

INTERNATIONAL CIVIL AVIATION ORGANIZATION



**RVSM/RNAV/RNP TF/12 MEETING
REPORT**

(DAKAR, 23 – 24 APRIL 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 Twelfth meeting of the RVSM/RNAV/RNP Task Force (RVSM/RNAV/RNP/TF/12) 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 Dakar from 23 to 24 April 2007.

1.2 The AFI RVSM Task Force 12 meeting was opened by Mr. Amadou Ousmane Guitteye, Regional Director, ICAO WACAF Office, Dakar. 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 program to meet the Target Level of Safety (TLS) required for the implementation of RVSM in the Region. Furthermore he urged the participants to be frank in their discussions so that realistic conclusions can be reached.

1.3 The meeting selected Mr. Bakienon Louis, Chief Air Navigation Management, from ASECNA as the Chairman of the meeting. He thanked the participants for the confidence reposed on him and appealed for their full cooperation to come up with the expected conclusions and decisions.

2. Officers and Secretariat

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

3. Attendance

3.1 The meeting was attended by 77 participants from 24 States and 5 International Organizations namely ARMA, ASECNA, IATA, IFALPA and Roberts FIR. The list of participants is at **Appendix A** to this report.

4. Working Language

4.1 The meeting was conducted in the English language.

5. AGENDA

5.1 The following Agenda was adopted :

Agenda Item 1

Review and follow-up of the conclusions of the Eleventh Meeting of APIRG RVSM/RNAV/RNP Task Force (RVSM TF/11).

Agenda Item 2

Review of major activities of the RVSM Task Force

- 2.1 ARMA Report.
- 2.2 AFI RVSM State Readiness Survey.
- 2.3 Status of ATS Letters of Agreement/Procedure (LOA/LOP).
- 2.4 Status of PISC.
- 2.5 Status of National Safety Plans (NSPs).
- 2.6 Status of amendment to the Regional Supplementary Procedures – Doc.7030/4 African Indian Ocean (AFI) Region (Serial. No. ESAF-S 06/3 – AFI RAC/1).

Agenda Item 3

- 3.1 CRA progress.
- 3.2 Safety Assessment Issues.
- 3.3 Safety Assessment.

Agenda Item 4

Review and update the RVSM Strategy/Action Plan.

Agenda Item 5

Any Other Business.

LIST OF CONCLUSIONS /DECISION

Number	Title
Conclusion 12/1:	<p data-bbox="475 327 1066 360">Safety assessment data and incident reporting</p> <p data-bbox="475 394 547 427">That:</p> <ul style="list-style-type: none"> <li data-bbox="515 461 1487 562">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 data-bbox="515 568 1487 636">b) States intensify their efforts in reducing the incident rates to support positive CRA results;
Conclusion 12/2:	<p data-bbox="475 674 1038 707">Target date for AFI RVSM Implementation</p> <p data-bbox="475 741 547 775">That:</p> <ul style="list-style-type: none"> <li data-bbox="515 808 1487 875">a) The actual date/time of implementation of RVSM will be determined taking into account: <ul style="list-style-type: none"> <li data-bbox="608 909 1487 976">i) The completion of the activities in the AFI RVSM Strategy/Action Plan; <li data-bbox="608 983 1487 1050">ii) The development of an acceptable PISC which includes an acceptable CRA and its subsequent approval by the ANC; <li data-bbox="608 1057 1487 1124">iii) The approval by ICAO ANC of AFI RVSM Regional SUPP's (Doc.7030/4) relating to RVSM; and <li data-bbox="515 1158 1487 1292">b) The target date for implementation of RVSM in the AFI Region will be determined by the Task Force, after the second CRA, which is to be undertaken, and the completion of the other outstanding elements of the PISC.
Conclusion 12 /3:	<p data-bbox="475 1330 1393 1364">Reporting of data for monitoring and/or carrying out safety assessment</p> <p data-bbox="475 1397 547 1431">That:</p> <ul style="list-style-type: none"> <li data-bbox="515 1464 1487 1599">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: <ul style="list-style-type: none"> <li data-bbox="608 1644 1134 1677">(i) Height deviations of 300 ft or more; <li data-bbox="608 1684 1294 1718">(ii) Total number of IFR movements for each month; <li data-bbox="608 1724 1487 1780">(iii) The average time per movement spent in the level band FL 290 to FL 410; <li data-bbox="608 1787 1027 1821">(iv) ATC coordination failures; <li data-bbox="608 1827 900 1861">(v) Turbulence; and <li data-bbox="608 1868 852 1901">(vi) Traffic data.

Number	Title
	<ul style="list-style-type: none"> b) GPS Monitoring Unit (GMU) is being used for height monitoring where appropriate in the AFI Region, which will be coordinated by the ARMA; e) 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 d) States continue to provide the required safety assessment data to ARMA on a monthly basis using Forms 1, 2, 3 and 4.
Conclusion 12/4:	<p>Seminars/training of all personnel involved with the implementation of RVSM in the AFI Region</p> <p>That:</p> <ul style="list-style-type: none"> a) Seminars/training continue to be organized in the Region for all personnel involved in the implementation of RVSM, and; b) States having difficulties in implementing RVSM implementation training may either individually or in group explore the possibility of seeking outside expertise.
Conclusion 12/5:	<p>RVSM enforcement in national legislation</p> <p>That States which have not done so, take the appropriate measures in order:</p> <ul style="list-style-type: none"> a) to publish as a matter of urgency, an AIC (Appendix B) informing the users of their intention to implement RVSM, and b) to include the necessary provisions in their national legislation.
Conclusion 12/6:	<p>Completion and signing of National Safety Plans</p> <p>That States of Central African Republic, Comoros, Equatorial Guinea, Gabon, Guinea Bissau, La Reunion (France), Mozambique, Sao Tome and Principe, South Africa, Swaziland and Togo complete and sign their National Safety Plans (NSPs) and send them to ARPO as soon as possible but not later than 1 August, 2007.</p>
Conclusion 12/7:	<p>State RVSM Readiness Assessment</p> <p>That:</p> <p>ICAO urge, the States which have not completed their State RVSM readiness assessment to do so and forward to ARPO, as soon as possible but not later than 1 August 2007.</p> <ul style="list-style-type: none"> a) using the questionnaire at Appendix C; and b) ICAO as far as possible, quality assure data supplied by States for accuracy.

