

# **INTERNATIONAL CIVIL AVIATION ORGANIZATION**



## **RVSM/RNAV/RNP TF/13 MEETING REPORT**

**(NAIROBI, 12 – 14 SEPTEMBER, 2007)**

**Prepared by the APIRG RVSM/RNAV/RNP TASK FORCE**

**The RVSM/RNAV/RNP Task Force is a Task Force of the AFI Planning and Implementation Regional Group (APIRG).**

**Its Reports are therefore submitted to APIRG through the ATS/AIS/SAR Sub-Group for review and action.**

**The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of ICAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.**

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## **PART I - HISTORY OF THE MEETING**

### **1. Introduction**

1.1 The Thirteenth meeting of the RVSM/RNAV/RNP Task Force (RVSM/RNAV/RNP/TF/13) was convened pursuant to AFI/7 RAN Meeting Recommendations 5/7, 5/17 and APIRG/13 Decision 13/58 by the International Civil Aviation Organization in Nairobi from 12 to 14 September, 2007.

1.2 The AFI RVSM Task Force 13 meeting was opened by Mr. Geoffrey P. Moshabesha. The Regional Director appreciated the Task Force's consistency in carrying out the tasks assigned to it by APIRG in taking crucial decisions in pursuance to the tasks in the Strategy/Action Plan. He highlighted some important elements of the Task Force's activities and urged the States to continue the appreciable commitment in the process of RVSM implementation in AFI airspace. He urged the Meeting to continue unabatedly in pursuing the AFI RVSM programme to meet the Target Level of Safety required for the implementation of RVSM in our Region. Furthermore he urged the participants to be frank in their discussions so that realistic conclusions can be reached.

### **2. Officers and Secretariat**

2.1 Mr. Apolo KHARUGA, Regional Officer, Air Traffic Management from the ICAO ESAF Office, Nairobi, was the Secretary/moderator of the meeting. Mr. Ibrahim Usman AUYO, Regional Officer ATM, WACAF Office, Dakar, Mr. Drazen Gardilic Technical Officer, ATM HQ and Mr. Kevin EWELS, Manager of the AFI RVSM Monitoring Agency (ARMA) assisted him. Dr. Geert MOEK, RVSM Consultant was also in attendance.

### **3. Attendance**

3.1 The meeting was attended by 23 participants from 11 States and 6 International Organizations namely; ARMA, ASECNA, IATA, IFALPA, Roberts FIR and NLR. The list of participants is given at **Appendix A** to this report.

### **4. Working Language**

4.1 The meeting was conducted in the English language.

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## **5. AGENDA**

5.1 The following Agenda was adopted :

### **Agenda Item 1**

Review and follow-up of the conclusions of the Twelfth Meeting of APIRG RVSM/RNAV/RNP Task Force (RVSM TF/12) meeting.

### **Agenda Item 2**

#### **Review of major activities of the RVSM Task Force**

- 2.1 Comprehensive ARMA Report on: CRA, NSP, FHA and PISC.
- 2.2 AFI RVSM State Readiness Survey.
- 2.3 Status of ATS Letters of Agreement/Procedure (LOA/LOP).
- 2.4 CRA presentation by the RVSM Consultant
- 2.5 Up date of implementation of RVSM in other Regions.

### **Agenda Item 3**

Review and update the RVSM Strategy/Action Plan.

### **Agenda Item 4**

Determination of the Target date for the implementation of RVSM in the AFI Region.

### **Agenda Item 5**

Any Other Business.

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**LIST OF DRAFT CONCLUSIONS /DECISIONS**

<b>Number</b>	<b>Title</b>
<b>Conclusion 13/1:</b>	<b>Safety assessment data and incident reporting</b>  <b>That:</b> <ul style="list-style-type: none"> <li>a) States pursue stringent incident reporting measures and take appropriate remedial actions as required by the CRA report in order to contribute to a positive total TLS; and</li> <li>b) States intensify their efforts in reducing the incident rates to support positive CRA results.</li> </ul>
<b>Conclusion 13/2:</b>	<b>Reporting of data for monitoring and/or carrying out safety assessment</b>  <b>That:</b> <ul style="list-style-type: none"> <li>a) All States institute the procedures for reporting of data, incidents and conditions necessary for performing the collision risk calculations prerequisite for RVSM implementation to the AFI Regional Monitoring Agency (ARMA). The data will include, but not necessarily be limited to:</li> <li>b) Height deviations of 300 ft or more;</li> <li>c) Total number of IFR movements for each month;</li> <li>d) The average time per movement spent in the level band FL 290 to FL 410;</li> <li>e) ATC coordination failures;</li> <li>f) Turbulence;</li> <li>g) Traffic data;</li> <li>h) GPS Monitoring Unit (GMU) is being used for height monitoring where appropriate in the AFI Region, which will be coordinated by the ARMA;</li> <li>i) ARMA compile a list of non contributing States, regarding traffic flow data, and submit to Task Force meetings as appropriate for consideration and remedial action; and</li> <li>j) States continue to provide the required safety assessment data to ARMA on a monthly basis using Forms 1, 2, 3 and 4.</li> </ul>
<b>Conclusion 13/3:</b>	<b>Seminars/training of all personnel involved with the implementation of RVSM in the AFI Region</b>  <b>That:</b> <ul style="list-style-type: none"> <li>a) Seminars/training continue to be organized in the Region for all personnel involved in the implementation of RVSM, and;</li> <li>b) States having difficulties in implementing RVSM implementation training may either individually or in group explore the possibility of seeking outside expertise.</li> </ul>

Number	Title
<b>Conclusion 13/4:</b>	<b>RVSM enforcement in national legislation</b>  That States which have not done so, take the appropriate measures in order: <ul style="list-style-type: none"> <li>a) to publish as a matter of urgency, an AIC informing the users of their intention to implement RVSM; and</li> <li>b) to include the necessary provisions in their national legislation.</li> </ul>
<b>Conclusion 13/5:</b>	<b>Completion and signing of National Safety Plans</b>  That States of Central African Republic, Gabon, Mozambique and Sao Tome and Principe, complete and sign their National Safety Plans (NSPs) and send them to ARPO as soon as possible but not later than <b>30 November 2007</b> .
<b>Conclusion 13/6:</b>	<b>State RVSM Readiness Assessment</b>  <b>That:</b> <ul style="list-style-type: none"> <li>a) ICAO urges the States to update the questionnaire on RVSM State readiness assessment at <b>Appendix B</b> and to forward to ARPO, as soon as possible however, not later than <b>31st January 2008</b>; and</li> <li>b) ICAO circulates this checklist for State Readiness Assessment (<b>Appendix C</b>) for confirmation as a quality assurance.</li> </ul>
<b>Conclusion 13/7:</b>	<b>Pre-Implementation Safety Case (PISC)</b>  That after submission of the PISC to the Task Force for review, it will be submitted to the ANC for review and approval by <b>31st March 2008</b> .
<b>Conclusion 13/8:</b>	<b>RVSM Switch Over Plan</b>  That States/FIRs that have not completed their national Switch-Over Plans using the specimen at <b>Appendix D</b> , do so as soon as possible but not later than <b>31 January 2008</b> .
<b>Conclusion 13/9:</b>	<b>ATS Letters of Procedure/Agreement</b>  That the template ATS Letter of Procedure/Agreement at <b>Appendix E</b> be used by States to update their current letter of Procedure/Agreement to incorporate RVSM procedures as soon as possible, but not later than 3 months before the RVSM implementation date.
<b>Conclusion 13/10:</b>	<b>Publication of AIC on GMU Height Monitoring</b>  That ICAO request States to publish the AIC on GMU Height Monitoring at <b>Appendix F</b> as soon as possible but not later than <b>30 November 2007</b> .

