



WORKING PAPER

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

PBN IMPLEMENTATION IN THE RUSSIAN FEDERATION

(Presented by the Russian Federation)

EXECUTIVE SUMMARY

This paper presents proposals to add a series of PBN-related requirements and guidance materials.

Action: The Conference is invited to agree with the Russian Federation on the recommendations in paragraph 3.

1. INTRODUCTION

1.1 Performance-based navigation (PBN) is a priority for ICAO in its air navigation activities. The Russian Federation has consistently supported PBN, taking into account the expectations as a result of improved performance en route and in the aerodrome area.

2. BACKGROUND

2.1 In accordance with Resolution A36-23 adopted at the 36th Session of the ICAO Assembly, the plan to implement performance-based navigation in Russian Federation airspace was developed by the Russian Federation in 2007 and published on the ICAO website in 2010.

2.2 In accordance with this plan, RNAV-5 area navigation routes were introduced for Norilsk-Nigor, Tyumen-Nigor, Tobolsk-Darno and Serov-Ginom.

2.3 In 2011, RNAV-1 GNSS standard instrument departure (SID) and standard terminal arrival route (STAR) procedures for eight airports of the Russian Federation and PA global navigation satellite system (GNSS), ground-based augmentation system (GBAS) landing system (GLS) procedures for the Tyumen Airport were developed and published in the Russian aeronautical information documentation. In addition, GLS procedures were developed for several airports in Russia, as were GNSS approach procedures with barometric vertical guidance (in the implementation stage).

2.4 Work is currently being done in Russia to implement PBN at the Sochi Airport before the 2014 Winter Olympics. Specifically, a need has been identified and the possibility is being considered of using required navigation performance authorization required (RNP AR) criteria for the missed approach phase and for aircraft departures at this airport. If positive results are obtained in the development and implementation of RNP AR procedures, the experience gained will be applied to other aerodromes in Russia.

2.5 The experience of developing GLS procedures revealed a need to make additions to ICAO documents in terms of special criteria for analysis and a collision risk model for GLS. Work to supplement the ICAO documentation with Standards, Recommended Practices and procedural materials on the use of GBAS to generate STAR and SID trajectories using terminal area path (TAP) data blocks would facilitate the ongoing process of broad development of a network of stations for GBAS in Russia.

3. CONCLUSION

3.1 In the process of implementing PBN in the airspace of the Russian Federation, an objective need has been identified for the current ICAO documentation to have an additional series of requirements and guidance material related to the generation of STAR and SID trajectories in the context of PBN. Because this need is not related to the specificities of using the national airspace, such a need may conceivably arise in other States as they work to implement PBN.

3.2 The Conference is invited to agree to the following recommendation:

Recommendation 2/x – Need for performance-based navigation-related requirements and guidance materials

That the Conference recommend that ICAO make appropriate additions to the ICAO regulatory and guidance materials related to performance-based navigation implementation, as follows:

- a) analysis criteria for required navigation performance authorization required procedures for aircraft departure phase;
- b) special analysis criteria and a collision risk model for GLS; and
- c) Standards, Recommended Practices and procedural material on the use of a ground-based augmentation system to generate standard instrument arrival and standard instrument departure trajectories, as well as final approach trajectories using data terminal area path data blocks.

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