Number	Title
Conclusion 12/8:	<p>Pre-Implementation Safety Case (PISC)</p> <p>That after submission of the PISC to the PMT for review and thereafter to the AFI RVSM TF, the date of submission to the ANC will be determined.</p>
Conclusion 12/9:	<p>RVSM Switch Over Plan</p> <p>That States complete their national Switch-Over Plans using the specimen at Appendix D as soon as possible but not later than 1 August 2007.</p>
Conclusion 12/10:	<p>ATS Letters of Procedure/Agreement</p> <p>That the template ATS Letter of Procedure/Agreement at Appendix E 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.</p>
Conclusion 12/11:	<p>Amendment to the Regional Supplementary Procedures – Doc 7030/4</p> <p>That the revised proposed amendments to the Regional Supplementary Procedures-Doc.7030/4 at Appendix F be processed by the secretariat in accordance with the established practice.</p>
Conclusion 12/12:	<p>Publication of AIC on GMU Height Monitoring</p> <p>That ICAO request States to publish the AIC on GMU Height Monitoring at Appendix G as soon as possible but not later than 1 August, 2007.</p>
Conclusion 12/13:	<p>Non Receipt of Flight Plans</p> <p>That:</p> <ul style="list-style-type: none"> a) the Project Management Team develop the format and contents of a survey to identify the reasons and causes for missing flight plans; and b) ICAO, using the methodology developed by the PMT and as early as possible but not later than 1 August 2007, send the survey relating to missing flight plans and propose remedial action.
Conclusion 12/14:	<p>AFI RVSM Implementation – Funding</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>

Number	Title
Conclusion 12/15:	AFI RVSM Strategy/Action Plan That the updated AFI RVSM Strategy/Action Plan at Appendix H be circulated to States for action.
Decision 12/1:	Alternative approach for the achievement of the TLS That the Task Force 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 second CRA and subsequently report it to the Task Force.

PART II: REPORT ON AGENDA ITEMS**Report on Agenda Item 1****1. Review and follow-up of action of conclusions of the Eleventh meeting of RVSM/RNAV/RNP Task Force (RVSM TF/11).**

1.1 Under this Agenda Item the meeting reviewed and noted the action taken on the conclusions of the Eleventh 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 3rd Quarter 2007. 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 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) 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. In this regard, the Secretariat was requested to finalize the amendment proposal in accordance with the established practice. The meeting was informed that in view of the on coming amendment to Annex 6 it was not appropriate to include the procedures on rate of climb in the amended Doc.7030.

Non-receipt of Flight Plans

2.3.4 The meeting also discussed the situation 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, conclusions 12/1, 12/2, 12/3, 12/4, 12/5, 12/6, 12/7, 12/8, 12/9, 12/10, 12/11, 12/12 and 12/13 were formulated and their contents are at Part 1 to this report.

Report on Agenda Item 3

3. RVSM Safety Assessment Issues

3.1 The meeting recalled that RVSM Safety Assessment, the AFI RVSM collision risk assessment (CRA) report as conducted by NLR was presented to the Task Force. The CRA concluded that AFI does not meet the target level of safety as required by ICAO for implementation. The study concluded that AFI exceeded the required TLS of 5×10^{-9} fatal accidents per flight hour by a factor of 13. The meeting was informed that the report of Second CRA had not been received from the Consultant. It was expected to be ready in August 2007. The meeting recalled the intent of Decision 11/2 relating to alternative safety assessment methodology was still valid. It was thus decided:

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 second CRA and subsequently report it to the Task Force.

AFI RVSM implementation - Funding

3.2 The meeting was informed 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 the end 2007. In this regard, the following conclusion was formulated.

Conclusion 12/14: AFI RVSM Implementation – Funding

That IATA 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 4

4. Review and update the AFI RVSM Strategy/Action Plan.

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 Furthermore, the meeting agreed that the updated AFI RVSM strategy/action plan at **Appendix H** be circulated to States for action.

4.4 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 meetings before any decision is made to implement the RVSM. In light of the discussions, the following conclusion was formulated:-

Conclusion 12/15: AFI RVSM Strategy/Action Plan

That the updated AFI RVSM Strategy/Action Plan at Appendix H be circulated to States for action.

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Douzième réunion de l'Equipe de travail sur le RVSM (TF/12)
(Dakar, 23 – 24 April 2007)

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INTERNATIONAL ORGANIZATIONS				
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82.		Mr. Auyo Ibrahim Usman	Regional Officer / ATM	B.P. 2356 – Dakar - Sénégal Tel: 221 839 93 90 Fax: 221 823 69 26 e-mail: iauyo@icao.sn

Attachment:

“Sample Aeronautical Information Circular (AIC)”

<p>Tel: Fax: Telex: AFS: E-mail:</p>	<p>REPUBLIC OF(State Name) CIVIL AVIATION AUTHORITY AERONAUTICAL INFORMATION SERVICE P.O. BOX.....(City Name)</p>	<p>AIC ...(number) ...(Date)</p>
--	--	---

FIR/Airspace : (.....)

Effective date : -----.

Type : Permanent/Temporary

Appendix – A

This AIC serves as Notice of Intent to implement RVSM in the (.....) FIR effective -----.

Reduced Vertical Separation Minimum (RVSM) is vertical separation of aircraft by 1,000 ft above FL 290. By -----, operators should have received RVSM aircraft (airworthiness) and operational approval from the appropriate State authority. Operator/aircraft approval by ----- will enable air traffic services (ATS) to plan for orderly RVSM implementation.

Starting -----, only RVSM compliant aircraft will be cleared to operate in the (.....) FIR between FL290 and FL410 (inclusive). Aircraft that are not RVSM compliant (e.g., ferry and maintenance flights) will only be cleared to operate in the (.....) FIR between FLs 290 and FL410 (inclusive) after prior co-ordination with the appropriate center. 2,000 ft vertical separation will be applied to such aircraft . (.....) center contacts will be published on websites (if established) and in follow-up NOTAMs.

RVSM will be implemented in the (.....) FIR in accordance with ICAO regional agreements. ICAO recommends that State authorities and operators use FAA Interim Guidance 91-RVSM (as amended); Joint Airworthiness Authorities (JAA) Temporary Guidance Leaflet 6 (TGL 6) or equivalent State documents as the basis for approving aircraft and operator programs for RVSM.

The AFI Region has established that the task of monitoring safety in conjunction with implementation of RVSM and RNAV/RNP in the AFI Region be assigned to the South Africa. Current information and RVSM approval documents, including revisions, can be found on the website maintained by the FAA, EUROCONTROL, SATMA, MECMA, ICAO ESAF and on individual State websites.