Number	Title
<b>Conclusion 13/11:</b>	<p><b>Non Receipt of Flight Plans</b></p> <p><b>That:</b></p> <ul style="list-style-type: none"> <li>a) the Project Management Team develop the format and contents of a survey to identify the reasons and causes for missing flight plans; and,</li> <li>b) ICAO, using the methodology developed by the PMT and as early as possible but not later than <b>30 November 2007</b>, send the survey relating to missing flight plans and propose remedial action thereafter.</li> </ul>
<b>Conclusion 13/12:</b>	<p><b>AFI RVSM Implementation – Funding</b></p> <p>That IATA member airlines continue to finance within the available funds to support specific projects relating to the RVSM implementation effort in order to improve safety and economy of Air Traffic in AFI Region and keep the Task Force informed accordingly.</p>
<b>Conclusion 13/13:</b>	<p><b>AFI RVSM Strategy/Action Plan</b></p> <p>That the updated AFI RVSM Strategy/Action Plan at <b>Appendix G</b> be circulated to States for quality assurance.</p>
<b>Conclusion 13/14:</b>	<p><b>Alternative approach for the achievement of the TLS</b></p> <p>That the TF noted the proposed alternative approach for the achievement of the TLS and that certain elements of this proposal would be of interest to APIRG to consider.</p>
<b>Conclusion 13/15:</b>	<p><b>Target date for AFI RVSM Implementation</b></p> <p><b>That:</b></p> <p>The Task Force, having taken account of:</p> <ul style="list-style-type: none"> <li>a) The completion of the activities in the AFI RVSM Strategy/Action Plan;</li> <li>b) The approval by ICAO ANC of AFI RVSM Regional SUPP's (Doc.7030/4) relating to RVSM in February 2007; and Task Force</li> <li>c) TF/13, Conclusion 13/14 noting alternative approach for the achievement of the TLS; and</li> <li>d) After the consideration of the results of the second CRA submitted by the NLR, which indicated progressive improvement on the TLS (from <math>63 \times 10^{-9}</math> to <math>15 \times 10^{-9}</math> and eventually to <math>5 \times 10^{-9}</math>) and consequently the PISC, recommended the target date for implementation of RVSM in the AFI Region will be <b>25 September 2008</b>.</li> </ul>



**PART II: REPORT ON AGENDA ITEMS****Report on Agenda Item 1****1. Review and follow-up of action of conclusions of the Twelfth meeting of APIRG RVSM/RNAV/RNP Task Force (RVSM TF/12)**

1.1 Under this Agenda Item the meeting reviewed and noted the action taken on the conclusions of the Twelfth meeting of the RVSM/RNAV/RNP Task Force. It reinstated conclusions which were still in force and proposed the action to be taken before the next Task Force meeting planned in the 1st Quarter 2008. The revised conclusions appear in Part 1 of this report.

**Report on Agenda Item 2****2. Review of the major activities of the RVSM Task Force**

2.1 The meeting was presented with several working papers relating to AFI RVSM covering the following:

**2.2 AFI RVSM State Readiness Survey**

2.2.1 The meeting recalled that in order for the consultants for RVSM to complete the pre-implementation safety case (PISC) in a timely manner there were certain elements which needed to be in place namely, the ALTRAN Consultant-Functional Hazard Analysis, the Collision Risk Assessment and the National Safety Plans, in order to prepare the PISC. Other elements of concern were the publication of AIC, the revised Letters of Procedure/Agreement (LOPs/LOAs), the publication of AFI Safety Policy on RVSM, the development and approval of the National Safety Plans.

2.2.2 The meeting noted in particular the previous State readiness survey and decided there was need to conduct another survey before the implementation of RVSM.

**2.3 ARMA Safety and Consolidated Readiness Assessment Report**

2.3.1 The meeting was apprised on the current status of various elements relating to safety assessment and readiness survey namely; Functional Hazard Assessment, Collision Risk Assessment, National Safety Plans, the Pre-Implementation Safety Case, consolidated readiness assessment, large height deviations, GMU Height monitoring program and monthly FIR Traffic and associated returns to ARMA. The meeting endorsed the ARMA assessment that:

- a) sufficiently high proportion of operations, within the proposed RVSM band, will be conducted by approved operators and aircraft when RVSM is introduced.
- b) the continued timely and accurate submission of all ARMA data forms by all FIRs remains essential to the success of RVSM implementation in AFI.

- c) The PISC process and contributory documentation are at an advanced stage of development and the second CRA is receiving the appropriate priority.

2.3.2 The meeting called for States to:

- a) continue collection of ARMA traffic data by all FIR's with the timely and accurate submission thereof to the ARMA in view of the second CRA and;
- b) finalize the NPS's and obtain the required signatures.

#### **Amendment to Doc.7030**

2.3.3 The meeting noted that the PISC called for the amendment to Doc.7030 to include material on RVSM. The meeting was informed that the amendment to Doc 7030 was approved on 4 June 2007.

#### **Non-receipt of Flight Plans**

2.3.4 The meeting also discussed relating to non-receipt of flight plans at the respective ACCs and reiterated that there was a need to investigate the root cause of the problems.

2.3.5 In view of the discussions on Agenda Item 2, the following conclusions 13/1,13/2,2/3,13/,13/5,13/6,13/7,13/8, 13/9, 13/10 and 13/11 were formulated and their contents are at Part 1 to this report.

#### **AFI RVSM implementation -Funding**

2.3.6 The meeting was apprised of the presentation made by ICAO to AFI RCG meeting in Johannesburg 28 March 2007 where the airlines agreed to continue funding the programme up to the end of 2007. In this regard, the following conclusion was formulated.

#### **Conclusion 13/12: AFI RVSM Implementation – Funding**

**That IATA member airlines continue to finance within the available funds to support specific projects relating to the RVSM implementation effort in order to improve safety and economy of Air Traffic in AFI Region and keep the Task Force informed accordingly.**

**Report on Agenda Item 3. Review and update the AFI RVSM Strategy/Action Plan**

3.1 The meeting deliberated all the outstanding actions on this item and agreed that the updated AFI RVSM strategy/action plan at **Appendix G** be circulated to States for action and quality assurance.

3.2 The meeting agreed that the implementation of RVSM in AFI should be pursued in a pragmatic manner and in detail following the steps in the updated strategy/action plan. The meeting agreed that the strategy/action plan will be reviewed at each of the TF. In light of the discussions, the following conclusion was formulated:-

**Conclusion 13/13: AFI RVSM Strategy/Action Plan**

**That the updated AFI RVSM Strategy/Action Plan at Appendix G be circulated to States for quality assurance.**

**Report on Agenda Item 4 Determination of the Target date for the implementation of RVSM in the AFI Region.**

4.1 The meeting recalled that in noting the APIRG/14 Conclusion 14/21 (implementation of RVSM in the AFI Region) the ANC had expressed its concern that RVSM required a sophisticated implementation process and requested the States to monitor preparations and assist, to the extent possible, as an acceptable level of safety should be achieved and maintained.

4.2 The meeting noted that the ANC emphasized the provision of ATC and the required CNS facilities and services as a pre-requisite to the RVSM implementation. The ANC further requires the Pre-Implementation Safety Case to be presented for approval.

4.3 The meeting recalled that First the AFI RVSM collision risk assessment (CRA) report as conducted in 2005 by NLR was  $63 \times 10^{-9}$ . The results of CRA I implied that AFI Region had thus not met the target level of safety (TLS) as required by ICAO for implementation. The study concluded that AFI exceeded the required TLS of  $5 \times 10^{-9}$  fatal accidents per flight hour by a factor of 13.

4.4 In relation to the results of CRA II, it was noted that the technical TLS was amply met however, the total collision risk improved from  $63 \times 10^{-9}$  to  $15 \times 10^{-9}$ . The meeting also noted that the required TLS of  $5 \times 10^{-9}$  fatal accidents per flight hour by which was a factor of 13 had now reduced to factor of 3.

4.5 The meeting noted this tremendous improvement and agreed that the Secretariat should go ahead with the preparation and the completion of the PISC Doc incorporating all elements of FHA, NSP and CRA to be presented to the ANC for the approval for the implementation of RVSM in the AFI Region. In considering the results of the CRA II report it was recommended to conduct (at least one more) pre-implementation CRA based on data for the year 2007 to confirm current results. However, it was agreed that this should not stop the request for approval for RVSM implementation by the ANC.

4.6 Furthermore, it was noted that the CRA report reflected a large number of horizontal deviation events that although not necessarily related to RVSM implementation, was an issue that needed to be urgently addressed.

4.7 The meeting recalled the intent of Decision 12/1 relating to alternative safety assessment methodology was still valid.

**Decision 12/1: Alternative approach for the achievement of the TLS**

**That the TF noted the proposed alternative approach for the achievement of the TLS and that certain elements of this proposal would be considered by the PMT in conjunction with the result of the PISC, incorporating the CRA and subsequently report it to TF.**

4.8 The TF /13 considered the intent of Dec 12/1 and concluded that that decision should be elevated to a Draft conclusion for the attention of APIRG. Thus Draft Conclusion 13/14 was formulated:

**Conclusion 13/14: Alternative approach for the achievement of the TLS**

**That the TF noted the proposed alternative approach for the achievement of the TLS and that certain elements of this proposal would be of interest to APIRG to consider.**

4.9 In view of the foregoing discussions the meeting was fully confident that RVSM shall safely be implemented in the AFI Region the AIRAC date of **25 September 2008**. Thus the conclusion 13/15: was formulated for consideration and approval by APIRG.

**Conclusion 13/15: Target date for AFI RVSM Implementation**

**That:**

**Task Force, having taken account of:**

- a) The completion of the activities in the AFI RVSM Strategy/Action Plan;
- b) The approval by ICAO ANC of AFI RVSM Regional SUPP's (Doc.7030/4) relating to RVSM in February 2007;
- c) TF/13 Conclusion 13/14 noting alternative approach for the achievement of the TLS; and
- d) After the consideration of the results of the second CRA submitted by the NLR, which indicated progressive improvement on the TLS from  $63 \times 10^{-9}$  to  $15 \times 10^{-9}$  and eventually to  $5 \times 10^{-9}$  and consequently the PISC, recommended the target date for implementation of RVSM in the AFI Region will be on the AIRAC date of 25 September 2008.

