الهيئـة الـعـامـة للطيــران المـدنـي
GENERAL CIVIL AVIATION AUTHORITY

United Arab Emirates

UAE PBN Implementation Plan SG/2 Meeting Sharm El Sheikh, 22-25 February 2016

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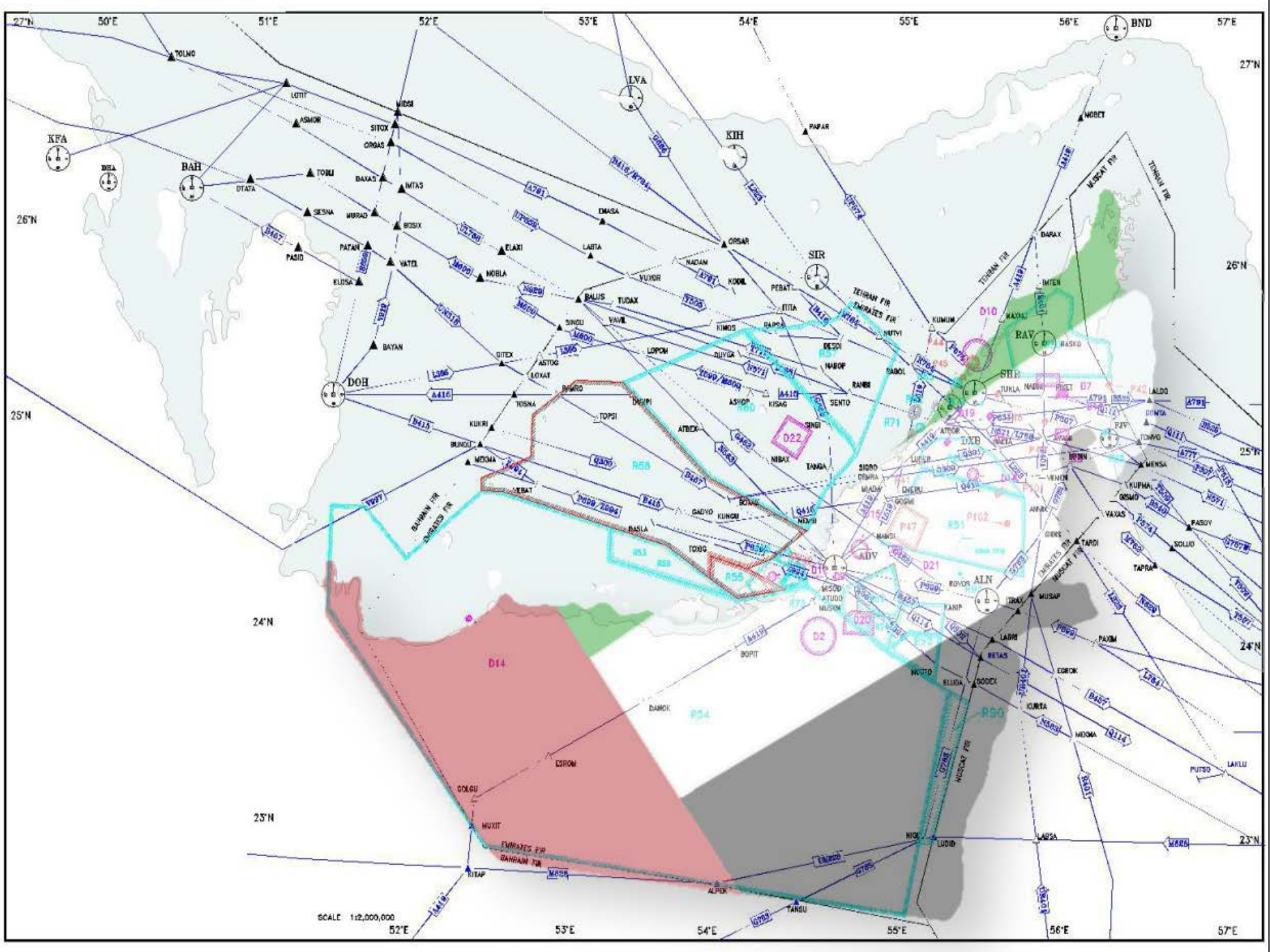
Outline