To access the FAA, EUROCONTROL, SATMA and MECMA RVSM websites, type :

- www.faa.gov/ats/ato/rvsm1.htm
- www.eur-rvsm.com
- www.satmasat.com
- www.mecma.com
- www.icao.int/esaf/

The RVSM Documentation section of the FAA, EUROCONTROL websites contain guidance on aircraft/operator approval. Operators must begin coordination with the appropriate State authority as soon as possible to ensure that they are approved to begin RVSM operations on -----.

Further information on the aircraft and operator approval process, policy planning and implementation issues for RVSM can be obtained from South Africa (ATNS) being responsible for setting up the AFI Regional Monitoring Agency.

APPENDIX A

1. INTRODUCTION

1.1 This AIC provides information on the plan to implement a Reduced Vertical Separation Minimum (RVSM) of 1 000 ft between FL290 and FL410 inclusive in the AFI RVSM airspace, with effect from ----- . To meet this implementation schedule, operators and their aircraft are required to participate in the RVSM height keeping performance monitoring program with RVSM MASPS compliant aircraft.

- 1.2 The intention of this Circular is to:
- a. provide a brief update on the progress of implementation planning;
 - b. re-iterate the RVSM approval requirements for operators and their aircraft;
 - c. specify the RVSM compliance deadlines in relation to the height monitoring requirements;
 - d. describe the arrangements and procedures for the height monitoring;

2. PROGRESS AFI RVSM PROGRAM

2.1 The AFI RVSM program will enable a significant increased en-route capacity, with an implementation date of ----- . It is fully supported by the participating (53) States and airspace user associations, and is progressing on schedule. The next major milestone is the height monitoring program which started in June 2004, and the readiness of operators to participate in this program is now critical to the AFI RVSM program.

2.2 ICAO still need to approve the amendment to Regional Supplementary Procedures - Doc 7030/4, AFI, Part 1 describing the area of applicability and aircraft requirements for AFI RVSM. The following paragraphs are an extract from the Doc 7030 amendment outlining the area of applicability for AFI RVSM.

[extract Doc7030]

RVSM will be applicable in that volume of airspace between FL 290 and FL 410 inclusive in the following Flight Information Regions (FIRs)/Upper Information Regions (UIRs):

Accra, Addis Ababa, Algiers, Antananarivo, Asmara, Beira, Brazzaville, Cairo, Canarias, Cape Town, Casablanca, Dakar, Dar es Salaam, Entebbe, Gaborone, Harare, Johannesburg, Kano, Khartoum, Kinshasa, Lilongwe, Luanda, Lusaka, Mauritius, Mogadishu, Nairobi, N'Djamena, Niamey, Roberts, Sal Oceanic, Seychelles, Tripoli, Tunis, Windhoek

3. AIRSPACE USER REQUIREMENTS

3.1 State authorities have already been informed about RVSM approval and monitoring requirements and time scales through relevant State Letters), AFI RVSM Seminar, AFI RVSM Task Force Meetings, local briefings, and direct contacts with the AFI RVSM Program OFFICE (ARPO). Information has also been made available on the AFI RVSM web site (www.icao.int/esaf). This AIC re-iterates the RVSM approval requirements, and refers to those requirements as specified in the proposed amendment to Doc 7030.

3.2 According to the ICAO Regional Supplementary Procedures - Doc 7030/4, AFI, Part 1, the following compliance requirements apply: *[extract Doc 7030:]*

Except for State aircraft, Operators intending to conduct flights within the volume of airspace specified in section 2.2 above where RVSM is applied, will require an RVSM Approval either from the State in which the Operator is based or from the State in which the aircraft is registered. To obtain such an RVSM approval, Operators will need to satisfy the said State:

- a) **that aircraft for which the RVSM Approval is sought have the vertical navigation performance capability required for RVSM operations through compliance with the criteria of the RVSM Minimum Aircraft Systems Performance Specifications (MASPS);**
- b) **that they have instituted procedures in respect of continued airworthiness (maintenance and repair) practices and programs; and**
- c) **that they have instituted flight crew procedures for operations in the AFI RVSM airspace specified in section 2.2.**

Note:- An RVSM approval is not restricted to a specific region. Instead, it is valid globally on the understanding that any operating procedures specific to a given region, in this case the AFI region, should be stated in the operations manual or appropriate crew guidance

3.3 Detailed technical guidance material on the airworthiness, continued airworthiness, and the operational practices and procedures for the AFI RVSM airspace is provided in the Joint Aviation Authorities Administrative and Guidance Material, Section 1: General Part 3: Temporary Guidance Leaflet No.6. (generally referred to as "JAA TGL6"). Given that the technical aircraft RVSM requirements are global requirements, also guidance developed through RVSM implementation in other regions may be consulted, such as FAA 91-RVSM.

3.4 Operators intending to operate in AFI RVSM airspace, need to meet above approval requirements by -----, to allow the required safety & feasibility assessments required for the "go-ahead" decision in -----. Aircraft intending to operate in AFI RVSM airspace need to participate in the height keeping performance monitoring program The monitoring program commenced in June 2004 and to be eligible for monitoring, above requirements a) and b) need to be met.

4. HEIGHT MONITORING

4.1 Requirement for participation in the RVSM height monitoring program.

4.1.1 The requirement for monitoring stems from the initial RVSM feasibility studies and associated guidance as developed by the ICAO RGCSF, and is specified in ICAO Doc 9574, "Manual on implementation of a 300 m (1 000 ft) Vertical Separation Minimum between FL 290 and FL 410 inclusive". As stated in this document, to support the pre-implementation safety case, the monitoring system has been designed to provide:

- i) confidence that the safety objectives will be met when RVSM is implemented;
- ii) guidance on the efficacy of the RVSM MASPS and on the effectiveness of altimetry system modifications; and
- iii) further evidence of the stability of Altimeter System Error (ASE). (ASE stability is a premise around which the monitoring system has been designed)

To meet these objectives it is necessary to obtain a sufficient set of data across the complete range of airframes and operators flying in the AFI RVSM Area.

4.1.2 In the Doc 7030 amendment the monitoring requirement is expressed as follows:

Monitoring of flight operations in the AFI RVSM airspace shall be conducted to assess the continuing compliance of aircraft with the height-keeping performance requirements.

Note: Monitoring will be conducted in accordance with the appropriate material issued by ICAO. When notified, operators will be required to cooperate in the monitoring program

4.1.3 For AFI RVSM, South Africa (ATNS) will act as "Regional Monitoring Agency" (RMA). RVSM compliance and monitoring data will be closely co-ordinated with the NAT Central Monitoring Agency (NAT CMA) and the Asia/Pacific Approvals Registration and Monitoring Organisation (APARMO), Eurocontrol and MID RMA.