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AFI RVSM TF/13 Meeting (Nairobi, 12 – 14 September 2007)

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**RVSM IMPLEMENTATION READINESS ASSESSMENT SURVEY: AFI REGION**

State						
SUBJECT	ITEMS ASSESSED	Target Date (TD)	Date Completed (DC)	Not Applicable (NA)	REMARKS	Ref. ICAO Regional/National Doc
<b>RVSM Implementation Program</b>						
<b>1. RVSM Implementation Program</b>	Is the National RVSM Implementation plan/Program harmonized with the AFI RVSM Regional Implementation Plan?					Conclusion: ARTF 4/5
	Has your administration developed an RVSM aircraft and operators approval program?					Conclusion: ARTF 4/7
	Has your Administration submitted a National RVSM Implementation plan/Program to ICAO Regional Program Office?					Conclusion: ARTF 4/11 National RVSM Plan
	Has the National RVSM Implementation plan/Program taken into account the users requirements?					Doc. 9574 Chapter 3 National RVSM Plan
	Has the administration determined the RVSM status of the national fleet?					Doc. 9574 Chap 3 Conclusion: ARTF 4/11 & ARTF 4/12
	Has your administration disseminated the National RVSM Implementation Program to all stakeholders?					Conclusion: ARTF 4/11 National RVSM Plan
	Has the administration designated the National Program Manager for the RVSM implementation program?					Conclusion: 4/3 National RVSM Plan

SUBJECT	ITEMS ASSESSED	Target Date (TD)	Date Completed (DC)	Not Applicable (NA)	REMARKS	Ref. ICAO Regional/National Doc
<b>RVSM Implementation Program</b>						
	Has your administration designated an ATS Manager responsible for the ATM RVSM Sub-program?					National RVSM Plan
	Has your administration designated a Manager responsible for aircraft OPS/Airworthiness sub-program?					National RVSM Plan
	Has the administration designated a Manager responsible RVSM Safety Sub-Program?					Conclusion: 4/18 National RVSM Plan
	Will RVSM be implemented in the airspace on the date agreed upon by AFI?					Conclusion : ARTF 4/5
	Has your administration published the procedures to accommodate aircraft in RVSM airspace?					Conclusion: ARTF 4/11 National RVSM Plan
	Has your administration made provision to accommodate non-RVSM State aircraft in RVSM airspace?					Conclusion: ARTF 4/9 ICAO Doc 7030/4 National RVSM Plan
	Have national rules/regulations been developed/published for RVSM implementation?					Conclusion: ARTF 4/8

SUBJECT	ITEMS ASSESSED	Target Date (TD)	Date Completed (DC)	Not Applicable (NA)	REMARKS	Ref. ICAO Regional/National Doc
<b>RVSM Implementation Program</b>						
	Has your administration assess the impact of RVSM implementation on controller automation systems and plan for upgrades/modifications?					Conclusion: ARTF 4/11 National RVSM Plan
	Have documents related with RVSM approval of aircraft and operators of the JAA Temporary Guidance Leaflet (TGL) 6 y/o FAA Document 91 RVSM been adopted?					Conclusion: ARTF 4/7
	Has the RVSM Advisory Circular been adopted for RVSM approval of aircraft and operators?					Conclusion: ARTF 4/7
	Has your Administration established National RVSM approved Aircraft Database?					Doc. 9574 Conclusion: ARTF 4/4
	Are RVSM approvals granted to aircraft and/or operators registered in your State?					Conclusion: ARTF 4/12
	Is a letter of Authorization issued when RVSM approval to individual aircraft granted?					
	Has AFI Regional monitoring Agency (ARMA) form been completed to communicate the status of RVSM approval or withdrawal to ARMA?					Conclusion: ARTF 4/4

SUBJECT	ITEMS ASSESSED	Target Date (TD)	Date Completed (DC)	Not Applicable (NA)	REMARKS	Ref. ICAO Regional/National Doc
<b>RVSM Implementation Program</b>						
	Has the Guidance material on the implementation of a 300 M (1000 FT) vertical separation minimum between FL290 and FL410 inclusive for application in the airspace of the AFI Region been adopted?					Conclusion: ARTF 4/4
	Has National RVSM implementation legislation been published?					Doc. 9574 Conclusion: ARTF 4/8
	Has the AIC been published in advance informing stakeholders of the date for RVSM implementation?					Conclusion: ARTF 4/11
	Is the administration disseminating RVSM legislation and documentation through adequate means?					Conclusion: ARTF 4/11
	Has the Guidance material on the implementation of a 300 M (1000 FT) vertical separation minimum between FL290 and FL410 inclusive for application in the airspace of the AFI Region been adopted?					Conclusion: ARTF 4/4 Conclusion: ARTF 4/18

SUBJECT	ITEMS ASSESSED	Target Date (TD)	Date Completed (DC)	Not Applicable (NA)	REMARKS	Ref. ICAO Regional/National Doc
<b>Operations &amp; Airworthiness</b>						
	Has your administration analysed the impact that would have in RVSM implementation if the required documentation were not taken into account?					
<b>2. RVSM Operations &amp; Airworthiness</b>	Has your administration implemented the National RVSM Operator/ Aircraft approval Program?					Doc. 9574 Chapter 4.2 Conclusion: ARTF 2/8 & ARTF 4/11
	Does the program cover aircraft airworthiness certification (approval of modifications and major repairs) and operational separately?					Doc. 9574 Chapter 4 National RVSM Plan
	Will the program be completed before the RVSM implementation date?					National RVSM Plan Conclusion: APIRG 14/21
	Has your Administration adopted TGL6 Revision 1 for approval of operators/aircraft for RVSM Operations?					Doc. 9574 Chapter 4 Conclusion: ARTF 4/7
	Has your administration published the National RVSM Operator/ Aircraft approval Legislation?					Doc. 9574 Chapter 4 Conclusion: ARTF4 2/8 & ARTF 4/8

SUBJECT	ITEMS ASSESSED	Target Date (TD)	Date Completed (DC)	Not Applicable (NA)	REMARKS	Ref. ICAO Regional/National Doc
<b>Operations &amp; Airworthiness</b>						
	Has your administration published the required maintenance program to ensure RVSM airworthiness?					Doc. 9574 Chapter 5 National RVSM Plan
	Has your administration developed a Database for RVSM approved aircraft?					Doc. 9574 Chapter 5 Conclusion: ARTF4 4/11 National RVSM Plan
	Has your administration completed a RVSM approved aircraft readiness assessment?					Conclusion: ARTF4 4/12
<b>3. RVSM Operations &amp; Airworthiness Training</b>	Has an RVSM training program been prepared for OPS/Airworthiness personnel?					Doc. 9574 Chapter 4/5 Conclusion: ARTF 4/6 & ARTF 4/11
	Does the program cover aircraft airworthiness certification (approval of modifications and major repairs) and operational (procedures approval and operator training program) separately?					Doc. 9574 Chapter 4 Conclusion: ARTF 4/7
	Will the program be completed before the RVSM implementation date? If such were the case, the finalization of the training program?					Conclusion: APIRG 14/21

SUBJECT	ITEMS ASSESSED	Target Date (TD)	Date Completed (DC)	Not Applicable (NA)	REMARKS	Ref. ICAO Regional/National Doc
<b>Operations &amp; Airworthiness</b>						
	Does the program have the RVSM training material in OPS/Airworthiness areas?					
	Which documentation did the administration use to prepare RVSM training material?					
	Has the training material been approved by the corresponding authority?					
	How many phases are envisaged for the training?					
	Has OJT been foreseen and completed before RVSM implementation date?					
	Does the administration make sure that personnel training is appropriate and carried out in a professional manner?					
	Do OPS/Airworthiness instructors have sufficient experience?					
	Are the OPS/Airworthiness instructors used for training qualified to provide on the job training (OJT)?					