1. Brief of the State National PBN Implementation Plan;

2. Status of Implementation;

3. Lessons Learned;

4. Challenges;

5. Thoughts/Recommendations.

UAE FIR

UAE FIR 2009

> - 28 ATS Routes
> - 100% RNAV 5 ATS Routes
> - 6 ACC sectors
> - Daily traffic Movements 1589

UAE FIR 2015

> - 41 ATS Routes
> - 100% RNAV 5 ATS Routes
> - 20% RNAV 1 ATS Routes
> - 9 ACC sectors
> - Daily traffic Movements 2480

Objectives of the UAE PBN implementation plan

The UAE PBN implementation is based on the following strategic objectives:

1. To provide a high-level strategy for the evolution of the navigation applications to be implemented in the UAE as follows:
    - Short term (2014-2015)
    - Medium term (2016-2020)
    - Long term (2020 and beyond).

This strategy is based on the concepts of PBN, Area Navigation (RNAV) and Required Navigation Performance (RNP);

1. The implementation of the navigation portion of the CNS/ATM system is based on clearly established operational requirements,

2. To avoid unnecessarily imposing the mandate for multiple equipment on board or multiple systems on the ground;

3. To avoid the need for multiple airworthiness and operational approvals for intra- and inter-regional operations;

4. To prevent commercial interests from outdoing ATM operational requirements, generating unnecessary costs for the UAE as well as for airspace users.

Status of Implementation

One of the Key Recommendations highlighted in the UAE Airspace Study Final Report was: "Develop a comprehensive airspace design by 2015 that will accommodate transition to the full Performance-Based Navigation (PBN) airspace environment and support the increasing demand." The GCAA established the UAE Airspace Restructuring Project to address this key recommendation, dividing the effort into the following two phases.

1. **Phase 1:** focuses on CTA airspace design and is being led by Dubai Air Navigation Services (DANS) with The MITRE Corporation Centre for Advanced Aviation System Development (CAASD) providing consultancy support.

2. **Phase 2:** focuses on the En Route airspace design and is being led by SZC with consultancy support from Airbus ProSky.

3. **Phase 3:** Integration and Implementation

Airspace Structure and Design

- The UAE GCAA has mandated the carriage of GNSS equipment with effect from **07 December 2017** for all commercial operations within the UAE Airspace.

- GNSS equipment shall be in compliance with the Advanced RNP Navigation requirements of ICAO Doc 9613, certified in accordance with UAE CAAP 52 and the UAE PBN handbook.

- Operator shall not operate an airplane under IFR after **01 January 2020**, unless it is equipped with ADS-B OUT.

- ADS-B capability should be demonstrated against Certification Specifications - Airborne Communications, Navigation and Surveillance (CS-ACNS) contained in Annex I to ED Annex I to ED Decision 2013/031 or equivalent accepted by the GCAA.

Implementation Strategy

This plan provides a high-level strategy for the evolution of navigation capabilities to be implemented in three timeframes: **Short term (2014-2015), midterm (2016-2020),** and **Long term (2020 and Beyond).**

The strategy rests upon two key navigation concepts:

1. Area Navigation (RNAV);
2. Required Navigation Performance (RNP).

It also encompasses instrument approaches, Standard Instrument Departure (SID) and Standard Terminal Arrival (STAR) operations, as well as en-route continental and remote operations.

Lessons Learned

1. Promote PBN requirements;

2. Regulator engagement to smoothen the process;

3. Provide proper operational documentation;

4. Regular monitoring to the plan.

Challenges

1. Getting operators equipped, certified and trained;

2. Air Traffic Controller training;

3. Maintain Target Level of Safety (TLS);

4. Stakeholders training and readiness.

Recommendation

1. Airspace changes to accommodate current & projected traffic increase and further improve safety, capacity and efficiency;

2. operational PBN submission & approval process;

3. PBN training coordination;

4. Stakeholders readiness;

5. Regulator oversight.

Implementation Targets Medium term

- RNP APCH (with Baro-VNAV) or APV in 100% of instrument runways by 2016

- RNP APCH (with Baro-VNAV) or APV to Points In Space for Helicopter operations by 2020

- RNAV-1 or RNP-1 SID/STAR for 100% of international airports by 2016

- RNAV-1 or RNP-1 SID/STAR for 70% of busy domestic airports where there are operational benefits

Thank You