



TWELFTH AIR NAVIGATION CONFERENCE

Montréal, 19 to 30 November 2012

Agenda Item 2: Aerodrome operations – improving airport performance

2.2: Performance-based navigation (PBN) – a practical way to improve airport performance with safety and efficiency

PERFORMANCE-BASED NAVIGATION (PBN) IMPLEMENTATION STATUS AND REQUIREMENT FOR NAVSPEC'S

(Presented by South Africa)

SUMMARY

The implementation of performance-based navigation (PBN) in South Africa will require a radical realignment of the way that navigation systems are perceived. This will require fundamental changes to the way that certification, regulation, oversight and operation of navigation systems is performed. However, without buy-in and commitment from stakeholders and the implementation of PBN via a national level, the program will not succeed.

This information paper discusses the status of PBN implementation in South Africa.

1. INTRODUCTION

1.1 South Africa is committed to implement the International Civil Aviation Organization's (ICAO) PBN initiatives. The South African PBN roadmap was endorsed by the relevant stakeholders in 2010. This roadmap depicts the agreed timeframes, navigational criteria and specifications in which to implement area navigation (RNAV) and required navigation performance (RNP) operations, in alignment with ICAO timeframes.

1.2 The PBN concept provided a clear methodology for the implementation of area navigation (RNAV) based procedures and routes, supported by a globally-standardized set of navigation specifications for RNAV-based ATS routes, standard instrument departures (SIDs), standard terminal arrival routes (STARs), and approaches.

1.3 The current PBN concept is based upon the first edition of the PBN Manual which supports RNAV 2, RNAV 1 and RNP 1 applications in terminal airspace as well as RNP approaches and RNP authorization required (AR) approaches.

2. CURRENT STATUS

2.1 South Africa has established a PBN Steering Committee to provide guidance and oversight of the South African PBN implementation initiatives, as described in the PBN roadmap.

2.2 The South African PBN Implementation Team (SAPIT) was formed in 2011. This team consists of all relevant stakeholders associated with PBN and PBN implementation. The SAPIT is responsible for the review of the PBN Implementation Plan and to drive implementation initiatives. The SAPIT holds regular meeting/workshops and feedback is provided to the PBN Steering Committee.

2.3 South Africa has embarked on a process of decommissioning aged non-directional beacons (NDBs) after obtaining approval from the air traffic management (ATM) community. The process has been delayed due the requirement of providing alternate navigation and where required, let down procedures.

2.4 A DME/DME network infrastructure is being installed in the terminal areas of identified airports to provide redundancy for global navigation satellite systems (GNSS) and in support of PBN. SAPIT, under the guidance of the PBN Steering Committee, will determine the priorities for the implementation of the distance measuring equipment (DME)/DME network.

2.5 Once adequate DME/DME coverage exists, a larger portion of aircraft operating within South Africa will be capable of achieving the required navigational performance for the procedures. This will allow aircraft that do not have a GNSS feed to achieve the navigation accuracy required for the procedure without additional equipment, for an interim period.

2.6 Required navigation specifications (NAVSPECs) in accordance with the ICAO PBN requirements will be incorporated into the South African Civil Aviation Regulations. RNAV 2 NAVSPEC will then be used for Terminal procedure until RNAV 1 is legislated.

3. CONCLUSION

3.1 The meeting is invited to take note of the status of PBN implementation in South Africa. This will add value to the aviation community due to more aircraft being able to achieve the required navigational performance providing higher efficiency and will assist in achieving the goals as defined in the PBN roadmap. South Africa supports the recommendations contained in AN-Conf/12-WP/6.

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