



ICAO

International Civil Aviation Organization  
North American, Central American and Caribbean Office

WORKING PAPER

ICAO/IATA/CANSO PBN/3 — WP/02  
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**Third ICAO/IATA/CANSO Performance-Based Navigation (PBN) Harmonization, Modernization and Implementation Meeting for the North American, Caribbean and South American (NAM/CAR/SAM) Regions**

Mexico City, Mexico, 2 – 6 July 2018

- Agenda Item 4: Optimization of Longitudinal Separation**  
**4.1 Review the Letters of Agreement related to the application of 40 NM and 20 NM separation between adjacent Flight Information Regions (FIRs) in the CAR and SAM Regions**

**REDUCTION OF LONGITUDINAL SEPARATION BETWEEN AIRCRAFT IN THE CAR/SAM AIRSPACE**

(Presented by Venezuela)

| <b>EXECUTIVE SUMMARY</b>  |  |
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| The purpose of this working paper is to present the States and the Secretariat for consideration of the need to concretize the efforts being made in both Regions regarding the implementation of the reduction in longitudinal separation. |  |
| <b>Action:</b>  | <ol style="list-style-type: none"><li>Take note of the information provided</li><li>Encourage the meeting between the CAR and SAM border States in order to review the criteria and requirements necessary for agreements to reduce the longitudinal separation of 40NM between adjacent FIRs.</li><li>Subscribe the respective MoU.</li><li>Analyze other considerations that the meeting considers necessary in this regard.</li></ol> |
| <i>Strategic Objectives:</i>  | <ul style="list-style-type: none"><li>Safety</li><li>Air Navigation Capacity and Efficiency</li><li>Economic Development of Air Transport</li><li>Environmental Protection</li></ul>   |
| <i>References:</i>  | <ul style="list-style-type: none"><li>Doc 4444, ATM / 501, (Procedures for air navigation services, Air traffic management)</li><li>Regional Project RLA / 06/901, Workshop / Meeting of the SAM Implementation Group</li><li>Meeting on harmonization, modernization and implementation of ICAO / IATA / CANSO PBN for the CAR Region</li></ul>   |

## **1. Background**

1.1 Whether in a conventional operating environment or radar, it is expected that the optimization of the longitudinal separation will serve to increase the efficiency of the operations in the SAM and CAR Regions, as well as to reduce the workload of air traffic controllers and pilots, taking into consideration that the aircraft would be "naturally separated" and would require very little intervention by the air traffic controllers to change the level of flight of the aircraft. This reduction in the workload would lead to an improvement in operational safety.

1.2 During 2016, important efforts were made to coordinate improvements to the ATS routes between the States of the CAR and SAM Regions, carrying out two PBN harmonization, modernization and implementation meetings (Fort Lauderdale - USA and San José - Costa Rica), resulting in proposals for the optimization or implementation of a set of interregional RNAV routes, including four parallel RNAV routes in the Brazilian space, that will optimize the flow of aircraft from airports in the CAR and NAM Regions, to Rio de Janeiro, Sao Paulo and vice versa. This implementation also involves the administrations of Guyana, Suriname and Venezuela. In that order of ideas, the coordination of States of CAR and SAM Regions for the harmonized implementation of the longitudinal separation of 40 NM to optimize the use of optimized airspace in the continent.

1.3 In this regard, during the meeting on harmonization, modernization and implementation of ICAO/IATA/CANSO PBN for the CAR Region, significant progress was made in the optimization of longitudinal separation both in the CAR Region, as well as in the SAM States that interface with CAR.

1.4 The minimum longitudinal separation normally has a domino effect on flight operations, due to the need for coordination between the ACC's responsible for the ATS in the adjacent FIRs. Therefore, it is important to establish close coordination between the CAR and SAM Regions in this area.

## **2 Analysis**

2.1 Within the framework of this Regional Project RLA / 06/901, the Workshop / Meeting of the SAM Implementation Group (SAM/IG) takes place twice a year, where great efforts have been made to harmonize and concatenate what is contained in Doc 4444, ATM / 501, (Procedures for air navigation services, Air traffic management), with the demand requirements of commercial aviation and the interest of the States of the Region to optimize the use of airspace and make it more efficient. All this in common agreement with the adjacent Regions, to guarantee the interoperability of the flights. This is how, within the framework of the Meetings of the Implementation Group of the South American Region, the subject in question was very interested.

