



International Civil Aviation Organization

WORKING PAPER

AN-Conf/13-WP/256
26/9/18
(Information Paper)
English only

THIRTEENTH AIR NAVIGATION CONFERENCE

Montréal, Canada, 9 to 19 October 2018

COMMITTEE A

Agenda Item 3: Enhancing the global air navigation system

3.5: Other ATM issues

**IMPLEMENTATION OF ICAO SID STAR PHRASEOLOGY
IN THE UNITED ARAB EMIRATES**

(Presented by the United Arab Emirates)

EXECUTIVE SUMMARY

The United Arab Emirates implemented the ICAO standard instrument departure (SID) standard instrument arrival (STAR) phraseology on 1 February 2018, following a successful nationwide airspace restructure on 7 December 2017. The implementation was accelerated to mitigate a rise in non-conformance with the vertical profiles in the new airspace. There has been a significant decrease in such incidents following the implementation.

1. INTRODUCTION

1.1 The 16th Edition of *Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM, Doc 4444) included revised provisions for SID and STAR phraseology and associated procedures to enhance efficiencies from strategically designed performance-based navigation (PBN) terminal airspace. This edition became effective on 10 November 2016, however many States remain in the implementation phase or are yet to implement.

1.2 The procedures were developed as a direct result of inconsistent conformance with the vertical profiles of SID and STAR procedures around the globe. It was identified that a variety of phraseologies were in use among States and that this contributed to the confusion of flight crews who are usually required to operate in various different airspaces.

1.3 The United Arab Emirates successfully implemented the SID/STAR procedures on 1 February 2018 following a successful nationwide route restructure in December 2017. There have been no major issues identified with the phraseology and it supports the CCO/CDO concepts with a strategically separated PBN network.

2. DISCUSSION

2.1 Throughout development of the SID/STAR provisions, the UAE monitored progress via the Air Traffic Management Operations (ATMOPS) Panel, and support the initiative as a mitigation for inconsistent compliance, and also as an airspace capacity enhancement.

2.2 The United Arab Emirates has been progressively enhancing the national route structure to cater for unprecedented growth, and during the 2016-2017 period were performing Phase 3 (ARP3) of this project. It was recognised that to take full advantage of the SID/STAR changes, the airspace should be designed with CCO/CDO as much as possible in a strategically separated PBN network. With this in mind, the planned implementation of ARP3 was 7 December 2017, and with implementation activities consuming significant resources, it was determined that the implementation of the SID/STAR phraseology would be best managed several months after the ARP3 - approximately April 2018.

2.3 The implementation of ARP3 was highly successful, particularly noting the involvement of over twenty-five stakeholders, including six air navigation services providers (ANSPs). The new airspace incorporates an entirely RNAV1-GNSS PBN structure, with 115 new SIDs and 111 new STARs, building capacity for forecast 2022 traffic levels while increasing capacity at all United Arab Emirates airports. It is anticipated that this will allow annual fuel savings of over U.S. 10 million dollars to airline customers, and reduce CO2 emissions by 100 000 Mt.

2.4 There was however, a number of occurrences of aircrew failing to comply with the vertical profiles as defined on the SID/STAR charts. These incidents were analysed and attributed to a number of systemic issues, and mitigation strategies were put in place.

2.5 The multinational aviation workforce of the United Arab Emirates is particularly susceptible to variations in phraseology used by the nationality of the controllers and pilots. It was identified in investigation transcripts that a number of variations on SID/STAR clearances was likely to be contributing to the problems, and it was determined that accelerating the implementation of the ICAO phraseology would serve as a significant mitigation to this issue.

2.6 Following consultation with all ANSPs, United Arab Emirates based carriers and some foreign airlines, the implementation date was moved forward from 1 April 2018 to 1 February 2018. ANSPs advised they had either already done the training, or would be able to provide sufficient training before the date. Airlines commented that the early implementation would have negligible impact to them as they had already trained flight crews for operations in other States.

2.7 It was noted during discussions with airlines however, that a regional implementation would be preferable to the United Arab Emirates implementation in isolation. The United Arab Emirates recognised this recommendation, and is cooperating with a regional approach through the ICAO Middle East (MID) Office. Nevertheless, the United Arab Emirates continued with the accelerated implementation as planned because the benefits of a regional approach did not clearly outweigh the benefits of the phraseology itself.

2.8 The implementation was supported by aeronautical information circular (AIC), NOTAM and safety bulletins, and appeared to be seamless, with no major issues or concerns raised. Most importantly, following the introduction of the phraseology, incidents related to SID/STAR compliance reduced by 78 per cent in February from a peak during the month of January. This trend has continued and is expected to continually improve as other States in the region align with the global Standard.

2.9 **Issues identified**

2.10 Following the introduction of the phraseologies and associated procedures, some inter-unit Letter of Agreements needed to be reviewed to ensure that transfer of control events occurred with sufficient time for the next sector to provide a clearance that enables the pilot to comply with the profile.

2.11 Consistent flight crew understanding of the procedures is considered essential to successful implementation. The United Arab Emirates has a high proportion on national carriers yet experienced some issues with foreign operators, regardless of the multiple forms of communication used prior to implementation.

2.12 It should be recognised that a continued pace of implementation by States will reduce the likelihood of misunderstanding, and improve global harmonisation.

3. **CONCLUSION**

3.1 The United Arab Emirates have found the revised phraseologies to be of particular benefit as a mitigation for inconsistent compliance with vertical profiles on SID/STAR.

3.2 Appropriately designed airspace which is based on strategically separated SIDs and STARs focused on CCO/CDO concepts, greatly assists in an effective implementation of the new phraseology.

3.3 The phraseology also supports effective and efficient use of PBN airspace designed to support the CCO/CDO concepts.

3.4 Continued global implementation will support further harmonisation and ease transition for States.

3.5 The Conference is invited to note the contents of the information paper.

— END —