4.1.4 The height monitoring data will be input to the AFI RVSM pre-implementation safety case. This safety case will be an essential element for the "go-ahead" decision in ----- . The preparation for this decision determines the monitoring and aircraft compliance time scales.

4.2 Monitoring requirements and time scales

4.2.1 The pre-implementation monitoring will take place within the existing 2000 ft VSM airspace. However, the pre-implementation safety case requires height keeping performance data which is representative for RVSM approved aircraft. Therefore aircraft can only be monitored after they have been prepared according to the RVSM MASPS airworthiness directives and are being maintained in accordance with the MASPS requirements (i.e. when complying with requirements a. and b. as quoted from Doc 7030).

Note: Aircraft which have been monitored successfully in the NAT, Europe, Middle East, Pacific RVSM and CAR/SAM monitoring programs do not need additional monitoring, and will be taken into account in determining the specific AFI RVSM monitoring requirements.

4.2.2 As referred to above, the monitoring and aircraft compliance time scales are driven by the required activities to prepare the pre-implementation safety case as input for the "go-ahead decision" in ----- . This safety case requires, amongst others, height keeping performance data which is representative for operations with RVSM approved aircraft. Consequently, the number of aircraft monitored needs to be representative for the population of aircraft which will operate in AFI RVSM airspace.

4.2.3 On 01 June 2004 the Monitoring facilities became operational and the AFI RVSM monitoring program officially commenced. The endorsed RVSM Program requires that operators intending to operate in AFI RVSM airspace are approved for RVSM operations by ----- . **Given:**

- a. the need for results of the monitoring as input to this safety case shortly after ----- , and
- b. the time which elapses between aircraft becoming eligible for monitoring and the actual monitoring, and
- c. that the capacity of the monitoring infrastructure is designed to obtain the required data over the entire pre-implementation monitoring period, and will not be able to cope with a large proportion of aircraft requiring monitoring in the last months towards ----- .

4.3 Monitoring Systems

4.3.1 The AFI RVSM monitoring system will consist of by portable GPS Monitoring Units (**GMUs**), which would collect the required of data. This systems is described briefly below.

4.3.2 The **GMU** is a portable carry-on recording system. Using antennas fitted to the rear flight deck windows it can receive and record the GPS data which, together with ground station differential corrections provides accurate 3D aircraft positions. The GMU has been produced to meet aircraft equipment standards and will be accompanied with the appropriate documentation to allow on-board carriage and use.

4.4 Organisation of Monitoring Activities

4.4.1 As previously stated, South Africa will act as "Regional Monitoring Agency" (RMA). The information which will be obtained through the monitoring program on aircraft compliance status and measured height keeping performance will be combined with the information available at the North Atlantic Central Monitoring Agency (NAT CMA), Eurocontrol, the Asia/Pacific Approvals Registration and Monitoring Organisation (APARMO) and the Middle East RMA (MECMA), so as to make full use of all available data. The RMA tasks are performed by ATNS and the GMU operators.

4.4.2 For aircraft operators, the primary contact for the AFI Monitoring Program will be the AFI RMA (ARMA). For the AFI RVSM program, the ARMA will support operators (and approval authorities) on any issue related to RVSM approval and monitoring. Further, for the monitoring program the ARMA will require information on the aircraft which are intended to operate in AFI RVSM airspace, and which therefore are required to participate in the monitoring program. To this end, the ARMA will also be in contact with State approval authorities. The ARMA is based at Johannesburg Airport (for contact details see §5).

4.4.3 The ARMA will ensure the continuous operation of the monitoring systems, and will manage the measured height keeping performance data. The ARMA will informed of any height deviations which are outside the specifications of the RVSM MASPS, which will allow the ARMA to perform follow-up activities as required. The ARMA will also ensure the availability of the measured data for the required safety assessments.

4.4.4 The portable GPS Monitoring Units (GMUs) are operated by a GMU operator contracted by ATNS. After initial agreement between ARMA and aircraft operators on the airframe(s) which are to be monitored by GMU, the aircraft operator will be contacted by the GMU operator to agree on arrangements for the monitoring flight. Based on those arrangements, the GMU operator will deal with installation and operation of the GMU on board of the aircraft.

4.5 Monitoring Procedures

4.5.1 This section describes the different steps required to fulfil the AFI RVSM monitoring requirements. The procedures have been developed with the objective to make the monitoring as transparent as possible to operators.

4.5.2 Operators will provide the State authority with data on aircraft type and series, registration number, manufacturers serial number and aircraft Mode S address code (in hexadecimal format), of all aircraft that they intend to operate in AFI RVSM airspace.

4.5.3 Operators will inspect and/or modify aircraft in accordance with the appropriate RVSM airworthiness requirements and institute procedures in respect of continued airworthiness (maintenance and repair) practices and programs (e.g. as specified in JAA TGL6) in order to prepare for their aircraft for monitoring.

4.5.4 Operators will provide the State authority with any documentation that may be required for those aircraft that have been inspected and/or modified in accordance with the RVSM airworthiness documents.

4.5.5 Operators will notify the ARMA using **ARMA Form 1** (attached) or by electronic means, of all aircraft that have been modified in accordance with the appropriate airworthiness requirements and for which procedures have been instituted in respect of continued airworthiness (maintenance and repair) practices, i.e. when the aircraft are eligible for monitoring.

Note 1: Given the monitoring program time scales it is imperative that operators notify (using the form) the ARMA as soon as possible after an aircraft has met the requirements for monitoring.

Note 2: If, for a particular airframe, the ARMA has already been informed, through a questionnaire or otherwise, that it has met the requirements to become eligible for monitoring (i.e. satisfying both items a. and b. as specified in Doc 7030,), a form for that airframe does not need to be submitted again.

4.5.6 The ARMA will ask the operator for initial agreement for a GMU monitoring flight. Based on this agreement, arrangements will be made for the GMU operator to install and operate the system on a suitable flight in the AFI airspace. The GMU operator, on behalf of ARMA, will contact the operator to agree on GMU flight details. The GMU operator will be responsible for installation of the GMU on the flight deck. Whether the GMU operator will stay with the GMU during the measurements, is subject to the agreement with the aircraft operator.

4.5.7 If aberrant or anomalous height keeping performance is measured which is deemed to require follow-up, the ARMA will contact the operator to address the issue.

4.5.11 It is important for the ARMA to have an accurate record of a point of contact for any queries that might arise from ongoing height monitoring. Operators are therefore requested to include a completed **ARMA Form 2** with their first reply to the USC. Thereafter there is no further requirement unless there has been a change to the details requested on the form.

