International Civil Aviation Organization

THE SEVENTH MEETING OF PERFORMANCE BASED NAVIGATION IMPLEMENTATION COORDINATION GROUP (PBNICG/7)

Video Conference, 21 – 23 October 2020

Agenda Item 4: States' PBN Implementation Progress

PBN IMPLEMENTATION PROGRESS IN REPUBLIC OF KOREA

(Presented by Republic of Korea)

SUMMARY

This paper presents the latest update on PBN implementation progress and remaining challenges in Republic of Korea. The meeting is invited to take note of the information in this paper.

1. INTRODUCTION

1.1 In accordance with the resolution A37-11 adopted by the 37th General Assembly of International Civil Aviation Organization (ICAO), Republic of Korea (ROK) decided and has been implementing ATS routes and approach procedures for RNAV and RNP navigation specifications in Incheon FIR in line with ICAO PBN Manual (Doc 9613) since 2010.

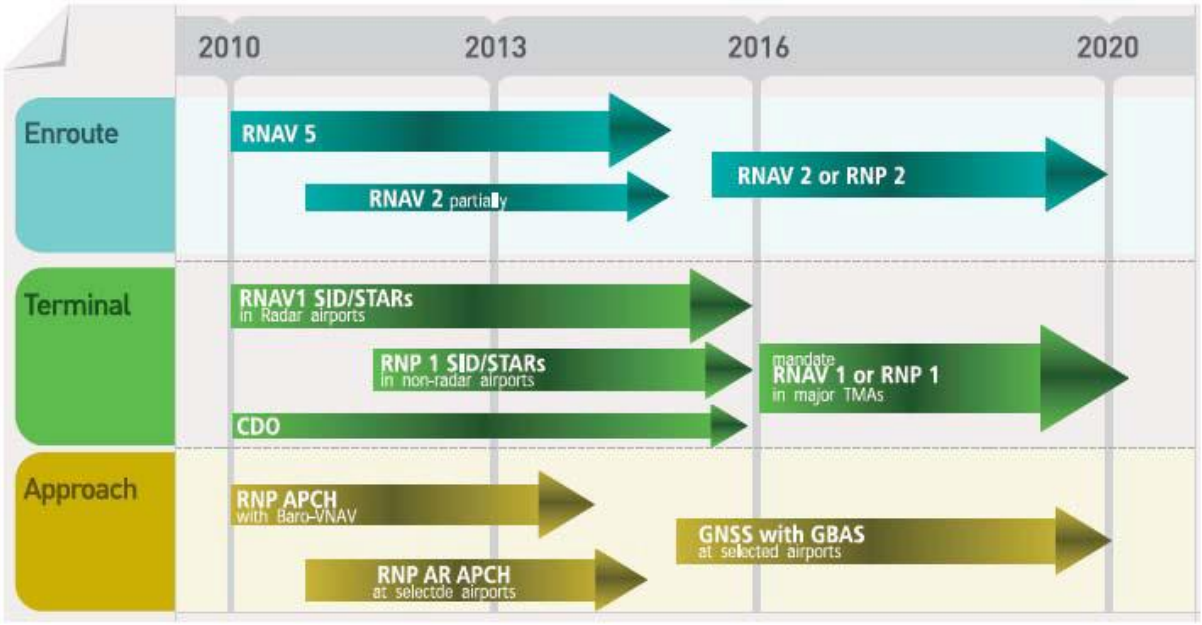
1.2 The ROK's continuous effort through consultation with airport operators, military, airline, and other relevant stakeholders has led to a number of progress in the implementation of PBN.

2. DISCUSSION

2.1 PBN Implementation Plan

2.1.1 ROK has established and has been implementing its own plans to improve the performance of the air navigation system on a harmonized, worldwide basis, and to implement performance-based navigation (PBN).

2.1.2 As of 2020, the plan has been moving forward with the goal of implementing airways with RNAV2/RNP2 navigation specifications in the Enroute section, making RNAV1/RNP1 SID&STAR in major TMAs mandatory in the Terminal section, and introducing GBAS approach procedures in the Approach section.



2.2 **PBN Implementation Status**

2.2.1 ***Approach Implementation***. Of 18 airports (civil / joint civil and military) in ROK, LVAV / VNAV approach procedures have been established at 29 out of 56 runway ends, while LNAV procedure has been established at 34 runway ends. The implementation rate sits 61 percent. Most airports are equipped with high-precision ILS, so the frequency of use of PBN approach procedures is low, but it is effectively applicable as an alternative means in case of AIR NAVAID not valid for use. In addition, the RNP AR approach procedure was introduced in 2019 to improve the landing minima of runway 18 of Ulsan Airport (RKPU), which operates only non-precision approach procedures.

2.2.2 ***Terminal Implementation***. Standard Terminal Arrival (STAR) procedures meeting the RNAV-1 navigation specifications and Standard Instrument Departure (SID) procedures have been established at 32 runway ends and for 39 runway ends, respectively. The implementation rate sits 70 percent.

2.2.3 In December 2019, through continuous coordination with the Navy, PBN (LNAV/VNAV, RNAV1 SID&STAR) flight procedures were implemented at Pohang Airport (RKTH) operated by the naval force, resulting in the implementation of PBN procedures at the two runway ends of Pohang Airport (RKTH), making ROK‘s civil aviation sector more efficient.

2.2.4 ***En-route Implementation***. In accordance with ROK's own PBN implementation plan and the Asia-Pacific Seamless ANS PLAN, the entire RNAV5 routes operated within the Incheon FIR were converted to the RNAV2 navigation specification in May 2020, except for A593. In addition, RNAV2 navigation specification and criteria will be applied for new routes to come, all of which is expected to contribute to the efficient operation of airspace and air traffic within the Incheon FIR.

2.3 **PBN implementation challenges**

2.3.1 Some civil/military joint airports are still experiencing a delay in implementing PBN due to concerns of the extended noise affected areas from the change in flight path. However, the consensus was made with the military on the condition that the PBN procedure will be implemented by overlapping with the existing conventional procedure. ROK remains committed to continuing a close coordination with the military.

2.3.2 The RNP AR procedures implemented at Ulsan Airport (RKPU) in 2019 have seen little performance increase due to a reduced air traffic from the worldwide pandemic and delays in certification of aircraft and flight crew, making it difficult to analyze the effectiveness of the implementation.

3. ACTION REQUIRED BY THE MEETING

3.1 The meeting is invited to:

a) take note of the information in this paper.

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