2.2 In this Workshop / Meeting, specifically at the fifteenth meeting held in May 2015, the issue of the reduction and harmonization of longitudinal separations within the boundaries of South American FIRs was addressed with great emphasis, through a work paper proposed and presented. by IATA to obtain greater operational efficiency through the reduction of longitudinal separation, mainly in the FIR limits, with a view to guaranteeing a better flow of air traffic.

2.3 The Meeting recognized that abrupt separation increases, usually from a radar separation to a conventional separation of 10 minutes and / or 80 NM within the boundaries of the FIRs, adopted in most Letters of Operational Agreement, cause operational problems for the users and the ATCO.

2.4 It was considered that since the longitudinal reduction procedures established in the PANS ATM Doc 4444 were applicable, they could be implemented as the Letters of Operational Agreement between the different adjacent FIRs were revised.

2.5 Within the requirements of longitudinal separation extends a range of possibilities ranging from the separation of 80NM to 20NM depending on the different separation techniques described, or the navigation functionalities used and that are part of the equipment of aircraft.

2.6 After an exhaustive analysis, the Meeting considered that the implementation of a reduction of the longitudinal separation could be gradual and that it was recommended that this reduction be applied regionally to increase the efficiency and capacity of the airspace

2.7 However, it should be noted that the SAM Region is already promoting separation of 20 NM between several FIRs, as stipulated in Doc. 4444, for which the consolidation of the optimized separation of 40 NM in all FIRs is considered essential, located in the common boundary of the CAR and SAM Regions.

From all this became a conclusion:

**Conclusion**

**SAM / IG / 15-4**

**REDUCTION OF LONGITUDINAL SEPARATION BETWEEN AIRCRAFT IN SAM AIRSPACE**

*That, taking into accounts the operational benefits that would be obtained from the reduction of the longitudinal separation of aircraft in the SAM airspace, the States:*

- a) *Analyze the convenience of reducing the longitudinal separation of aircraft to 40 NM between adjacent FIRs by applying the Mach Number Technique;*
- b) *Include their application in the Letters of Operational Agreement; and*
- c) *The Secretariat includes this implementation in the GREPECAS ATFM Project and in its respective Action Plan.*

2.8 During the Seventeenth Meeting of the aforementioned group (SAMIG 17), the results of the Meeting on harmonization, modernization and implementation of the ICAO/IATA/CANSO PBN for the CAR Region, which was attended by 98 participants from the CAR/SAM States, CANSO, IATA, IFALPA, Jeppesen and the ICAO NACC and SAM Regional Offices?

The main results of the meeting were, among others, the following:

- Revised the proposed PBN routes with a view to developing a new network of PBN routes for the CAR Region.
- The States and Air Navigation Service Providers (ANSP) of the CAR and SAM Regions agreed to review the Letters of Operational Agreement (LoA) until no later than November 30, 2016, to introduce the applicable minimum longitudinal separation of 40 NM or 20 NM between the transferred air traffic operating in the FIRs of the CAR Region and adjacent FIRs of the SAM Region.

### **3 Situation**

3.1 All of the SAM States are already in agreement with the optimization of longitudinal separation for the evolution of traffic between their FIR's. In this way, Argentina, Brazil, Colombia, Ecuador, Panama, Paraguay, Peru, Uruguay and Venezuela agreed to implement the reduction of the longitudinal separation from 80 to 40 NM in the FIRs under their jurisdiction as of 13 October 2016.

3.2 On the other hand, the CAR States have advanced efforts in achieving the same objective, which is the optimization of the airspace of the Region and the reduction of the longitudinal separation in the proposed term.

3.3 The adjacent SAM and CAR States need to increase efforts to specify or update the letters of operational agreements that reflect the reduction of the longitudinal separation from 80 NM to 40 NM as a first phase under the requirement of Doc 4444, of the harmonization of the regional airspace and the interoperability of international air operations

3.4 It is required that the bordering States of SAM and CAR as a whole, establish a memorandum of understanding for the establishment of the longitudinal separation of 40 NM in those routes of common interest between pairs of FIR's and under the conditions that are established by mutual agreement.