SUBJECT	ITEMS ASSESSED	Target Date (TD)	Date Completed (DC)	Not Applicable (NA)	REMARKS	Ref. ICAO Regional/National Doc
<b>Air Traffic Management</b>						
	Can the administration assure that the necessary time for an appropriate training was used or will be used?					
	Does training include the establishment of adequate refresher courses, if necessary?					
	Has the administration analysed the impact that would have in RVSM implementation if the requirements for personnel training were not taken into account?					
<b>4. Modification in the Airspace Structure</b>	Has your Administration implemented your RVSM National Plan?					Conclusion: ARTF 4/3 National RVSM Plan
	Will your Administration implement RVSM in the Airspace as identified by AFI?					
	Has your administration identified new entry/exit points to RVSM airspace?					Doc. 9574 National RVSM Plan
	Has your administration identified modifications to the existing route network?					Doc. 9574 National RVSM Plan
	Has your administration designated transition airspaces between RVSM and non-RVSM airspaces?					Doc. 9574 National RVSM Plan



SUBJECT	ITEMS ASSESSED	Target Date (TD)	Date Completed (DC)	Not Applicable (NA)	REMARKS	Ref. ICAO Regional/National Doc
	Has your administration identified Modifications in airspace sectorization for RVSM purposes?					Doc. 9574 Chapter 5 Conclusion: 2/13
	If such were the case, was the airspace structure subject to simulations?					Doc. 9574 National RVSM Plan
<b>Air Traffic Management</b>						
<b>5. ATC Procedures</b>	Has your administration identified changes in civil/military coordination?					Doc. 9574 Chapter 5 Conclusion: ARTF 4/2
	Does your administration consider air traffic flow management for your State?					
	Has the administration adopted the Cruise Levels Table of Appendix to ICAO Annex for the assignment of cruise levels in RVSM airspace?					Annex 2 Conclusion : ARTF 2/13
	Has the administration adopted adequate national contingency procedures?					Doc. 9574 Chapter 5 ICAO Doc 7030/4 Conclusion: ARTF 4/9 National RVSM Plan
	Have the procedures been duly supervised in order not to affect the safety in air operations?					Doc. 9574 Chapter 3
	Has ICAO guidance material been used in the preparation of procedures?					Conclusion: ARTF 2/13 National RVSM Plan

SUBJECT	ITEMS ASSESSED	Target Date (TD)	Date Completed (DC)	Not Applicable (NA)	REMARKS	Ref. ICAO Regional/National Doc
	The procedures and associated phraseology been included in the operational manual of the ATS unit?					Doc. 9574 Chapter 5 Conclusion: ARTF 2/13 National RVSM Plan
	Has ATC procedures been reviewed with operational personnel from ATC units?					Doc. 9574 Chapter 5 Conclusion: ARTF 3/6 National RVSM Plan
<b>Air Traffic Management</b>						
	Have the procedures affecting adjacent ATS been duly coordinated, approved and included in the letters of operational agreement?					Doc. 9574 Chapter 5 Conclusion: ARTF 4/11 National RVSM Plan
	Have ATC procedures and associated phraseology been subject to simulations?					Doc. 9574 Chapter 5 Conclusion : ARTF 3/6 National RVSM Plan
	Are RVSM ATC procedures being disseminated by the adequate means?					Conclusion: ARTF 4/11
	Has the administration analysed the impact it would have in RVSM implementation if the changes required have not been taken into account?					Doc. 9574 Chapters 3/5. National RVSM Plan

SUBJECT	ITEMS ASSESSED	Target Date (TD)	Date Completed (DC)	Not Applicable (NA)	REMARKS	Ref. ICAO Regional/National Doc
<b>Air Traffic Management</b>						
<b>6. ATC Equipment</b>	Does your administration has a modification plan of ATC equipment as a result of RVSM?					Doc. 9574 Chap. 5 Conclusion: ARTF2/13 National RVSM Plan
	Has your administration ensured that modifications in ATC equipment are appropriate?					Doc. 9574 Chap. 3 Conclusion: ARTF 4/11
	Do changes circumscribe to FDPS?					Doc. 9574 Chap. 3 National RVSM Plan
	Do changes circumscribe to RDPS?					Doc. 9574 Chap. 3 National RVSM Plan
	Do changes circumscribe to visualizing?					Doc. 9574 Chap. 3 National RVSM Plan
	Do changes circumscribe to STCA?					Doc. 9574 Chap. 3 National RVSM Plan
	Do changes circumscribe to MTCA?					Doc. 9574 Chap. 3 National RVSM Plan
	Do changes circumscribe to the systems software?					Doc. 9574 Chap. 3 National RVSM Plan
	Do changes circumscribe to ATC simulators?					Doc. 9574 Chap. 3 National RVSM Plan
	Does your administration have a contingency plan in case of delays in case of suffering delays in ATC equipment updating?					Doc. 9574 Chap. 5

SUBJECT	ITEMS ASSESSED	Target Date (TD)	Date Completed (DC)	Not Applicable (NA)	REMARKS	Ref. ICAO Regional/National Doc
<b>Air Traffic Management</b>						
<b>7. RVSM ATCO Training</b>	Has an RVSM training program been prepared for ATCOs?					Doc. 9574 Chap. 5 Conclusion: ARTF 3/6
	Is the program addressed for all ATC personnel?					Doc. 9574 Chap. 5 Conclusion: ARTF4/11
	Shall the program be completed before the RVSM implementation dated? If such were the case, indicate finalization date of training program.					Conclusion: APIRG 14/21 Doc. 9574 Chap. 5 National RVSM Plan
	Does the program contemplate aspects related with the responsibilities of ATCOs?					Doc. 9574 Chap. 5 National RVSM Plan
	Does the program have RVSM training material?					Doc. 9574 Chap. 5 Conclusion: ARTF2/13 National RVSM Plan
	Which documentation did the administration use to elaborate RVSM?					Doc. 9574 Chap. 5 National RVSM Plan
	Has the training material been prepared under strict control and approved by the Operational Unit or the corresponding training centre?					Doc. 9574 Chap. 5 Conclusion: ARTF 3/6 National RVSM Plan
	Has OJT been programmed? When will this program end?					Doc. 9574 Chap. 5 National RVSM Plan

SUBJECT	ITEMS ASSESSED	Target Date (TD)	Date Completed (DC)	Not Applicable (NA)	REMARKS	Ref. ICAO Regional/National Doc
<b>Air Traffic Management</b>						
	Does the administration ensure that the personnel training is appropriate and is carried out professionally?					Doc. 9574 Chap. 5 National RVSM Plan
	Do instructors have training and sufficient knowledge of RVSM Operations and do/did they have experience enough?					Doc. 9574 Chap. 5 National RVSM Plan
	Are instructors used in training or were they qualified to provide OJT training?					Doc. 9574 Chap. 5 National RVSM Plan
	May the administration ensure that the necessary time is or was used for an appropriate training?					Doc. 9574 Chap. 5 National RVSM Plan
	Does your administration foresee to establish adequate refreshing courses?					Doc. 9574 Chap. 5 National RVSM Plan
	Has your administration analysed the impact it would have in RVSM implementation if no personnel training requirements were taken into account?					Doc. 9574 Chap. 5 National RVSM Plan

SUBJECT	ITEMS ASSESSED	Target Date (TD)	Date Completed (DC)	Not Applicable (NA)	REMARKS	Ref. ICAO Regional/National Doc
<b>RVSM Safety Assurance</b>						
<b>8. RVSM Safety Assurance from FL 290 to FL 410 inclusive</b>	Has your Administration implemented your RVSM National Safety Plan?					Doc. 9574 Chap. 3 Conclusion: ARTF 4/18 & ARTF 4/19
	Is the National RVSM Safety plan harmonized with the AFI RVSM Safety Policy?					Conclusion: ARTF 4/11
	Has your Administration submitted a National RVSM Safety plan to ICAO Regional Program Office?					Conclusion: ARTF 4/11
	Has your Administration informed National Operators of RVSM Implementation requirements?					National RVSM Plan
	Has your Administration adopted TGL6 Revision 1 for approval of operators/aircraft for RVSM Operations?					Doc. 9574 Chapter 3 Conclusion: ARTF 4/7
	Has your administration implemented the National RVSM Operator/ Aircraft approval Program?					Doc. 9574 Chap. Conclusion: ARTF 4/12
	Has your administration disseminated the National RVSM Implementation Program to all stakeholders?					Conclusion: ARTF4/11

SUBJECT	ITEMS ASSESSED	Target Date (TD)	Date Completed (DC)	Not Applicable (NA)	REMARKS	Ref. ICAO Regional/National Doc
<b>RVSM Safety Assurance</b>						
	Has your administration implemented the National RVSM ATS Training Program?					
	Has your administration published guidelines for RVSM Pilot Training?					Conclusion: ARTF 4/11 National RVSM Plan
	Has your administration developed a program for changes to ATC equipment to support the implementation of RVSM?					Conclusion: ARTF 4/11 National RVSM Plan
	Has the changes to ATS Equipment satisfactorily been installed?					Conclusion: ARTF4/17 National RVSM Plan
	Has the changes to ATS Procedures been approved?					Conclusion: ARTF 4/5 & 4/17
	Has your administration published the procedures to accommodate aircraft in RVSM airspace?					Conclusion: ARTF 4/8 & 4/9 National RVSM Plan
	Has the ATC Manual been approved?					Conclusion: ARTF 2/7 & ARTF4/11 National RVSM Plan
	Is the ATC Manual consistent with ICAO Doc 7030/4?					Conclusion: ARTF 4/9
	Has your administration coordinated the procedures required for RVSM at the ACC with adjacent ACCs?					

