Specific regulatory oversight as to the Airspace Requirements for UA Operations, Airspace Standards and Categorisation for UA Operations, Target Levels of Safety for UA Operations and UTM Requirements. These include:

5.2 CAR-UTMSP: UTM Service Provider Certification. Any organization that is providing unmanned air traffic management services to unmanned air traffic and that is functionally separated from its regulator.

5.3 CAR-UTM: The dynamic integrated management of unmanned traffic and airspace including unmanned traffic management services, unmanned traffic airspace management and unmanned traffic flow management—safely, economically and efficiently—through the provision of facilities and seamless services in collaboration with all parties

5.4 CAR-USP: Specific regulatory oversight as to the Airspace Requirements for UA Operations, Airspace Standards and Categorization for UA Operations, Target Levels of Safety for UA Operations and UTM/ATM Integration Requirements.

5.5 The methodology utilised in the development of the CARs above, followed traditional processes creating a structure for the oversight of UTM Service Provider with largely Organisational

structures and requirements being specified in CAR-UTMSP. This mirrors that of CAR-ATMSP for ATM Service Providers in that UTM is considered a subset of the national ATM system. Similarly, CAR-UTM mirrors CAR-ATM in the way it specifies certain behaviors from the UTM Service Providers including standards of performance of UTM Operators. CAR-ASP by contrast, is the placeholder for the Airspace usage specific requirements and will contain all the standards and conditions for particular Airspace usages including UA and specific UTM designated Airspace requirements.

5.6 The implementation of the UAE UTM and the promulgation of the new regulations will empower the UAE to move its Airspace Management from existing practices on the left in Figure 3: Airspace Management Evolvement to the envisioned status on the right post UTM integration. See Figure 3: Airspace Management Evolvement below:

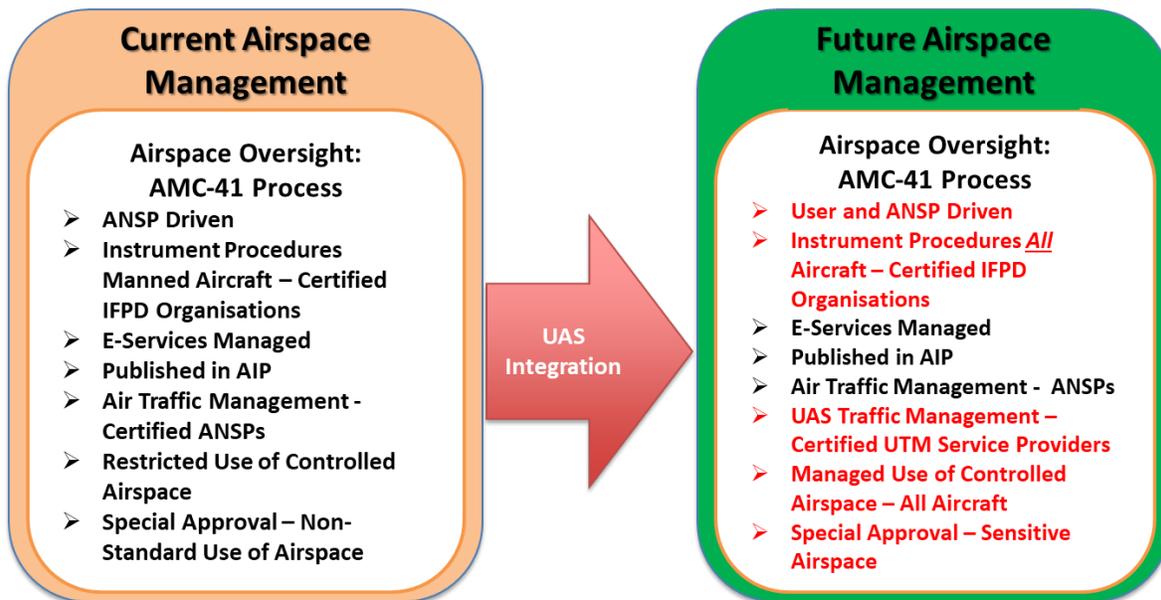


Figure 3: Airspace Management Evolvement

**6. ACTION BY THE MEETING**

**6.1 The meeting is invited to:**

- a) review the process and progress made by the UAE in the development of a regulatory framework for future UTM systems to ensure safe and secure future UTM and UA operations;
- b) Invite states to share their experience and best practices related to UA operations within their respective states; and
- c) The UAE GCAA is willing to share its experience in UA operations by conducting virtual training workshops or awareness sessions member states.

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