5. RVSM APPROVAL

5.1 Meeting the pre-requisites for monitoring, i.e. satisfying the appropriate RVSM airworthiness requirements and institute procedures in respect of continued airworthiness (maintenance and repair) practices and programs, is not sufficient for RVSM approval.

5.2 To obtain RVSM approval, Operators will need to satisfy the said State that all three requirements specified in Doc 7030 have been met, i.e. the requirements which make the aircraft eligible for monitoring and that they have instituted flight crew procedures for operations in the AFI RVSM airspace.

5.3 Once the Authority is satisfied that all the steps (ref Doc 7030) have been completed satisfactorily, an RVSM approval, with notified airframes, can be granted. This will be recorded on the State Authority RVSM Approvals database and will be shared with relevant monitoring and verification agencies, in this case for AFI RVSM the ARMA.

5.4 Operators and their aircraft which are approved for RVSM in another region will be considered as approved for AFI RVSM operations, on the understanding that States have ensured that those particular operators have amended their operations manuals and training program for operations in AFI RVSM airspace;

5.5 As explained in Par 4.2.3, RVSM approval should be obtained by -----
--.

6. FURTHER INFORMATION

6.1 Information on the RVSM program is available through the Internet by addressing the AFI RVSM Web site www.icao.int/esaf. Aircraft that are successfully monitored will be promulgated via the ARMA

6.2 For exchange of data on aircraft RVSM compliance status and for any information on the AFI RVSM approval and monitoring aspects, please contact the ARMA;
ATNS, Private Bag X15
Kempton Park
1620 South Africa
Tel: [27] (11) 961-0303
Fax: [27] (11) 392-3946
email: afirma@atns.co.za

6.3 For any further information on policy, planning and implementation issues for RVSM in the AFIRVSM area, please contact the AFI RVSM Program Office,
ICAO Eastern and Southern Africa Office
United Nations Accommodation
Limuru Road,
Gigiri, Nairobi,
Kenya
tel: [254] (20) 622-378
fax: [254] (20) 623-028
email: icao@icao.unon.org

AFI REGIONAL MONITORING AGENCY (ARMA)

**ARMA forms for use in obtaining information
from a State authorities and/or Service Providers**

NOTES TO AID COMPLETION OF ARMA FORMS

1. Please read these notes before attempting to complete forms for the ARMA.
2. It is important for the ARMA to have an accurate record of a point of contact for any queries that might arise. States are therefore requested to identify their National Program Manager with their first reply to the ARMA. Thereafter, there is no further requirement unless there has been a change to the information requested on the form.
3. If recipients are unable to pass the information requested to the ARMA through the Internet, by direct electronic transfer, or by data placed on a floppy disk/CD, a hard copy must be completed.
 - (1) Enter the single letter ICAO identifier as contained in ICAO Doc 7910. In the case of their being more than one identifier designated for the State, use the letter identifier that appears first.
 - (2) Enter the operator's 3 letter ICAO identifier as contained in ICAO Doc 8585. For International General Aviation, enter "IGA". For military aircraft, enter "MIL". If none, place an X in this field and write the name of the operator/owner in the Remarks row.
 - (3) Enter the ICAO designator as contained in ICAO Doc 8643, e.g., for Airbus A320-211, enter A320; for Boeing B747-438 enter B744.
 - (4) Enter series of aircraft type or manufacturer's customer designation, e.g., for Airbus A320-211, enter 211; for Boeing B747-438, enter 400 or 438.
 - (5) Enter ICAO allocated Aircraft Mode S address code.
 - (6) Date example: For October 26, 1998 write 10/26/98.
 - (7) Use a separate sheet of paper if insufficient space available.

AFI REGIONAL MONITORING AGENCY (ARMA)POINT OF CONTACT DETAILS/CHANGE OF POINT OF CONTACT DETAILS FOR MATTERS
RELATING TO RVSM APPROVALS

This form should be completed and returned to the address below on the first reply to the ARMA or when there is a change to any of the details requested on the form (PLEASE USE BLOCK CAPITALS).

STATE OF REGISTRY: enter State here

STATE OF REGISTRY (ICAO 2 LETTER IDENTIFIER): enter 2 letter State here

Enter the 2-letter ICAO identifier as contained in ICAO Doc 7910. In the event that there is more than one identifier for the same State, the one that appears first in the list should be used.

ADDRESS:

CONTACT PERSON:

Full Name: enter full name here

Title:

Surname:

Initials:

Post/Position:

Telephone #:

Fax #:

E-mail:

Initial Reply/Change of Details (*Delete as appropriate*)

When complete, please return to the following address:

RMA Address: Mr Kevin Ewels, Manager: ARMA Private Bag X1, Bonaero Park South Africa 1622

Telephone: 27-11- 928-6433

Fax: 27-11- 928-6420

E-Mail: afirma@atns.co.za

AFI REGIONAL MONITORING AGENCY (ARMA)

HEIGHT DEVIATIONS

(Form 1)

STATE:		ACC:		MONTH:	
State of Registry					
Flight Identification					
Operator					
State of Operator					
Aircraft Type and Series					
Registration					
Serial Number					
Mode S Address					
Total height deviation					
Total time of deviation					
Cause of Deviation ¹					
Date and Time of Measurement		Assigned Flight Level	Observed Flight Level	Air route	Geographical Location
Provide description of incident including total height profile if available					
¹ Include Number from List Below 1. Error in altimetry or altitude-keeping system of an aircraft 2. Turbulence or weather related phenomena 3. Emergency descent by aircraft without crew following established contingency procedures 4. Response to Airborne Collision Avoidance System (ACAS) advisories 5. Error in following a correctly issued ATC clearance, resulting in flight at an incorrect flight level 6. Error in issuing an ATC clearance, resulting in flight at an incorrect flight level 7. Errors in coordination or transfer of control responsibility for an aircraft between adjacent ATC units, resulting in flight at an incorrect flight level 8. Other reason, include reason in Description of incident.					
NOTE: Complete with available information					

<u>AFI REGIONAL MONITORING AGENCY (ARMA)</u>		
<i>MONTHLY MOVEMENTS</i>		<i>(FORM 2)</i>
STATE:	ACC:	MONTH:
TOTAL IFR MOVEMENTS FOR THE MONTH:		
<i>TOTAL MONTHLY IFR MOVEMENTS IN THE BAND F290 – F410</i>		
AVERAGE TIME PER MOVEMENT IN LEVEL BAND F290 – F410		
	<i>LEVEL FLIGHT</i>	
	<i>CLIMBING AND DESCENDING</i>	

AFI REGIONAL MONITORING AGENCY (ARMA)