SUBJECT	ITEMS ASSESSED	Target Date (TD)	Date Completed (DC)	Not Applicable (NA)	REMARKS	Ref. ICAO Regional/National Doc
<b>RVSM Safety Assurance</b>						
	Has your administration amended the required Letters of Agreement (LoA) with adjacent ACCs for RVSM Operations?					Conclusion: ARTF 4/11
	Has the ATSU Operations Manual been amended to include changes as a result of RVSM?					
	Has your administration approved the changes to airspace design to support the implementation of RVSM?					
	Has your administration developed special procedures to enable safe switchover to RVSM?					
	Has your administration developed a program for ATC to report operational data errors?					Conclusion: ARTF 4/4



SUBJECT	ITEMS ASSESSED	Target Date (TD)	Date Completed (DC)	Not Applicable (NA)	REMARKS	Ref. ICAO Regional/National Doc
<b>RVSM Monitoring</b>						
<b>9. RVSM Operations Monitoring</b>	Has the administration established adequate measures so that there is a monitoring before, during and after RVSM implementation in order to verify that the safety level is met?					Annex 11 Para. 2.26 Conclusion: ARTF 2/1 Conclusion: ARTF 4/4 National RVSM Plan
	Does the administration demand the operators/users the presentation of a monitoring program of aircraft for its approval?					
	Has the administration implemented a data collection program of large height deviations (LHD)?					Conclusion: ARTF 4/4
	Is this information submitted to ARMA monthly basis?					Conclusion: ARTF 4/4
	Is there a database with such information?					Conclusion: ARTF 4/4 National RVSM Plan
	Has the administration implemented a monthly data collection program for errors in the ATC communications circuit?					Doc. 9574 Chapter 5 National RVSM Plan
	Does the administration have a database with such information?					Conclusion: ARTF 4/4
	Is the information submitted to ARMA on the total of IFR movements on a monthly basis?					Conclusion: ARTF 4/4

SUBJECT	ITEMS ASSESSED	Target Date (TD)	Date Completed (DC)	Not Applicable (NA)	REMARKS	Ref. ICAO Regional/National Doc
<b>RVSM Monitoring</b>						
	Is there a database with such information?					Conclusion: ARTF 4/4
	Is information related to turbulence reports submitted to ARMA?					Conclusion: ARTF 4/4
	Is there a database with such information?					Conclusion: ARTF 4/4
	Has the administration established a continuous monitoring of the system?					Annex 11 para. 2.26 Doc. 9574 Chapter 6
	Has the administration assessed the impact that the lack of a continuous monitoring program and RVSM operations monitoring would have in air safety?					National RVSM Plan

SUBJECT	ITEMS ASSESSED	Target Date (TD)	Date Completed (DC)	Not Applicable (NA)	REMARKS	Ref. ICAO Regional/National Doc
<b>RVSM Switch-Over</b>						
<b>10. RVSM Switchover</b>	Has your administration adopted or will it adopt the measures to ensure a safe and effective transition to RVSM?					Doc. 9574 Chapter 5 National RVSM Plan Conclusion: ARTF4/11
	Have special procedures been established for the switchover period?					Doc. 9574 Chapter 5 National RVSM Plan
	Are contingency plan adequate for the switchover period?					Doc. 9574 Chapter 5 National RVSM Plan
	Has the administration foreseen the information process to ARMA during the next tour for RVSM implementation?					Doc. 9574 Chapter 5 National RVSM Plan
	Has the administration foreseen the information process to ARMA during the following 12 and 24 hours after RVSM implementation?					Doc. 9574 Chapter 5 National RVSM Plan)
	Has the administration assessed the impact that the lack of an RVSM transition plan and associated contingency measures could have in safety?					National RVSM Plan.

SUBJECT	ITEMS ASSESSED	Target Date (TD)	Date Completed (DC)	Not Applicable (NA)	REMARKS	Ref. ICAO Regional/National Doc
<b>RVSM Resources</b>						
<b>11. Assignment of Resources for the Implementation of RVSM program</b>	Have adequate measures been adopted in order to have the necessary resources for a successful RVSM implementation?					Conclusion: ARTF 4/11 National RVSM Plan
	For changes in ATC equipment?					Conclusion: ARTF 4/17 & 4/18
	For personnel training and associated material?					Conclusion: ARTF 4/17 & 4/18
	For training of OPS/Airworthiness inspectors?					Conclusion: ARTF 4/17 & 4/18
	To face administrative costs?					National RVSM Plan
	Has the administration evaluated the impact that the lack of assignment of sufficient resources in the RVSM national implementation program would have in air safety?					National RVSM Plan

[illegible]

[illegible]

STATUS OF AFI RVSM STATES _ READINESS SURVEY															
STATES	National Programme Manager	AIC	LOA/ LOP	NSP	AFI Safety Policy	ATC OPS Manual	A/C RVSM Readiness	ATC Training	Pilot Training	State A/C Approval	Legis lation	ARMA traffic Forms	National Switch over Plan	Civil/ Military Coordin.	Seminar
Uganda	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Zambia	Y	Y	Y	Y	Y	Y	Y	Y	N/A	Y	Y	Y	Y	Y	Y
Zimbabwe	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

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# **AFI RVSM**

## **SWITCH - OVER PLAN**

**T -24    ToS    T+24**

**SEPTEMBER 2007**



## **AFI RVSM SWITCHOVER PLAN**

### **EXECUTIVE SUMMARY**

The AFI RSVM Task Force has been tasked to provide guidance material for the States Switchover Plans so that they can refer to and adapt to their own local requirements. The AFI Functional Hazard Assessment final version, adopted by the Task Force, was referred to as guidance material when compiling the AFI Switchover Plan.

The switchover document satisfies the identified major switchover hazards resulting from the Functional Hazard Assessment that will need to be considered in order to accomplish a safe and successful switchover from CVSM to RVSM at time of switchover.

The switchover plan only addresses the switchover period and does not address the timelines as reflected in the action plan required to implement RVSM. The actions to RVSM implementation should be considered as the RVSM Task Force timetable that is issued periodically by the Task Force and lodged with the ARPO.

### **RECOMMENDATIONS**

It is recommended that States:

- Review the switchover plan, against their own detailed switchover plan and incorporate any amendments as required.
- Action any additional requirements as issued periodically by the ARPO appropriate to the States switchover plans.

ARPO  
ICAO ESAF  
NAIROBI KENYA

## **AFI RVSM SWITCHOVER PLAN**

### **1. INTRODUCTION**

- 1.1 The AFI RVSM Task Force has been tasked to provide a Switchover Plan for States to adapt to their own local requirements. The principle concerns of the Aviation Community have been addressed in the AFI Switchover Plan. This document should be referred to by States/FIR's to produce a plan that will be relevant to their ACC. This will in effect mean that there will need to be greater detail for individual actions within each FIR.
- 1.2 The assumption within this switchover plan is that the Go decision will only be made if the fundamental processes for the implementation of RVSM are in place:
  - The Safety Case, with special reference to the CRA and TLS, would have been presented, and assurances provided that the level of safety preparedness of the States as reflected in the NSP's is sufficient for the task.
- 1.3 The AFI RVSM implementation Decision Process should result in a Go/Delay decision being determined by the Task Force. In the event of a Go decision, the Switchover Plan will be continually reviewed and checked for the commencement of RVSM operations with special reference to the switchover period. The process will culminate in the switchover from CVSM to RVSM at ToS, which will require specific attention to ensure a safe and effective changeover with the minimum disruption to the flow of air traffic. At the ToS the whole of the RVSM airspace will be in a transition phase for controllers and aircrews until it is reported that all aircraft are at the required RVSM FLAS.
- 1.4 The ARMA and ASECNA (via WACAF) will serve as the focal points of contact during the switchover period. ASECNA will be required to report all significant operations/events relating to the switchover, in the ASECNA area of operations to the ARMA.

### **2. ACTIONS PRIOR TO ToS AFI RVSM SWITCHOVER T-24**

- 2.1 AFI RVSM implementation readiness reporting will continue throughout the switchover period with the National Program Managers reporting to the ARMA.

## 2.2 Airspace

It is essential that there is a stable airspace configuration during the Switchover period from CVSM to RVSM. The stability of the airspace will also require the utmost co-operation from military organizations.

## 2.3 Flight Planning

Flight planning, will continuously be checked during the switchover period for irregularities including incorrect RVSM status in Flight Plan and the flight level in the filed ATC Flight Plan not being in accordance with FLAS.

Within the switchover period there will continue to be increased contact between Aircraft Operators and ATS and the overall awareness as to the necessary flight planning and approval requirements for entry into RVSM airspace will be reinforced. Warnings will be provided to non-RVSM approved aircraft that would incorrectly penetrate AFI RVSM airspace.

Aircraft Operators and ATS should note that the submission of RPLs will require specific and separate attention. Operators of RVSM approved aircraft shall indicate the approval status by inserting the letter W in Field 10 of the ICAO FPL, regardless of the Requested Flight Level (RFL). At the date of implementation, ATS may invalidate a flight plan that does not comply with the RVSM requirements at ToS.

## 2.4 Civil/Military Coordination

Military exercises during switch over period should be suspended as per the FHA. If they do need to take place they should be coordinated with the greatest of care.

