

International Civil Aviation Organization
Eastern and Southern African Office

**Eleventh Meeting of the Air Traffic Services/Aeronautical Information
Service/Search and Rescue Sub-Group (ATS/AIS/SAR SG/11)
(Nairobi, Kenya, 26 - 30 April 2010)**

Agenda Item 5: RVSM Operations and Monitoring

AFI RVSM Safety Monitoring

(Presented by IATA)

SUMMARY
<p>This working paper invites the ATS/AIS/SAR Sub-group to discuss the steps towards a functional scrutiny group, clarify the concept of AFI RVSM airspace, review and confirm the RMAs responsible for AFI FIRs, and ensure that related safety monitoring activities are harmonized and synchronized between these RMAs. It also proposes that a TLS of 5x10⁻⁹ fatal accidents per aircraft flying hour for the total vertical collision risk be included in AFI RVSM operational safety assessment methodology.</p> <p>Action by the meeting is at paragraph 3.</p>
<p>References: ICAO Special AFI RAN 2008, Report First AFI RVSM Post-Operational Safety Case, Report</p>

1. INTRODUCTION

1.1 The ICAO Special AFI RAN adopted the ATM Performance Objective – Safety Operational Assessment Methodology shown in Appendix to this working paper, recommending:

- A **scrutiny group** to monitor and analyze the safety of operations in the AFI region in a formal basis. The scrutiny group will utilize safety management principles outlined in Doc 9859 in order to analyze operational errors and deviations and propose mitigation measures to control them ;
- the use of **Safety Programmes and SMS methodologies** by AFI States in the control and mitigation of risks in the region;
- A **yearly CRA be conducted by the RMA** for analysis by the scrutiny group. The CRA will be used as a relative reference from year to year. The initial acceptability of a collision risk to be determined by experts of the scrutiny group,

meeting the **TLS of 2.5×10^{-9}** fatal accidents per aircraft flying hour for the technical collision risk be maintained as a requirement to continue with RVSM operations.

1.2 According to ICAO Doc 8144, the Africa-Indian Ocean (AFI) Region is “The area embracing Africa and associated oceanic areas and land masses between 25 degrees West and 75 degrees East and south to the South Pole”.

2. DISCUSSION

Scrutiny group

2.1 The establishment of the ARMA scrutiny group was endorsed and its composition defined by ATS/AIS/SAR/SG/10 Meeting (Dakar, May 2009) (Conclusion 10/05 refers), in accordance with the Special AFI RAN 2008 Recommendation 6/8 (e). The scrutiny group is not yet functional.

Safety objectives

2.2 The meeting may wish to agree that a requirement to meet a TLS of 5×10^{-9} fatal accidents per aircraft flying hour for the total vertical collision risk to continue RVSM operations should be included in the ATM Performance Objective – Operational Safety Assessment Methodology. As a matter of fact, such a requirement was used in the RVSM pre-implementation safety case (PISC) conducted in 2008 and the first RVSM post-operational safety case (POSC) conducted in 2009¹.

Safety monitoring coordination

2.3 RVSM operations were introduced in the AFI Region in different phases as follows:

Implementation Phase	Areas of routing	FIRs	Associated RMAs
Phase 1	AR1 Europe - South Atlantic (EUR/SAT) oceanic routes AR4 Europe - Southern Africa routes (EUR/AFI South) including Continental Southern Africa routes	1. Algiers (North) 2. Casablanca 3. Tunis	EUROCONTROL
Phase 2	AR1 Europe - South Atlantic (EUR/SAT) oceanic routes	1. Canarias 2. Dakar Oceanic 3. Sal Oceanic	SATMA

1. ¹ Together with the TLS of 2.5×10^{-9} fatal accidents per aircraft flying hour for the technical collision risk.