OTHER OPERATIONAL CONSIDERATIONS					(Form 3)
STATE:		ACC:		MONTH:	
COORDINATION FAILURES					
		NUMBER OF EVENTS IN MONTH			
COMMUNICATION FAILURE					
DATE	TIME	DURATION		CAUSE OF COMMUNICATION FAILURE	
		TOTAL TIME FOR MONTH			
TURBULENCE					
DATE	TIME	DURATION	MAGNITUDE ¹	LOCATION	
¹ Magnitude as measured from Meteorology Turbulence Scale					
ACAS INCIDENTS					
Date	Time	Description of ACAS Incident			

AFI REGIONAL MONITORING AGENCY (ARMA)

AIRCRAFT TRAFFIC FLOW DATA										(Form 4) *Revised by RVSM/TF/6 May 2005
STATE:			ACC:				MONTH:			
Please include information on all flights within the flight level band F290 – F410 (inbound, outbound and over flights)										
DATE	ROUTE	CALLSIGN	AIRCRAFT TYPE	OPERATOR	DEPARTURE AERODROME	DESTINATION AERODROME	NAV EQUIPMENT	WAYPOINT/ REPORTING POINT	TIME AT WAYPOINT/ REPORTING POINT	FLIGHT LEVEL
01-01-2005	UR978	AFR827	A319	AFR	FCPP	LFPG		ERKEL	00:24	350
								KAMER	03:02	350
								ATAFA	01:04	350
								BOD	01:21	350
								ELO	02:11	350
								NADJI	02:21	350
01-01-2005	UR978	KQA310	B744	KQA	HKJK	VABB		ERKEL	00:59	370

Note: Please include all waypoints/reporting points, times and FL for the entire route per FIR

AFI REGIONAL MONITORING AGENCY (ARMA)

AIRCRAFT TRAFFIC FLOW DATA

(Form 4)
*Revised by
RVSM/TF/6 May 2005

STATE:

ACC:

MONTH:

Please include information on all flights within the flight level band F290 – F410 (inbound, outbound and over flights)

DATE	ROUTE	CALLSIGN	AIRCRAFT TYPE	OPERATOR	DEPARTURE AERODROME	DESTINATION AERODROME	NAV EQUIPMENT	WAYPOINT/ REPORTING POINT	TIME AT WAYPOINT/ REPORTING POINT	FLIGHT LEVEL

Note: Please include all waypoints/reporting points, times and FL for the entire route per FIR

-END-

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
Algeria	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Angola	Y	Y		Y	Y			Y				Y			Y
Benin	Y	Y		Y		Y		Y				Y	Y	Y	Y
Botswana	Y	Y	Y	Y	Y	Y	Y	Y		Y		Y		Y	Y
Burkina Faso	Y	Y	Y	Y		Y		Y				Y		Y	Y
Burundi	Y	Y	Y	Y			Y	Y		Y	Y	Y			Y
Cameroon	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y
Cape Verde	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y
Central African Republic		Y				Y		Y							Y
Chad	Y	Y		Y				Y		Y	Y	Y			
Congo	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y
Comores	Y	Y	Y	Y		Y						Y			
Cote d'Ivoire	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y
DRC	Y	Y	Y	Y									Y		
Djibouti	Y	Y	Y	Y								Y			
Egypt	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y
Ethiopia	Y	Y	Y	Y	Y	Y	N/A	Y	N/A	Y	Y	Y			Y
			Pending Doc-7030												Y
Eritrea	Y	Y		Y	Y	Y	Y	Y	Y	Nil	Y	Y			
Equatorial Guinea	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y
Gabon	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y
Gambia						N/A	N/A	N/A	Y	Y		N/A	N/A	N/A	N/A
Ghana	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Guinea	Y	Y	Y	Y	Y	Y	N/A	Y	N/A	N/A		Y	Y	N/A	Y
Guinea Bissau	Y	Y	Y	Y	Y	Y	Y	Y		Y		Y			Y

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	
Kenya	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	
Lesotho	Y	Y	Y	Y	Y		N/A	Y	N/A	Y		Y		N/A		
Liberia	Y	Y	Y	Y	Y	Y	N/A	Y	N/A	N/A		Y	Y	N/A	Y	
Libya	Y	Y		Y												
Madagascar	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y			Y	
Mali	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	
Malawi	Y	Y	Y	Y	Y	Y	Y	Y			In draft	Y	Y	Y	Y	
Mauritania	Y	Y	Y	Y	Y	Y	Y	Y	Y			Y		Y	Y	
Mauritius	Y	Y	Y	Y	Y	Y	Y	July 2006	Y	Y	Y	Y			Y	
Morocco	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	
Mozambique	Y	Y	Y	Y	Y	Y		Y				Y			Y	
Namibia	Y	Y	Y	Y	Y		Y	Y				Y			Y	
Niger	Y	Y	Y	Y	Y	Y	Y	Y			Y	Y		Y	Y	
Nigeria	Y	Y	Y	Y	Y	Y	Y	Y			Y	Y	Y	Y	Y	
Réunion	Y	Y	Y	Y		Y					Y	Y			Y	
Rwanda	Y	Y	Y	Y				Y	Y	Y				Y	Y	
Sao Tome and Principe	Y	Y	Y	Y	Y	Y	Y	Y				Y			Y	
Senegal	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	
Seychelles	Y	Y	Y	Y	Y	Y		Y				Y		N/A	Y	
Sierra Leone	Y	Y	Y	Y	Y	Y	N/A	Y	N/A	N/A		Y	Y	N/A	Y	
Somalia (CACAS)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N/A	Y		N/A	Y	
South Africa	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	
Sudan	Y	Y		Y	Y	Y	Y	Y		Y	Y	Y		Y	Y	
Swaziland	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	
Tanzania	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y			Y	

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
Tunisia	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y
Togo	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y
Uganda	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
Zimbabwe	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y

AFI RVSM SWITCH - OVER PLAN

T -24 ToS T+24

May 2007

AFI RVSM SWITCHOVER PLAN

EXECUTIVE SUMMARY

The AFI RVSM 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 BETWEEN

..... AREA CONTROL CENTRE ANDAREA 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. 7333) 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
-----------	--------------------	-----------

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
-----------	--------------------	-----------

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, or bearing a distance from a VOR/DME)
b)	(or bearing a 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.....

Place.....

Date.....

