



International Civil Aviation Organization

MIDANPIRG/21 & RASG-MID/11 Meetings

(Abu Dhabi, UAE, 4 – 8 March 2024)

Agenda Item 5.3: ANS (AIM, PBN, AGA-AOP, ATM-SAR, CNS and MET

PBN IMPLEMENTATION CHALLENGES AND LESSONS LEARNED

(Presented by UAE)

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| SUMMARY |
| This paper presents the UAE experience with implementing PBN in the UAE airspace and presents lessons learned from this experience for the benefit of all member states. |
| Action by the meeting is at paragraph 3 |
| REFERENCE |
| - ICAO Doc 9613 PBN Manual |
| - ICAO Assembly Resolution 37-11 |
| - UAE PBN plan |

1. INTRODUCTION

1.1 The UAE developed a PBN Implementation plan in 2009 as per ICAO Assembly Resolution A36-23 which was superseded by 37-11 in support of the ICAO PBN Implementation goals to implement PBN ATS routes and approaches with vertical guidance at all airports with instrument runways in accordance with the ICAO PBN concept laid down in the Performance-based Navigation (PBN) Manual (Doc 9613). The UAE PBN plan highlighted some of the main reasons for the UAE support of the ICAO plan that includes:

- a) To reduce controlled flight into terrain (CFIT)
- b) To increase airspace efficiency
- c) To increase airspace capacity
- d) To increase aerodrome access
- e) To address environmental issues

2. DISCUSSION

2.1 The UAE commenced with a total airspace restructuring project in 2013. During the study, it was identified that, based on the predicted traffic growth, RNAV-1 will be required in the UAE Airspace in order to be able to space the route structures closer together. This would allow the UAE to increase the number of routes without compromising safety. Also, due to the limited ground navigation infrastructure it was identified that RNAV-1 can only be assured with GNSS. In accordance, GNSS was mandated in May 2014, requiring RNAV-1 with GNSS within UAE airspace from 7 December 2017.

2.2 The process followed by the UAE commenced with a needs analysis taking into consideration:

- a) Needs of the airspace users;
- b) Needs of the Service Providers;
- c) Operational requirements;
- d) ATM Requirements;
- e) NAVAIDs requirements;
- f) Current operator capabilities and upgrade requirements;
- g) Capacity benefits;
- h) Environmental benefits.

2.3 UAE Regulations was amended in 2014 to reflect the upcoming requirement for RNAV-1 with GNSS and also provided some technical guidance to operators and MRO's.

2.4 The implementation target date was set to coincide with the implementation of the newly designed UAE Airspace under the ARP-3 Project. Implementation was scheduled for the AIRAC 7 December 2017, allowing local and foreign operators time to either comply with the PBN requirement or apply for a waiver for a period of time to allow for upgrades to the fleet. All UAE commercial operators are fully compliant with the UAE PBN requirements, and exceptions to foreign operators are based on a case by case basis always ensuring no compromise to flight safety.

2.5 Central to the successful implementation of the airspace restructuring project was the mandate and implementation of the PBN requirements. The lessons learned through this implementation project can assist other States in their projects and include:

- a) Regulator must be fully involved in PBN Implementation projects from inception;
- b) Dedicated project management team must be assigned, with the project as primary task so as to ensure full commitment to the project;
- c) Beware of project creep in order to ensure that the project objectives achieves full attention and is the primary focus for the team. (Focus on the purpose of the project);
- d) Early involvement from operators;
- e) Allow sufficient time for retrofits and compliance;
- f) Develop a National policy on exemptions (There will be requests).

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) encourage MID States to share regulatory development and implementation experiences for the benefit of all members, and
- c) Note UAE's willingness to provide guidance and share expertise with member states to facilitate the implementation of PBN.