Implementation Phase	Areas of routing	FIRs	Associated RMAs
Phase 3	AR3 Europe - Eastern Africa routes including the area of the Indian Ocean (EUR/AFI East)	1. Cairo	MID/RMA
Phase 4	<p>AR3 Europe - Eastern Africa routes including the area of the Indian Ocean (EUR/AFI East)</p> <p>AR4 Europe - Southern Africa routes (EUR/AFI South) including Continental Southern Africa routes</p> <p>AR5 Continental Western Africa routes including coastal areas</p> <p>AR6 Trans-Indian Ocean area interface with ASIA/PAC Region</p>	<ol style="list-style-type: none"> 1. Accra 2. Addis Ababa 3. Algiers (South) 4. Antananarivo 5. Asmara 6. Beira 7. Bloemfontein 8. Brazzaville 9. Bujumbura 10. Cape Town 11. Dakar 12. Dar-Es-Salam 13. Djibouti 14. Durban 15. Harare 16. Kano 17. Kigali 18. Kinshasa 19. Lilongwe 20. Luanda 21. Lusaka 22. Maputo 23. Mauritius 24. Nairobi 25. Ndjamena 26. Niamey 27. Roberts 28. Sudan 29. Tripoli 30. Windhoek 	AFI/ARMA
	AR2 Atlantic Ocean interface between AFI, NAT and SAM	<ol style="list-style-type: none"> 1. Accra Oceanic 2. Dakar Oceanic 3. Johannesburg Oceanic 4. Luanda Oceanic 5. Windhoek Oceanic 	No RMA established.

2.4 It is important to clearly establish the scope of AFI RVSM safety monitoring and coordination procedures between the RMAs involved, with a view to ensuring that the results of RVSM safety assessments are representative of, and consistent with, the concept of AFI RVSM airspace.

3. ACTION TO BE TAKEN BY THE MEETING

3.1 The meeting is invited to:

1. Discuss the steps towards a functional scrutiny group;
2. Amend the ATM Performance Objective – Operational Safety Assessment Methodology – by including the TLS of 5×10^{-9} fatal accidents per aircraft flying hour for the total vertical collision risk in AFI RVSM airspace ;
3. Clearly define the geographical limits of the AFI RVSM Airspace Concept;
4. Review and confirm RMA safety monitoring responsibilities for each AFI area of routing and each FIR; and
5. Ensure that RVSM safety monitoring activities are properly coordinated and synchronized between RMAs in accordance with AFI RVSM Safety Assessment Methodology.

Appendix. A

ATM PERFORMANCE OBJECTIVES

OPERATIONAL SAFETY ASSESSMENT METHODOLOGY				
Benefits				
Environment	<ul style="list-style-type: none"> • Reductions in fuel consumption 			
Efficiency	<ul style="list-style-type: none"> • Ability of aircraft to conduct flight more closely to preferred trajectories • Facilitate utilization of advanced technologies (e.g. improved altimetry systems) thereby increasing efficiency 			
Safety	<ul style="list-style-type: none"> • Enhance safety by wider distribution of aircraft in a given airspace 			
<i>Strategy</i> <i>Short term (2010)</i> <i>Medium term (2011 - 2015)</i>				
ATM OC COMPONENTS	TASKS	TIMEFRAME START-END	RESPONSIBILITY	STATUSES
AOM	<i>En-route airspace</i> <ul style="list-style-type: none"> • Create a scrutiny group to monitor and analyze the safety of operations in the AFI region in a formal basis. The scrutiny group will utilize safety management principles outlined in Doc 9859 in order to analyze operational errors and deviations and propose mitigation measures to control them • That AFI States' use Safety Programmes and SMS methodologies in the control and mitigation of risks in the region 	2009-....		
		2009		
		2009		

	<ul style="list-style-type: none"> • That a yearly CRA be conducted by the RMA for analysis by the scrutiny group. The CRA will be used as a relative reference from year to year. The initial acceptability of a collision risk to be determined by experts of the scrutiny group, meeting the TLS of 2.5×10^{-9} fatal accidents per aircraft flying hour for technical risk be maintained as a requirement to continue with RVSM operations • The Scrutiny Group provide yearly report to APIRG about the status of operations safety in the region 	On-going		
		On-going		
linkage to GPIs	GPI/02: Support implementation of RVSM			