ATTACHMENT

PROPOSAL FOR AMENDMENT TO THE
REGIONAL SUPPLEMENTARY PROCEDURES – DOC.7030/4
AFRICAN INDIAN OCEAN (AFI) REGION

(Serial No. ESAF-S 06/03 – AFI RAC/1)

- a) **Proposed by:**
AFI Planning and Implementation Regional Group (APIRG).
- b) **Proposed amendment:** (*cf. Regional Supplementary Procedures, Doc.7030/4 – AFI, Part 1, Rules of the Air, Air Traffic Services and Search and Rescue, incorporating Amendment No. 212*)

Amend the SUPPs in the AFI Region as follows:

AFI REGIONAL SUPPLEMENTARY PROCEDURES

PART 1 — RULES OF THE AIR, AIR TRAFFIC SERVICES AND SEARCH AND RESCUE

These procedures are supplementary to the provisions contained in Annex 2, Annex 6 (Parts I & II), Annex 11, PANS-ATM (Doc.4444) and PANS-OPS (Doc.8168).

...

2.0 FLIGHT PLANS

.....

2.3 RVSM approval status and aircraft registration

2.3.1 Item 10 of the flight plan (Equipment) shall be annotated with the letter W in field 10 of the ICAO flight plan if the aircraft and operator have received RVSM State approval or Item Q of the RPL, regardless of the requested flight level. Furthermore, the aircraft registration shall be indicated in Item 18 of the flight plan.

2.4 Flight Planning for non-RVSM approved aircraft

2.4.1 Operators of non-RVSM approved State aircraft with a requested flight level of FL 290 or above shall insert STS/NON RVSM in Item 18 of the ICAO flight plan form.

Note.— Non-RVSM aircraft intending to operate above FL 410 will need to flight plan in accordance with RVSM procedures of neighbouring regions should the flight commence or terminate in those regions.

5.0 AIR TRAFFIC CONTROL CLEARANCES

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5.2 Clearance into AFI RVSM airspace

5.2.1 Only RVSM approved aircraft shall be issued an air traffic control clearance to join and operate within the AFI RVSM airspace. Non-RVSM approved State aircraft shall, subject to ATM capacity, be issued a clearance to operate within the AFI RVSM airspace

5.2.2 Non-RVSM approved aircraft intending to operate above FL 410 will be required to be able to execute an uninterrupted climb or descend through the AFI RVSM airspace. Such flights shall be given appropriate ATC clearances, which will be subject to traffic levels at the time of clearance is requested.

5.2.3 Air traffic control clearance into AFI RVSM airspace shall not be issued to formation flights.

6.0 SEPARATION OF AIRCRAFT

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6.3 Vertical separation

A minimum vertical separation of 300 m (1000 ft) between RVSM approved aircraft shall be applied between FL 290 and FL 410 inclusive in Accra, Addis Ababa, Algiers, Antananarivo, Asmara, Beira, Brazzaville, Cairo, Canarias, Cape Town, Casablanca, Dakar, Dakar Oceanic, Dar es Salaam, Entebbe, Gaborone, Harare, Johannesburg, Johannesburg Oceanic, Kano, Khartoum, Kinshasa, Lilongwe, Luanda, Lusaka, Mauritius, Mogadishu, Nairobi, N'Djamena, Niamey, Roberts, Sal Oceanic, Seychelles, Tripoli, Tunis and Windhoek flight information regions (FIRs).

A minimum vertical separation of 600 m (2000 ft) shall be applied between non-RVSM approved State aircraft and any other aircraft operating within the AFI RVSM airspace in accordance with FLAS.

6.3.1 Target level of safety (TLS)

Application of RVSM in the airspace designated in 6.3 should meet a TLS of 5×10^{-9} fatal accidents per aircraft flight hour due to all causes of risk in the vertical dimension.

6.3.2 Operator Procedures

Operators should specify procedures by which an aeroplane climbing or descending to an assigned altitude or flight level, especially with an autopilot engaged, may do so at rate less than 8 m/sec (1500 ft. min) throughout the last 300 m (1000 ft) of climb or descent to the assigned level when the pilot is made aware of another aircraft at an adjacent altitude or flight level by an airborne traffic display.

Note.— These procedures are intended to avoid unnecessary airborne collision avoidance system (ACAS II) resolution advisories in aircraft at adjacent levels.

c) Proposer's reason for amendment:

Implementation of Reduced Vertical Separation Minimum (RVSM) in the AFI Region. The reduction in vertical separation will improve the provision of air traffic services in the areas concerned and is in line with the implementation strategy adopted in the AFI CNS/ATM implementation plan. This will improve ATC efficiency and airspace capacity.

d) Proposed implementation date of the amendment:

Upon approval by Council.

e) Proposal has been circulated to the following States and International Organizations:

Afghanistan	Cape Verde	Ethiopia	Japan
Algeria	Central African Republic	Finland	Jordan
Angola	Chad	France	Kenya
Argentina	Chile	Gabon	Kuwait
Armenia	China	Gambia	Lebanon
Australia	Colombia	Germany	Lesotho
Austria	Congo	Ghana	Libyan Arab Jamahiriya
Bahrain	Comoros	Greece	Liberia
Bangladesh	Cote d'Ivoire	Guinea	Luxembourg
Belarus	Croatia	Guinea Bissau	Madagascar
Belgium	Cuba	Hungary	Malawi
Benin	Cyprus	Iceland	Malaysia
Bosnia and Herzegovina	Czech Republic	India	Maldives
Botswana	Democratic Republic of Congo	Indonesia	Mali
Brazil	Democratic Peoples' Republic of Korea	Iran, Islamic Republic of	Malta
Bulgaria	Denmark	Iraq	Mauritania
Burkina Faso	Rwanda	Switzerland	United States
Burundi	Russian Federation	Syrian Arab Republic	Uruguay
Cameroon	Sao Tome and Principe	Sri Lanka	Viet Nam
Canada	Saudi Arabia	Sudan	Yemen

Namibia	Senegal	Swaziland	Zambia
Netherlands	Seychelles	Thailand	Zimbabwe
New Zealand	Sierra Leone	The former Yugoslav Republic of Macedonia	Mauritius
Niger	Singapore	Togo	Mexico
Nigeria	Slovakia	Tunisia	Morocco
Norway	Slovenia	Turkey	Mozambique
Oman	Somalia	Ireland	ASECNA
Pakistan	South Africa	Israel	IATA
Philippines	Spain	Italy	IFALPA
Poland	Djibouti	Jamaica	IFATCA
Portugal	Egypt	Uganda	
Qatar	Equatorial Guinea	United Arab Emirates	
Republic of Korea	Eritrea	United Kingdom	
Romania	Sweden	United Republic of Tanzania	

f) Secretariat comments

- 1) This amendment proposal has been developed within the framework of the APIRG/12, 13 and 14 Meetings Conclusions/Decisions 12/66, 13/58 and 14/21 respectively concerning the planning and evolutionary implementation of RVSM in the AFI Region.
 - 2) Implementation of RVSM in the AFI Region would enable aircraft operating in the AFI RVSM airspace to continue under RVSM in EUR/NAT, MID/ASIA, CAR/SAM and ASIA/PAC RVSM airspaces, thereby enhancing the efficiency of seamless flight operations.
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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
- If unsure of the process make contact with the ARMA on email address 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.

