

INTERNATIONAL CIVIL AVIATION ORGANIZATION



RVSM/RNAV/RNP TF/8 MEETING REPORT

(LAGOS, 11 – 13 OCTOBER 2005)

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.

(i)

Table of Contents

	Page
PART I - HISTORY OF THE MEETING.....	1
Introduction.....	1
Officers and Secretariat.....	1
Attendance	1
Working Language.....	1
Agenda	2
Conclusions.....	3

PART II REPORT ON AGENDA ITEMS (1-4)

APPENDICES

Appendix A:	List of Participants
Appendix B:	Revised Safety Policy
Appendix C:	RVSM Readiness Survey
Appendix D:	AFI Switch Over Plan from CVSM to RVSM
Appendix E:	NSPVP Comments and Guidance Material
Appendix F:	Draft LOAs/LOPs
Appendix G:	Revised Doc.7030
Appendix H:	AFI Strategy/Action Plan

PART I - HISTORY OF THE MEETING

1. Introduction

1.1 The Eighth meeting of the RVSM/RNAV/RNP Task Force (RVSM/RNAV/RNP TF/8) 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 Lagos from **11 to 13 October 2005**.

1.2 The reduced vertical separation minima seminar and Task Force 8 meeting was opened by the representative of the Honourable Minister of Aviation, Eng. S OZOKA, Director of Accident Investigation and Prevention in the Ministry. The hosting of this important seminar and TF/8 meeting is in accord with the policy of the Government of Nigeria of building a safe, secure, orderly and efficient aviation industry and is user-friendly. The minister informed the participants of the enormous action being taken by the Government in addressing the major problems hindering the progress of the industry in Nigeria. Projects like the Total Radar Coverage of Nigeria (TRACON) will contribute to the process. He emphasized that as the purpose of the implementation of RVSM is to increase airspace capacity without compromising air navigation safety, the Nigerian Government assured her support to the meeting in the arduous task of developing the strategies that would actualize the implementation of RVSM by the year 2006. He wished the members fruitful deliberations with a view to further enhance the safety of air navigation in the Region. The ICAO Regional representative stressed the importance of the implementation of RVSM in the AFI airspace in order to enhance capacity, safety and economically efficient operations as well as contribute to the Global CNS/ATM plan.

2. Officers and Secretariat

2.1 The meeting nominated Rasaki ABDURRAHEEM, General Manager: ATS NAMA Quality Assurance as its moderator.

2.2 Mr. Apolo KHARUGA, Regional Officer, Air Traffic Management from the ICAO ESAF Office, Nairobi, acted as the Secretary of the meeting. He was assisted by Mr. Ibrahim Usman AUYO, Regional Officer ATM, WACAF Office, Dakar and Mr. Kevin EWELS, Manager of the AFI RVSM Monitoring Agency (ARMA).

3. Attendance

3.1 The meeting/seminar was attended by **35** participants from **13** States and **2** International Organizations namely IFALPA and IFATCA. 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.

5. AGENDA

5.1 The following Agenda was adopted :

Agenda Item 1

Review and follow-up action of conclusions of Seventh meeting of RVSM/RNAV/RNP Task Force, ATSG/8 and APIRG/15.

Agenda Item 2

Review of major activities of the RVSM Task Force

- 2.1 RVSM State Readiness Survey.
- 2.2 Fourth Aircraft Readiness Survey by ARMA.
- 2.3 Consideration of the Report by the NSP Validation Panel.
- 2.4 Progress reports on the PISC, CRA, and the NSPs.
- 2.5 Review of ATS Letters of Procedures.
- 2.6 Review of amendment proposal to Doc.7030.
- 2.7 Update of AFI RVSM Safety Policy document.
- 2.8 Update of AFI RMA manual.
- 2.9 AFI Switch Over Plan from CVSM to RVSM.
- 2.10 Review of ARMA Safety Assessment Forms
- 2.11 ARMA Status Report.

