International Civil Aviation Organization

The Combined Tenth Meeting of the South Asia/Indian Ocean ATM Coordination Group (SAIOACG/10) and Twenty—Seventh Meeting of the South-East Asia ATS Coordination Group (SEACG/27)

Video Teleconference, 29 March – 02 April 2021

Agenda Item 5: ATS Route Developments

PROGRESSING WITH IMPLEMENTATION OF PBN ROUTES IN PREPARATIONS FOR POST COVID-19 RECOVERY

(Presented by Singapore)

SUMMARY

This paper presents an update of Singapore's progress on PBN route implementations and encourages States to actively coordinate for a harmonized PBN specifications across Flight Information Regions (FIR) in preparation for COVID-19 recovery.

1. INTRODUCTION

1.1 Performance-Based Navigation (PBN) enables the reduction of horizontal separation on ATS routes, enhances capacity and brings about great operational benefits to stakeholders. In addition, higher PBN specifications opens the opportunities to implement more routes to handle future increase in air traffic and to serve as city-pairs in order to mitigate delays due to various reasons. While capacity is being enhanced, efficiency and safety are improved as well when ATS routes evolve to take on higher PBN specifications requiring the minimum navigation accuracy. The constant advancement in avionics and satellite based navigational system have enabled aircraft to phase-out its reliance on conventional ground-based navigational aids. For the aviation industry to fully reap the benefits of this advancement in technology, Air Navigation Service Providers (ANSPs) play an important role in ensuring all ATS routes' capacities are optimized through PBN routes implementation.

2. DISCUSSION

Asia Pacific Region PBN Implementation Efforts

2.1 States in the Asia Pacific (APAC) region have been making good progress in line with regional plans such as the ICAO APAC Seamless ANS Plan and ASEAN ANS Masterplan. There are constant efforts to designate existing ATS routes to higher PBN specifications and/or implementation of new routes with high RNP specifications. For instance, as updated at the Seventh Meeting of the PBN Implementation Coordination Group (PBNICG/7), India's implementation of RNAV 2 and RNP 2 routes between city pairs and Thailand's operationalization of new RNAV 2 routes between Bangkok and Phnom Penh FIR since October 2020 are exemplary efforts to achieve APAC Seamless ANS Plan's target of having all new PBN Routes implemented with RNAV 2 or RNP 2 specification by 03 November 2022.

Singapore Implementation Plans and Progress

2.2 Coordination with adjacent States is paramount in enabling harmonized PBN specifications across FIR boundaries to ensure seamless Air Traffic Control operations. Singapore has been making steady progress to upgrade the PBN specifications of existing ATS routes within the FIR (See **Figure 1**). In a collaborative effort, Philippines and Singapore had worked towards the implementation of RNP 4 specification on ATS routes M767 and N884. The target date for RNP 4 implementation on ATS routes M767 and N884 was scheduled for January 2022. There were also plans to further re-designate these two routes to RNP 2 in future.

2.3 Singapore has also been working closely with other States on other route enhancements projects. A phased approach involving Indonesia, Malaysia, Singapore and Vietnam, to the implementation of RNP 10 operations on ATS route M768 was agreed at the Seventh Meeting of the South China Sea Traffic Flow Review Group (SCSTFRG/7) in 2018. With the reduced minimum longitudinal separation of 50NM between a pair of RNP 10 approved aircraft, the capacity of ATS route M768 would be enhanced. Discussions on the operational trial and subsequent actual implementation have been on-going.

2.4 Among the various PBN route initiatives that Singapore is embarking on, the designation of ATS routes L642, M771 and N892 to RNAV 2 remains as one of the key priority. ATS routes L642, M771 and N892 are main truck routes serving this region, the designation of these ATS routes to RNAV 2 would enable route capacity optimization and lessen the adverse effects to traffic flow during the activation of Large Scale Weather Deviation (LSWD) procedures during inclement meteorological conditions. If required, the PBN specification enhancement would potentially enable future plans to implement a parallel route system, introducing two additional routes in between the existing L642, M771 and N892.

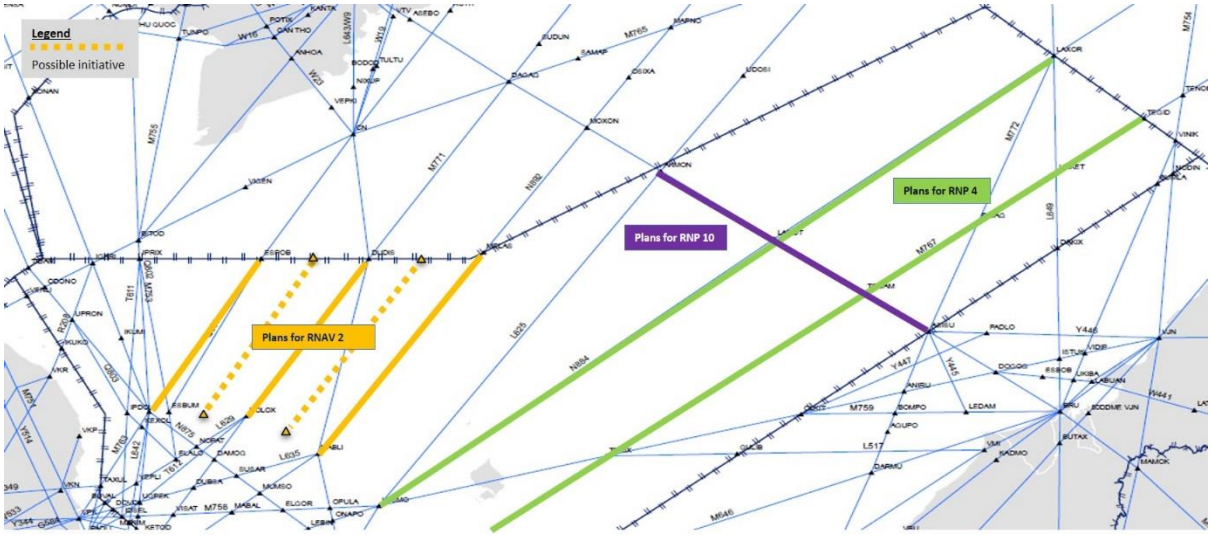

Figure 1: Singapore PBN Initiatives

Conclusion

2.5 COVID-19 has caused an unprecedented decrease in air traffic throughout the world. As the aviation industry continues to be battered by this global pandemic, commitment by States to provide resources to accelerate PBN implementation plans is necessary in preparation for COVID-19 recovery. Even though the recovery from COVID-19 is expected to be gradual, speedy implementation of PBN initiatives now will allow the aviation industry to fully capitalize upon the return of air traffic in the long-run. In accordance with the ASEAN ANS Master Plan, en-route PBN routes serving major aerodromes should be designated as RNAV 2 or RNP 2 by end of 2025. While COVID-19 has derailed

many PBN implementation plans, collective and united efforts by States to expedite PBN implementations now will be a significant enabler to realizing the target of having all PBN routes serving major aerodromes designated as RNAV 2 or RNP 2 by end of 2025.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper;

b) encourage coordination amongst States to implement harmonized PBN specifications across FIR boundaries; and

c) discuss any relevant matters as appropriate.

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