Agenda Item 2: Report of activities of the GESEA and Subgroups

USE OF RNAV ON CONVENTIONAL ROUTES AND PROCEDURES

(Prepared by the Secretariat)

SUMMARY

This note presents information on a proposed amendment to Doc 8168 Volume I and III, on the use of RNAV in conventional routes and procedures.

References:

- Second Meeting of Sub Group 2 of the SAM GESEA/SG2/2 Airspace Study and Implementation Group (Virtual, May 17-19, 2021).
- Letter to States SL 2021.50 from ICAO SG.

1. Background

1.1 In the SAM GESEA/SG2/2 meeting (Virtual, May 17 to 19, 2021), as proposed by the delegation of Peru, the feasibility of implementing IFPs procedures with PBN, known as "overlay" procedures was analyzed. The Meeting was informed that some States have regulations for the application of overlay procedures, but it is already in disuse.

1.2 LATAM said that, in case overlay procedures are published for an Airport, they could not use them, because they require a specific and complex validation of parameters and security, noting that the coding of the overlay procedure, to be entered into the FMS database, would entail in many cases that the providers of coded data (ARINC 424) resort to artifices to emulate conventional procedures.

1.3 ICAO has circulated a proposed amendment to **Doc 8168 Volumes I and III,** on the use of RNAV in conventional routes and procedures. See link;

https://box.icao.int/link/b3QRlD7IMlBNPGMtsA1DjP

2. Analysis

2.1 To The FMS/RNAV system can be used in many cases to allow for continued operation on conventional routes and procedures, increasing safety and efficiency in situations where a conventionally equipped aircraft would otherwise require vectoring.

2.2 **To ensure operational safety, the use of such systems for this purpose must be overseen by the State and appropriate authorization must be given to the operator. This will ensure that adequate procedures and training are in place for pilots to safely conduct this type of operation and prepare them for potential failures of the on-board system.**

2.3 Initial discussions of the scope of this work considered all phases of flight. However, the proposal presented excludes the final approach segment of an instrument approach procedure, as there are additional considerations that have not been adequately addressed: specifically, the use of linear rather than angular obstacle clearance areas for the RNAV versus the conventional radio aid procedure design.

2.4 Additionally, the proposal presents best practices from States currently authorizing the use of FMS/RNAV systems on conventional routes and procedures. Typically, these do not permit use on the final approach segment.

2.5 Included in the proposal, however, is the use of the FMS/RNAV system in situations where the aircraft is not fitted with a receiver for the conventional radio navigation aid required. It is becoming increasingly common for new aircraft to be delivered with no automatic direction finder (ADF) for use with NDBs and in this specific case, it is proposed to allow for the use of the on-board system in lieu of the ADF. No such equivalent provision is considered for either VHF omnidirectional radio range (VOR) or distance measuring equipment (DME) which are likely to be required equipment for the foreseeable future.

2.6 Considering the minimum requirements for an operator to conduct these operations, the use of a required navigation performance RNP 1 authorization is intended to incorporate many of the built-in features of the performance-based navigation (PBN) specification (such as display of next waypoint) without the need to explicitly define these in the provisions.

2.7 Use of RNP 1 in preference to RNAV 1 is intentional as RNP 1 requires global navigation satellite system (GNSS) as a navigation sensor, whereas RNAV 1 can be authorized without GNSS and relies solely on conventional radio navigation aids.

3. Suggested actions

3.1 The Meeting is invited to take note of the information provided.

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