## 2.5 Ground Communications

During the switchover period redundant ground communication facilities must be available and ready for immediate use and adequately supported by competent technical staff.

## 2.6 Letters of Agreement/Procedures LOAs/LOP's.

States/FIR/ACC's will ensure that the current LOA/LOP is easily accessible for reference purposes during the Switchover period. The following points should be carefully and continuously reviewed with regard to:

- FLAS for consistency with RVSM
- RVSM status of aircraft on the flight plan and if in doubt verify information with ARMA

### 3. AWARENESS CAMPAIGN

- 3.1 During the switchover period operators should be reminded of the flight planning requirements as well as the requirement of RVSM operator/aircraft approvals in order to operate within the AFI RVSM airspace.

### 4. SWITCHOVER (To be determined (TBD) ToS

#### 4.1 Switchover

A prime activity of the switchover period will be the switchover from CVSM to RVSM.

- Non RVSM approved flights airborne in the immediate period prior to the switchover may be adjusted to their new levels below FL290
- Operators must manage contingency fuel requirements as appropriate.
- At ToS, aircraft will be reassigned to their new levels.
- Operation above FL410 will not be permitted during the specified interval during the Switchover period by non RVSM approved aircraft.

#### 4.2 Timing of Change.

The AFI RSVM Task Force has conducted a traffic analysis to determine a quiet and stable period, which confirmed the suitability for the switchover at 0001 HRS (UTC) To be Determined (TBD).

#### 4.3 Aircraft in Flight at Time of Switchover.

The sequence of events at switchover will be:

- Warning of Switchover from CVSM to RVSM by all ground stations
- Implementation of Switchover from CVSM to RVSM by all RVSM approved aircraft and the exclusion of all non-RVSM approved aircraft. State aircraft will be managed accordingly.
- An on going verification of Operator/Aircraft approval status
- Heightened vigilance for any irregularities and reporting to ARMA

Inevitably, there will be a mixed population of air traffic being handled at the time of switchover. However preparations to limit the amount of non RVSM aircraft should be increased prior to the switchover.

Repeated broadcasts of the pending switchover will be made to aircraft in flight commencing 45 minutes before switchover. Phraseology for broadcast as an example is:

**"All stations, All stations, (ACC identification) Control Broadcast, RVSM operations commence at time 0001 HRS To be Determined (TBD)."**

4.4 Flow Management.

ACC's should apply flow management during the switchover period if required.

4.5 Staffing Levels at Time of Switchover.

- ACC staffing will be a major focus of attention with a need for back-up staff, engineering staff and in particular software support as reflected in the FHA.
- Comprehensive briefings will be provided by supervisors to all operational staff during ToS.
- ACC management shall suspend operational training during the switchover period.

4.6 Weather Phenomena during Switchover Period

Any adverse weather phenomena, sand storms or volcanic activity will be reported immediately to the ARMA during the Switchover period to assist with contingency planning.

4.7 Contingency Planning.

Contingency plans are already in place for the normal operation of ACCs. The RVSM ATC manual provides some guidance on contingency procedures for degradation of aircraft equipment associated with height keeping or the occurrence of weather phenomena, which directly affect the ability of aircraft to maintain their allocated flight level.

ACCs should therefore review their contingency arrangements prior to switchover and then have them readily available during the switchover period for any eventuality. Various failure conditions will have to be considered.

4.8 Hazard Identification and Mitigation.

National Safety Plans shall satisfy the requirements of the AFI FHA Appendix E.2 (AFI RVSM Switchover Period) and Appendix F.2 (allocated safety requirements for AFI RVSM Switch over period.)

**5. IMMEDIATE POST IMPLEMENTATION PHASE (SWITCHOVER – TO BE DETERMINED (TBD) PLUS 24 HOURS**

Twenty four hours after the introduction of RVSM each FIR will be required to provide a report to ARMA. FIR's experiencing problems or envisaging problems will report as such so that remedial action can be suggested. The report shall also include any large height deviations, wake vortex encounters and any other reportable incident brought about by the implementation of RVSM.

## **6. CONCLUSION**

- 6.1 The AFI RVSM Task Force has been tasked to provide a switchover plan for States to utilize as guidance material. The launch of the Switchover Plan will commence on acceptance by the AFI RVSM Task Force.
  - 6.2 National Program Managers must action any additional requirements as issued periodically by the ARPO appropriate to the States switchover plans.
  - 6.3 The Switchover from CVSM to RVSM will require further activity within States with further guidance and direction provided to ACCs by their Civil Aviation Authorities. Aircraft Operators will also need to note the flight planning aspects and the operational aspects of the switchover.
-

## TEMPLATE

### LETTER OF PROCEDURE/LETTER OF AGREEMENT(LOP/LOA) BETWEEN

..... AREA CONTROL CENTRE AND ....AREA CONTROL CENTRE

#### 1. PREAMBLE

The authorized representatives of ..... and ..... agree that the procedures contained in this document shall remain in force from the effective date specified until either amended or cancelled.

This letter of Agreement supersedes and cancels the existing Letters of Agreement between ..... and ..... dated .....

#### 2. EFFECTIVE DATE

The provisions in the Letter of Agreement shall be implemented on ..... at 0001 UTC.

#### 3. OBJECTIVE

The objective of this Letter of Agreement is to specify co-ordination procedures between ..... and .....

#### 4. SCOPE

4.1 The procedures contained herein are supplementary to the ICAO Standards and Recommended Practices in Annexes 2 and 11, the Procedures for Air Navigation Services in Document 4444 and the Regional Supplementary Procedures (Doc 7030). They detail the conditions under which the responsibility for the provision of air traffic services shall be transferred between the ATS units mentioned in paragraph 3 above.

4.2 This Letter of Agreement also formalises the delegation of responsibility from ..... to ..... and vice versa for the provision of air traffic services within those portions of airspace which lie between the FIR boundaries and the agreed points of transfer of responsibility as defined in paragraph 7.4.1. The establishment of transfer points is based on operational considerations only and does not therefore contribute to, neither can it be invoked for, any other purpose beyond this context.

#### 5. AMENDMENTS

5.1 Any change to this Letter of Agreement, including its cancellation or replacement, requires the consent of the ATS units concerned. This applies to the substance of the change as well as to its date of applicability. Any change shall be made either in the context of a meeting between the two units, or by exchange of correspondence, or by exchange of AFTN messages, with acknowledgement by all signatories.

5.2 Whilst temporary deviations from these procedures may be agreed between the ACC supervisors concerned, as specified in paragraph 8.1 below, permanent amendments to this document shall be effective only in the form of a written amendment duly signed by authorized representatives.

**6 AFI RVSM AIRSPACE**

6.1 The AFI Region airspace between FL 290 and FL 410 inclusive, encompassing all FIRs in the AFI Region is the designated AFI RVSM airspace.

6.2 There is no transition airspace in the AFI RVSM airspace.

**6.3 PROCEDURES FOR THE AFI RVSM AIRSPACE**

6.3.1 The applicable RVSM procedures in the AFI RVSM airspace are contained in the Regional Supplementary Procedures – Doc. 7030/4 – African Indian Ocean Region. The detailed procedures are contained in the ATC Operations Manual for RVSM in AFI Region.

6.3.2 RVSM compliant aircraft and non-RVSM compliant aircraft entering RVSM airspace from a non-RVSM airspace shall be established at a flight level in accordance with the ICAO Table of Cruising Levels, as published in ICAO, Annex 2, Appendix 3, (a).

6.3.3 The following table contains RVSM FL applicable in the AFI RVSM airspace.

Cruising levels as per direction of flight – FL280 to FL430		
Route from 180 degrees to 359 degrees*		Route from 000 degrees to 179 degrees *
← FL 430 (non RVSM level above RVSM airspace)		
		FL410 →
← FL400		
		FL390 →
← FL380		
		FL370 →
← FL360		
		FL350 →
← FL340		
		FL330 →
← FL320		
		FL310 →
← FL300		
		FL290 →
← FL280 (non RVSM level below RVSM airspace)		



#### 6.3.4 Flight operations within the AFI RVSM airspace.

6.3.4.1 Except for State aircraft as defined in Article 2 to the Chicago Convention (Doc. 7300) only RVSM approved aircraft shall be approved to operate within the AFI RVSM airspace.

### 6.4 CONTINGENCY PROCEDURES FOR INCREASED SEPARATION

6.4.1 (Name) ACC will consider increasing vertical separation within affected areas of the (Name) FIR RVSM airspace when there are pilot reports of greater than moderate turbulence. Within areas where significant turbulence is reported, vertical separation minimum between all aircraft will be increased.

## 7. PROCEDURES

### 7.1 Movement and control messages

#### 7.1.1 Flight plans

Filed Flight Plan (FPL) messages shall be transmitted for flights originating within one FIR and entering the other, not less than ..... minutes before the estimated time of the aircraft over the common FIR boundary.

#### 7.1.2 Departures

Departure (DEP) messages shall be transmitted for all flights mentioned in 7.1.1 above, as soon as practicable after the aircraft is airborne.