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

MAY 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 In progress	ICAO ICAO ICAO	Expected approval May 2007
9	States comments on RVSM implementation Strategy/Action Plan	31/-3/04	Completed		
10	Regional RVSM informational Website	31/03/04	Completed		www.icao.int/esaf/RVSM
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	In Progress	In Progress	ICAO and AFI RMA	Continuous contact
14	States to send AIC to notify their intention to Implementation of RVSM	Oct 05	In Progress	ICAO/States	Continuous
15	Determine target AIRAC implementation date (AIP Supplement to be published)	TBD	In progress	ICAO/States	Reviewed every TF meeting
16	Regional RVSM implementation status reports	In Progress	In Progress	ICAO	Monthly Report to website
17	State Readiness Assessment,	October 2006	In Progress	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	In Progress	States	SWOP sent to States

AFI RVSM IMPLEMENTATION STRATEGY/ACTION PLAN

ID	Description	Target Date	Status	Resources	Remarks
26	RVSM Task Force 11 Meeting	30/11-1/12/06	Completed	All	Nairobi
Aircraft Operations and Airworthiness					
27	Regional OPS/Airworthiness RVSM Guidance	21/11/03	Completed		
28	Develop regional Pilot Training RVSM Guidance Material	30/04/04	Completed	IATA	Sent to Operators for action May 2004.
29	Provide pilot training RVSM guidance material to specific States	30 July 06	Completed		Sent to States
30	Aircraft Operational approval process guidelines	31/05/04	Completed		Sent to States
31	Aircraft RVSM Approval Survey	In progress	In progress	ICAO/States	Continuous and updated at every TF meeting
32	Ensure aircraft/operator approval process	In progress	In progress	ICAO/ARMA	Updated at every TF meeting
33	Ops/Airworthiness seminar	Nov 06	In progress	ICAO	Seminar to be coordinated with ICAO
Air Traffic Management					
34	National RVSM plan	31/03/04	On-going	States, ICAO	11 States have sign by August 2007. 2006.
35	National Safety Plan Validation Panel	March 06	Completed	NSPVP	Future validations ICAO/ARMA
36	APIRG/15 Consideration of TF Reports	25-30-9-05	Completed		
37	Regional ATC OPS Manual	Apr 06	Completed	States	States to incorporate in National documentation
38	Determine the limits of RVSM airspace	30/06/04	Completed	States/ICAO	
39	Regional ATC Training Program & Guidance Material	July 06	Completed	ASECNA/ATNS	Training institutions to incorporate elements highlighted by PISC

AFI RVSM IMPLEMENTATION STRATEGY/ACTION PLAN

ID	Description	Target Date	Status	Resources	Remarks
40	Letters of Agreement/Procedure (LOA/LOP)	3 months before Time of switch over	In progress	States	States to incorporate RVSM procedures.
41	Civil/Military coordination	Continuous	In progress	States	In National RVSM Plan
42	National RVSM Regulatory Material	October 06	In progress	States	States to publish
43	Collect weather and turbulence data for analysis	On Going	In progress	ARMA ICAO/States	ARMA to Collate
RVSM Safety Assurance					
44	State Implementation of CNS infrastructure to support provision of ATC Service in the AFI RVSM airspace	Sept. 2006	In progress	States of Angola, DRC and Sudan	Reviewed at every TF meeting
45	Provision of ATC Service in the AFI RVSM Airspace	October 2006	In progress	All States	Reviewed at every TF meeting
46	Conduct data collection and compile readiness assessment	In progress	In progress	ARMA/States	States to continue supplying data as required by ARMA to support Safety Assessments
47	Develop AFI RVSM Safety Policy	30/06/04	Completed	States	States to ensure publication
48	a) Submit final NSP's after validation comments have being taken into account	October 06	Completed	States	11 States not finalized their NSP expected in August 2007
	b) Conduct NSP workshops facilitated by ATC experts	July 05	Completed		

AFI RVSM IMPLEMENTATION STRATEGY/ACTION PLAN

ID	Description	Target Date	Status	Resources	Remarks
	c) Once NSP's are implemented, DCA's to confirm State readiness to Implement RVSM in writing	Subject to State implementation status	In progress	States	Reviewed at every TF meeting.
	d) Update State readiness document	October 06	In progress	ICAO	TF/11 to review progress
49	RVSM Functional Hazard Assessment (FHA)	4-8/04/05	Completed		
50	Validate Functional Hazard Assessment	31/05/05	Completed		
51	RVSM Collision Risk Assessment II	Oct 06	In progress	ARMA/ICAO/IA TA/Consultants	CRA II expected in August 2007
52	Validate Collision Risk Assessment	TBD	To Be Advised (TBA)	Core Team	
53	AFI Pre-Implementation Safety Case Development	TBD	In Progress	ARMA/ICAO/IA TA/Consultants	To be reviewed at TF/13 in September 2007
54	AFI Pre-Implementation Safety Case: APIRG/ANC	TBD	In Progress		PISC approval and Doc7030 by ANC
55	RVSM Implementation date	TBD	TBA		To be determined at TF/13 after consideration of completion strategy/action Plan activities and activity No.54
56	Improved incident reporting and investigation to reduce incident rates to support positive CRA results	With Immediate Effect	In progress	States	States to provide record of incidents and remedial action for Safety Assessments

AFI RVSM IMPLEMENTATION STRATEGY/ACTION PLAN

ID	Description	Target Date	Status	Resources	Remarks
Monitoring Agency					
57	Evaluate options for setting up AFI RMA	21/11/03	Completed		
58	Identify an AFI RMA	21/11/03	Completed		
59	Establish an AFI RMA.	31/03/04	Completed		
60	Validate State readiness template	15/11/04	Completed		
Post Implementation Safety Case (POSC)					
61	Data collection to continue for submission to ARMA	Monthly	In Progress	States	Data Collection to Continue after implementation
62	Evaluate system safety after implementation	6, 12 and 24 months	TBA	ARMA/ICAO	Compliance with AFI policy
63	Monitor system safety in adjacent Regions	Continuous	In Progress	ARMA/ICAO	
