



ASSEMBLY — 37TH SESSION

TECHNICAL COMMISSION

Agenda Item 35: Global Air Traffic Management (ATM) System

**PROPOSAL FOR HARMONIZATION OF MEAs ON REGIONAL RNAV ROUTES
IN ORDER TO EXTEND THEIR VERTICAL LIMITS BEYOND THOSE
DEFINED FOR RVSM OPERATIONS**

(Presented by the Bolivarian Republic of Venezuela)

SUMMARY

A proposal is presented for the harmonization of minimum en route altitude (MEA) on regional RNAV routes in the CAR and SAM regions in order to achieve successful PBN implementation, so as to offer airspace users the opportunity to operate in those regions with either PBN or RVSM/PBN certification. The proposal also offers alternative contingency measures for aircraft operating on RNAV routes and in "RVSM exclusive" airspace, when RVSM capability is lost.

Action: The Assembly is invited to:

- a) encourage the Council to consider the proposal as a recommended method for application in those States and regions where RVSM airspace is exclusive within RNAV routes, for aircraft which have the PBN capability required for the route but which do not have RVSM certification;
- b) encourage the Council to consider this proposal as an applicable contingency measure for aircraft operating along RNAV routes with RVSM exclusive airspace when those routes do not have parallel RNAV routes below FL290 and above FL410; and
- c) indicate similar situations found in other regions, which may endorse the proposal.

<i>Strategic objectives:</i>	This working paper is related to the following Strategic Objective D - Efficiency — Improve the efficiency of aviation operations.
<i>Financial impact:</i>	Not applicable.
<i>References:</i>	Regional Air Navigation Plan, Doc 8733 Meeting Report on AP/ATM10 meeting related to Regional Project RLA 98/003 Meeting Report on SAM/IG meetings 1 to 5 related to Regional Project RLA 06/901

* The original of this working paper was submitted in Spanish.

1. INTRODUCTION

1.1 Growing demand for the use of airspace, as a result of growth of the aeronautical industry, has prompted ICAO and its member States to adopt measures to allow a greater quantity of aircraft in the same airspace, without diminishing operational safety measures by doing so.

1.2 The implementation of RVSM and RNAV routes are among the measures adopted by the CAR and SAM regions as a result of works carried out by those regions which were facilitated by regional technical cooperation projects, such as RLA/98/003, which achieved the introduction of 77 RNAV routes, the modification of 58 routes and the removal of seven unused or scarcely used routes, with the consequent benefits of reducing carbon emissions by 134 460 tons annually and producing cost savings estimated at more than US\$80 million per year. Additionally, an implementation program for the South American Region is currently underway (RLA/06/901), through the SAM/IG, which aims to complement actions undertaken as part of RLA/98/003, including the introduction of PBN, the implementation of ATFM, improvements to CNS systems and interconnectivity of automated systems.

2. ANALYSIS

2.1 As part of CAR/SAM Regional Project RLA/98/003, subsequent to the implementation of RNAV routes and of RVSM, meeting AP/ATM10 analyzed the impact of these actions on airspace users and noted that the limitation of RNAV routes between levels 290 and 410, together with the implementation of RVSM, was affecting aircraft operation, excluding aircraft with certification for RNAV operations but not for RVSM from that airspace.

2.2 In that respect, the meeting reached the following conclusion:

Conclusion AP/ATM/10/7

Lower and upper limits of RNAV routes

"May those States, Territories and International Organizations of the CAR/SAM Regions which have not already done so, consider establishing and publishing, by 27 September 2005, the lower limit of RNAV routes so that it matches the lower limit for upper airspace established for the FIR and extends above FL 410."

2.3 In 1991 the SAM Region, prompted by its own natural features, such as the Andes mountain range, agreed to adjust the lower limit of upper airspace to FL245. For that reason, the State of Venezuela adopted the measure by which the minimum usable flight level of the upper airspace was established at FL250.

2.4 Research related to the structure of airspace in the CAR Region has shown that certain Caribbean and Central American countries, for example, Cuba, Dominican Republic and the CENAMER States, have the lower limit of upper airspace established at FL 195.

2.5 Having adopted the measure proposed by Conclusion AP/ATM/10/7, the State of Venezuela proceeded to publish the modification of RNAV routes to MEA at FL250, in its aeronautical maps and AIP publications, by the agreed date. Even though Project RLA/98/003 (AP/ATM Meetings) was a CAR/SAM project, the Caribbean States did not adopt that measure.

2.6 The adoption of the above-mentioned conclusion in textual form by both regions apparently caused disparity since RNAV Routes were defined with MEA at FL250 in the SAM Region and the same route was defined with MEA at FL200 in the CAR Region. However, the CAR Region did

not adopt the measure which is why a disparity exists: the same RNAV route has MEA at FL250 in the SAM Region and MEA at FL290 in the CAR Region.

2.7 Implementation of the RVSM at the appropriate time, allowed member States to adopt it in two forms: **non-exclusive RVSM** and **exclusive RVSM**. With the first form, the ANSPs allow the operation of aircraft that are not RVSM-certified with the corresponding adoption of a 2,000 ft separating gap with regard to other aircraft that may be operating within the same airspace. With the second form, the ANSPs do not allow non-certified aircraft to operate, obliging general aviation operators and users to choose levels other than those between FL290 and FL410. For both forms, a separating gap of 2 000 feet is applicable to State aircraft within RVSM airspace, for initial aircraft delivery or humanitarian aid.

2.8 Countries that are situated adjacent to both regions, such as Colombia and Venezuela (which have both adopted RVSM in different ways), face a difficult situation when it comes to transferring aircraft to an adjacent FIR in that region, due to the fact that the current coordination procedures do not take into account aircraft flying from the SAM Region to the CAR Region on a RNAV route, with RNAV certification but without RVSM certification, that is, between FL250 and FL280 or above FL410.

2.9 It is important to remember that in these two regions not only are there aircraft fleet belonging to both regions in operation but also flights are made to and from North America, as well as to Europe and other continents, which requires harmonization of the MEAs to allow airspace users to navigate on a RNAV route with the required PBN certification, without having valid RVSM certification.

3 CONCLUSIONS

3.1. Adopting the proposed vertical limits above FL410 and below FL290 for RNAV Regional routes will allow users of those routes to operate provided they have PBN certification that meets the performance specification requirements, even though they may not have RVSM certification, when RVSM is Exclusive.

3.2. The availability of MEA between FL250 and FL280 and above FL410 on RNAV regional routes will be an operational advantage for those aircraft that might lose RVSM capability when flying along those routes and in RVSM exclusive airspace, allowing them to use the aforementioned flight levels as a contingency measure, without requiring them to change their flight path and incur added journey time and fuel costs.