#### 7.1.3 Estimates

Estimate (EST) messages shall be transmitted for all flights crossing the common FIR boundary, in sufficient time to permit its receipt by the receiving ATS unit at least .... minutes before the estimated time of the aircraft over the transfer points specified in paragraph 7.4.1 below.

#### 7.1.4 Revisions

Co-ordination (CDN) messages shall be transmitted as soon as practicable whenever the estimated time of the aircraft over the transfer point differs by .... minutes or more from the estimated time originally passed or when a change of cleared level and/or crossing condition is planned.

#### 7.1.5 Acceptance

Co-ordination messages (EST and CDN) require an operational acceptance, in the form of an acceptance (ACP) message, to be transmitted to the transferring unit.

### 7.2 Message transmission and co-ordination procedures

7.2.1 FPL Messages shall be transmitted via AFTN. DEP messages shall be transmitted by AFTN or ATS/DS or both as applicable.

7.2.2 Co-ordination messages (EST, CDN and ACP) shall be transmitted using (the ATS direct speech circuits (ATS/DS) as applicable.

7.2.3 In case of non-availability of the ATS direct speech circuit between the ATS units concerned, the transferring ATS unit shall forward the relevant flight data to the receiving ATS unit by means of HF radiotelephone (RTF) and/or AFTN.

7.2.4 When effecting the necessary co-ordination by use of the AFTN or HF RTF the transferring ATS unit shall send the appropriate co-ordination message in sufficient time to permit its receipt by the receiving ATS unit at least ..... minutes prior to the aircraft's estimated time over the transfer point.

7.2.5 After co-ordination of the transfer, the conditions of transfer shall not be changed by the transferring unit, unless prior agreement has been obtained from the accepting unit.

7.2.6 In case of flights departing from aerodromes (.....) for which, due to their proximity to the FIR boundary, application of the procedures set out in 7.1.2 above would not be possible after departure, co-ordination between the transferring ATS unit and the accepting ATS unit shall be effected prior to the issuance of the ATC clearance to the aircraft concerned.

7.2.7 In the event of communications failure between the ATS units concerned, a departing aircraft shall be cleared only to such a level as can be reached before it arrives within 10 minutes flying time from the transfer of control point. If such a level is lower than that specified in the flight plan, the aircraft shall be instructed to request approval for a higher level direct from the accepting unit and then obtain clearance from the transferring unit to climb to the level approved by the accepting unit.

### 7.3 Transfer of communications

7.3.1 Aircraft shall be instructed to establish communications with the accepting unit 5 minutes before the transfer of control point. Transfer of communications does not constitute transfer of control.

7.3.2 In case of communications failure between the ATS units concerned, the transferring ATS unit will inform the aircraft of the absence of co-ordination between the two ATS units and will instruct the aircraft to establish contact with the accepting ATS unit 10 minutes before the boundary in order to provide it with the necessary flight data.

7.3.3 Whenever the accepting ATS unit is unable to establish contact with an aircraft within .... minutes after its estimated time over the transfer point, it shall inform the transferring ATS unit so that appropriate measures may be taken.

7.3.4 With reference to paragraph 10.4.2.4.4 of Part VIII of the PANS-ATM, the accepting ATS unit need not, as a matter of routine, notify the transferring ATS unit that radiocommunication has been established with an aircraft being transferred.

7.3.5 Whenever an aircraft is unable to establish or maintain radio communication with the ATS unit responsible for the provision of air traffic services in the airspace in which it is operating, other ATS units shall, if possible, assume relay functions between them.

7.3.6 Primary frequency assignment for transfer of communications is as follows:

ATS route	ATS unit call sign	Frequency
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7.3.7 Secondary frequency assignment, for use when no contact can be made on the primary frequencies, is as follows:

ATS route	ATS unit call sign	Frequency
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#### 7.4 Transfer of responsibility

7.4.1 Responsibility for the provision of air traffic services shall be transferred to the accepting unit at the following significant points:

ATS route	Transfer of Control point
a)	(e.g. ABAB at 3030S 9015E, <del>or bearing a distance from a VOR/DME</del> )
b)	(or bearing and distance from a VOR/DME)

7.4.2 If transfer of responsibility is required at points other than those specified in 6.4.1 above, this shall be co-ordinated individually for each flight.

7.4.3 The accepting unit shall assume responsibility of a transferred aircraft as soon as it has reported to that unit passing the appropriate transfer point. There is no requirement for additional transfer or acceptance messages unless requested.

7.4.4 Control of traffic communicating with the accepting unit shall not be assumed prior to the aircraft passing the transfer point, unless specifically agreed by the transferring unit.

#### 7.5 Flight levels

7.5.1 Aircraft outside ATS route shall be assigned flight levels as follows:

ATS route	From	To	Flight Levels
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#### 7.6 Separation

7.6.1 Aircraft at the same level shall be longitudinally separated by not less than 10 minutes.

7.6.2 When the succeeding aircraft is faster than the preceding aircraft, the transferring unit shall notify the accepting unit and seek its approval of the transfer of control. The accepting unit shall have the right to determine the transfer of control conditions.

#### 7.7 Clearance limit

7.7.1 The clearance limit shall normally be the destination aerodrome. However, if the necessary co-ordination cannot be effected in good time (paragraph 6.4 refers) e.g. due to communications failure between ATS units, the clearance limit shall be the transfer point and the aircraft instructed to request onward clearance from the accepting unit before proceeding beyond that point.

**7.8 Weather Information**

7.8.1 ATS units shall keep each other informed of SIGMET information and of weather conditions at destination aerodromes within their respective FIRs whenever such conditions may fall below aircraft operating minima and consequently may result in diversion or holding for weather improvement.

**7.9 Flow control (if applicable)**

7.9.1 Should it become necessary to implement flow control to avoid excessive delays at destination aerodromes within their respective FIRs, ATS units shall negotiate and agree a mutually acceptable number of aircraft per hour. All such agreements shall be terminated at \_\_\_\_\_ as soon as circumstances permit resumption of normal operations. The decision of the ACC supervisors shall be sufficient authority in all such cases.

**8. Deviations**

8.1 Deviation from the procedures specified in this Letter of Agreement shall only be permitted in exceptional circumstances and not without prior co-ordination on a case-by-case basis.

8.2 Any deviations from these provisions, that arise due to an emergency or are applied to ensure the safety of air traffic, shall immediately be notified to the other ATS unit(s) concerned and shall be terminated as soon as the circumstances that caused the deviation cease to exist.

**9. Search and Rescue**

9.1 Search and Rescue operation within the respective areas of responsibility of \_\_\_\_\_ and \_\_\_\_\_ shall be conducted in full compliance with the Standards and Recommended practices indicated in Annex 12 to the Chicago Convention and the related organization of National Search and Rescue procedure.

**10. Authorized signatories**

For.....(Name of Administration.)

Place.....

Date.....

## AFI GMU HEIGHT MONITORING SERVICE

The ARMA has contracted the GMU Height Monitoring services of ARINC, who have a proven record in this field, for the provision of a professional Height Monitoring Service within the AFI Region.

The results of Height Monitoring test missions have been processed, evaluated and accepted by the ARMA. The AFI GMU Height Monitoring service is now available for operational use to those aircraft requiring height monitoring within Africa. The results of height monitoring received from RMA's in other regions for AFI aircraft will also be utilized.

AFI has access to three GMU's, which will be utilized for Height Monitoring in AFI and all carry certification papers, EASA Form 1, for operation on board aircraft either on the flight deck or within the cabin. It should be recalled that GMU Height Monitoring has been operational in other regions for some time and is thus a safe and tested method of gathering Height Monitoring Data. Further to this ARMA will issue to the relevant authorities on request a set of the certification papers for reference purposes. Requests should be made to ARMA/ARINC for these copies either electronically or via fax if required.

Operators requiring Height Monitoring should use the following points of contact in order to obtain information, secure the service and plan the event:

- Preferably direct contact with ARINC on email address [afirvsm@arinc.com](mailto:afirvsm@arinc.com)
- If unsure of the process make contact with the ARMA on email address [afirma@atns.co.za](mailto:afirma@atns.co.za)
- The Operational Base in Johannesburg will serve as the planning base for the event. The operator will be provided with contact details for the Johannesburg Operational Base when appropriate.

Note 1: No Height Monitoring results will be released from the Operations Base, as they will only have raw unprocessed data, which will need to be processed at the Gatwick OCC. This raw data is of no use to the operator until processed.

Note 2: Operators are requested to refrain from contacting ARINC directly for the outcome of the Height Monitoring flight as ARINC may not release this information.

Note 3: All Height Monitoring results will be forwarded to the ARMA by ARINC and released officially to the applicable operator by the ARMA.

