



INTERNATIONAL CIVIL AVIATION ORGANIZATION

AFI PLANNING AND IMPLEMENTATION REGIONAL GROUP

FOURTEENTH MEETING (APIRG/14)

(Yaoundé, Cameroon, 23-27 June 2003)

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**Agenda Item 4 : Air Navigation Issues**

**4.3 : Consideration of the Report of the Seventh Meeting of the  
ATS/AIS/SAR Sub-group**

**Consideration of the report of the Fourth Meeting of the CNS/ATM  
Implementation Sub-group**

**Implementation of RVSM in the AFI Region**

(Presented by Cameroon)

<b>Summary</b>
This paper contains proposals aimed at implementing RVSM in the AI Region.
The action required by the Meeting is proposed in paragraph 3.
References:  ICAO <ul style="list-style-type: none"><li>• Annex 11</li><li>• Doc. 9689</li><li>• Doc. 4444</li><li>• Doc. 9574</li></ul>



**1. Introduction**

1.1 Doc. 9574 – AN/934 2<sup>nd</sup> Edition - 2002 contains guidance material for the drafting of documents and development of procedures and programmes for the implementation of the Reduced Vertical Separation Minimum (RVSM) by 300 m (1000 ft.) above FL290 within a region.

1.2 The RVSM implementation process in the Region provides for the following stages: determination of the need for RVSM, preliminary analysis of the system safety, planning and preparation, testing phase and operational application. The safety analysis relates also to the phase after the implementation.

## 2. Discussions

### Background

2.1 The seventh meeting of the ATS/AIS/SAR Sub-group held in October 2002 in Nairobi and the fourth meeting of the CNS/ATM Sub-group (Dakar, March 2003) adopted draft conclusions on the preparation of the implementation of the RVSM in the AFI Region. This relates namely to the designation of the South Atlantic Monitoring Agency (SATMA) as the regional monitoring agency, the use of the comparative method set forth in Doc.9689 for safety evaluation in RVSM implementation in the AFI Region, civil and military coordination within States, designation by States of the officers in charge of the RVSM programme before 20 May 2003, the development of procedures for incident reports by States, the implementation of national regulations with ICAO's assistance and **the RVSM implementation in the AFI Region from 27 November 2003.**

### Safety Evaluation Methodology

2.2 There are two methodologies for safety evaluation: the comparative method and the method of formal or mathematical evaluation. The formal evaluation method consists in estimating the predetermined tolerable maximum collision risk. This analytical method is based on the use of a collision risk model (CRM). The comparative method as defined in Doc. 9689 requires a similarity of parameters between the region considered and a reference region where a prior mathematical evaluation has been conducted. Such parameters relate notably to the network structure of ATS routes, separation minima, communication, navigation and surveillance facilities, the traffic level, navigation and aircraft performances, etc.

### Adoption of a target level of safety (TLS) for the Region

2.3 For the implementation of the RVSM, the AFI Region should adopt a target level of safety corresponding to collision risk relating to the performances of maintaining aircraft altitude. This TLS value of regional application should take into account ICAO guidance material and safety objectives set in other regions. Annex 11 and Doc.4444 have proposed two TLS levels:  $5 \times 10^{-9}$  and  $2.5 \times 10^{-9}$  fatal accidents/movements or flying hour.

### Need for a Regional Monitoring Agency

2.4 The role of a Regional Monitoring Agency (RMA) as defined in Doc.9574/AN/934 is, inter alia, to **establish as a matter of priority a data base for aircraft** which received from national supervisory authorities the clearance to fly at RVSM levels in the region under the RMA responsibility and to maintain the **target level of safety in that region (TLS)**. This role is being standardized at global level on the basis of the latest work of ICAO SASP Technical Panel (in November 2002).

2.5 The possible or foreseeable arrangements for the creation of a Regional Monitory Agency shall be :

- a) monitoring by a multinational service as advocated by ICAO;
- b) a regional agreement on the adoption of an existing RMA just like EUROCONTROL or SATMA. With respect to SATMA, its processing capacity should be reviewed to adapt it to the ATS network which is broader in scope and more complex in the AFI Region;
- c) implementing or establishment of an agency by one State or a group of States in the Region.

2.6 The continuing monitoring tasks could include safety evaluations of other CNS/ATM components (RNP for example) or any significant change in the air navigation system in compliance with ICAO SARPs (Annex 11 and Doc.4444/PANS-ATM).

### **Need for a regional strategy for RVSM introduction**

2.7 It is worth noting that the various draft conclusions on RVSM implementation which have been prepared by APIRG Sub-groups do not fit in a coherent and methodic implementation strategy. To the best of our knowledge, so far the AFI Region does not have a RVSM implementation plan highlighting stages and procedures to be followed by States, ATS service providers and users relating to preparatory, validation, operational implementation and after implementation phases.

### **3. Action Required**

The Meeting is invited to:

- a) note the information provided in this working paper;
- b) adopt a target level of safety (TLS) for the AFI Region ;
- c) to discuss the elements of a regional strategy for RVSM introduction above the AFI continental airspace, bearing in mind the prerequisites for a safe implementation; and
- d) recommend that in the strategy be included the conduct of safety evaluations prior and after the implementation phase and the setting up of a continuing mechanism for safety evaluation and monitoring under a coordinated regional programme of safety management pursuant to ICAO Recommendations which shall become standards from 27 November 2003.