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**AFI RVSM STRATEGY/ACTION PLAN FOR IMPLEMENTATION  
OF REDUCED VERTICAL SEPARATION MINIMA  
IN THE AFRICA-INDIAN OCEAN REGION**

September 2007



AFI RVSM IMPLEMENTATION STRATEGY/ACTION PLAN					
ID	Description	Target Date	Status	Resources	Remarks
	Program Management				
1	<u>Agree on structure of TF to enable efficient handling of specialist technical tasks</u>	21/11/03	Completed	Secretariat Support Team: ASECNA, SA, IATA, Kenya, Nigeria, Tunisia	Completed 21 Nov 2003
2	RVSM SIP Report	21/11/03	Completed	RVSM/ITF2	Completed 21 Nov 2003
3	RVSM/RNAV/RNP TF/2 Meeting	21/11/03	Completed	RVSM/ITF2	Completed 21 Nov 2003
4	Identify resources for performing specialist technical tasks	21/11/03	Completed	RVSM/ITF2	Completed 21 Nov 2003
5	Investigate methods of funding any outside assistance required	31/03/04	On going	ICAO/IATA	To address future funding as/when required
6	Finalize the RVSM Implementation Strategy/ Action Plan	31/12/03	Completed	ICAO	Sent 05 Dec 2003
7	Circulate RVSM Implementation Strategy/Action Plan for comments from States	5/01/04	Completed	ICAO	Sent 05 Dec 2003
8	a) Doc 7030 amendment Proposal b) Circulate proposal to States c) ANC Approval	Submitted to ANC in March 2007	Completed Completed Completed	ICAO ICAO ICAO	Approved in June 2007
9	States comments on RVSM implementation Strategy/Action Plan	31/-3/04	Completed		
10	Regional RVSM informational Website	31/03/04	Completed		<a href="http://www.icao.int/esaf/RVSM">www.icao.int/esaf/RVSM</a>
11	RVSM Seminar/RVSM ITF3	19-22/04/04	Completed		

AFI RVSM IMPLEMENTATION STRATEGY/ACTION PLAN					
ID	Description	Target Date	Status	Resources	Remarks
12	RVSM Seminar /RVSM/ITF/4	26-30/07/04	Completed		
13	Coordination and harmonization of procedures with adjacent Regions	O-going	On-going	ICAO and AFI RMA	Continuous contact
14	States to send AIC to notify their intention to Implementation of RVSM	Oct 05	completed	ICAO/States	Continuous
15	Determine target AIRAC implementation date (AIP Supplement to be published)	TBD		ICAO/States	Reviewed every TF meeting
16	Regional RVSM implementation status reports	On-going	On -going	ICAO	Monthly Report to website
17	State Readiness Assessment,	October 2006	On-going	ICAO	Reviewed every TF meeting
18	RVSM/ARTF/5	15-16/11/04	Completed		
19	RVSM/ARTF/6	25-27/05/05	Completed		
20	RVSM/ARTF/7 ATS/AIS/SAR/SG/8	08-09/08/05 10-12/08/5	Completed Completed		
21	RVSM/ARTF/8 and RVSM Seminar	10 – 14 October 2005	Completed		
22	RVSM/ARTF/9 meeting	April 06	Completed		
23	RVSM TF/10 meeting and GO/Delay meeting	June 06	Completed		
24	Publish Trigger NOTAM	TBD	Pending	States	States to be advised of date
25	Develop/Publish National SWOP	October 06	completed Progress	States	SWOP sent to States
26	RVSM Task Force 11 Meeting	30/11- 1/12/06	Completed	All	Nairobi
27	RVSM Task Force 12 meeting	23-24	Completed	All	



AFI RVSM IMPLEMENTATION STRATEGY/ACTION PLAN					
ID	Description	Target Date	Status	Resources	Remarks
		April 2007			
28	RVSM Task Force 13	12-14 September 2007	Completed	All	
29	RVSM Task Force 14	April 2008		States /ICAO	
30	RVSM Task Force 15	August 2008		States /ICAO	
<b>Aircraft Operations and Airworthiness</b>					
31	Regional OPS/Airworthiness RVSM Guidance	21/11/03	Completed		
32	Develop regional Pilot Training RVSM Guidance Material	30/04/04	Completed	IATA	Sent to Operators for action
33	Provide pilot training RVSM guidance material to specific States	30 July 06	Completed		Sent to States
34	Aircraft Operational approval process guidelines	31/05/04	Completed		Sent to States
35	Aircraft RVSM Approval Survey	In progress	On -going	ICAO/States	Continuous and updated at every TF meeting
36	Ensure aircraft/operator approval process	In progress	On-going	ICAO/ARMA	Updated at every TF meeting
37	Ops/Airworthiness seminar	Nov 06	Completed	ICAO	Seminar to be coordinated with ICAO
<b>Air Traffic Management</b>					
38	National RVSM plan	31/03/04	On-going	States, ICAO	4 States had NOT signed by 31 October 2007.
39	National Safety Plan Validation Panel	March 06	Completed	NSPVP	Future validations by ICAO/ARMA
40	APIRG/15 Consideration of TF Reports	25-30-9-05	Completed		
41	Regional ATC OPS Manual	Apr 06	Completed	States	States to incorporate in National documentation
42	Determine the limits of RVSM airspace	30/06/04	Completed	States/ICAO	

AFI RVSM IMPLEMENTATION STRATEGY/ACTION PLAN					
ID	Description	Target Date	Status	Resources	Remarks
43	Regional ATC Training Program & Guidance Material	July 06	Completed	ASECNA/ATNS	Training institutions to incorporate elements highlighted by PISC
44	Letters of Agreement/Procedure (LOA/LOP)	3 months before Time of switch over	On-going	States	States to incorporate RVSM procedures.
45	Civil/Military coordination	Continuous	On-going	States	In National RVSM Plan
46	National RVSM Regulatory Material	October 06	On-going	States	Included in the National Safety Plan and are in the LOAs/LOPs and AIPs.
47	Collect weather and turbulence data for analysis	On Going	On-going progress	ARMA ICAO/States	ARMA to Collate
RVSM Safety Assurance					
48	State review of implementation of CNS infrastructure to support provision of ATC Service in the AFI RVSM airspace	December 2007	On- going	All States	Reviewed at every TF meeting
49	Review of the provision of ATC Service in the AFI RVSM Airspace	December 2007	On -going	All States/ICAO	Reviewed at every TF meeting
50	Conduct data collection and compile readiness assessment	In progress	On-going	ARMA/States	States to continue supplying data as required by ARMA to support Safety Assessments

AFI RVSM IMPLEMENTATION STRATEGY/ACTION PLAN					
ID	Description	Target Date	Status	Resources	Remarks
51	Develop AFI RVSM Safety Policy	30/06/04	Completed	States	States to ensure publication
52	a) Submit final NSP's after validation comments have being taken into account	October 06	Completed	States	4 States NOT finalized their NSP by 31 October 2007.
	b) Conduct NSP workshops facilitated by ATC experts	July 05	Completed		
	c) Once NSP's are implemented, DCA's to confirm State readiness data	Subject to State implementation status	In progress	States	Reviewed at every TF meeting.
	d) Update State readiness document	October 06	On going	ICAO	TF/13 to review progress
53	RVSM Functional Hazard Assessment (FHA)	4-8/04/05	Completed		
54	Validate Functional Hazard Assessment	31/05/05	Completed		
55	RVSM Collision Risk Assessment II	Oct 06	completed	ARMA/ICAO//Co nsultants	
56	Validate Collision Risk Assessment	August 2007	completed	Approved by TF/13	Approved for submission to APIRG
57	RVSM Collision Risk Assessment III	January 2008	In progress	ARMA/ICAO/Co nsultant	
58	AFI Pre-Implementation Safety Case	September 2007	Completed	ARMA/ICAO/Co nsultants	Reviewed by Task 13 and adopted for submission to APIRG/16.
59	AFI Pre-Implementation Safety Case: ANC	February/March 2008	Finalization of PISC doc 31 January		PISC to be sent to the ANC for approval in February 2008.

AFI RVSM IMPLEMENTATION STRATEGY/ACTION PLAN					
ID	Description	Target Date	Status	Resources	Remarks
			2008.		
60	RVSM Implementation date	25 September 2008	25 September 2008	States/ICAO	25 September 2008
61	Improved incident reporting and investigation to reduce incident rates to support positive CRA results	With Immediate Effect	On-going	States	States to provide record of incidents and remedial action for Safety Assessments
	<b>Monitoring Agency</b>				
62	Evaluate options for setting up AFI RMA	21/11/03	Completed		
63	Identify an AFI RMA	21/11/03	Completed		
64	Establish an AFI RMA.	31/03/04	Completed		
65	Validate State readiness template	15/11/04	Completed		
	<b>Post Implementation Safety Case (POSC)</b>				
66	Data collection to continue for submission to ARMA	Monthly	On -going	States	Data Collection to Continue after implementation
67	Evaluate system safety after implementation	6, 12 and 24 months	TBA	ARMA/ICAO	Compliance with AFI policy
68	Monitor system safety in adjacent Regions	Continuous	On -going	ARMA/ICAO	

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