Agenda Item 3

Review and update the RVSM Strategy/Action Plan.

Agenda Item 4

Any Other Business.

6. List of Draft Conclusions

Number	Title
Conclusion 8/1:	<p>Safety assessment data, remedial actions and target date for AFI RVSM Implementation</p> <p>That:</p> <ul style="list-style-type: none"> 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; b) States intensify their efforts in reducing the incident rates to support a positive CRA results; c) States provide refresher training to Controllers and ensure that proficiency checks for ATCO's are done; d) States continue to provide the required safety assessment data to ARMA on monthly basis using Forms 1, 2, 3 and the revised Form 4; e) The actual date/time of implementation of RVSM will be determined taking into account: <ul style="list-style-type: none"> i) the completion of the activities in the AFI Strategy/Action Plan; ii) The development of an acceptable PISC and its subsequent approval by the ANC; iii) The approval by ANC of ICAO AFI RVSM Regional SUPPs (Doc.7030/4) relating to RVSM; and f) The target date for implementation of RVSM in the AFI Region will be AIRAC date 28 September 2006.
Conclusion 8/2:	<p>Civil/Military Coordination</p> <p>That, in order to ensure the safe and coordinated implementation of RVSM in the AFI Region, States ensure that the military aviation authorities are fully involved in the planning and the implementation process.</p>
Conclusion 8/3:	<p>Nomination of a National RVSM programme manager</p> <p>That States which have not done so, as a matter of urgency, nominate, a National RVSM Programme Manager who will be responsible for ensuring that the proper mechanisms are put in place for the safe implementation of the RVSM Programme and will also act as the focal point or contact person. Additionally NPMs keep this information up to date.</p>

Number	Title
Conclusion 8/4:	<p>Reporting of data for monitoring and/or carrying out safety assessment</p> <p>That:</p> <ul style="list-style-type: none"> 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"> (i) Height deviations of 300 ft or more; (ii) Total number of IFR movements for each month; (iii) The average time per movement spent in the level band FL 290 to FL 410; (iv) ATC coordination failures; (v) Turbulence; (vi) Traffic data; and b) GPS Monitoring Unit (GMU) will be used as well as Height Monitoring Unit (HMU) (multilateration) where appropriate for height monitoring in AFI Region which will be coordinated by the ARMA.
Conclusion 8/5:	<p>Implementation of RVSM in the AFI Region</p> <p>That:</p> <ul style="list-style-type: none"> a) All RVSM implementation preparation works (safety, assessment, training) be done taking into consideration the FL band 290 and 410 inclusive, being the AFI RVSM airspace; and b) Implementation of RVSM in the AFI Region be harmonized and coordinated within the AFI Region as well as with the adjacent Regions.
Conclusion 8/6:	<p>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 continue to be organized in the Region for training all personnel involved in the implementation of RVSM; b) States having difficulties in implementing RVSM implementation programme, may either individually or in group explore the possibility of seeking outside expertise; c) On site training courses be conducted to expedite the training process; and d) Inorder to ensure uniformity in the training, States shall use the AFI RVSM training material.

Number	Title
Conclusion 8/7:	<p>Guidance material for Airworthiness and Operational Approval</p> <p>That, States in the AFI Region be urged to include in their national legislation and regulations the Airworthiness and Operational Approval process for aircraft and operators intending to operate within the RVSM airspace based on provisions of ICAO Annex 6 Part 1 Chapt 15 para. 15.2.3 and the guidance material contained in JAA Temporary Guidance Leaflet (TGL) N°6.</p>
Conclusion 8/8:	<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 informing the users of their intention to implement RVSM; and b) to include the necessary provisions in their national legislation.
Conclusion 8/9:	<p>Funding of the RVSM implementation programme</p> <p>That, National Governments, Regulatory bodies, operators, service providers and other stakeholders be granted budgetary allocations for acquisitions and other activities necessary for ensuring that all the requirements are met in a timely manner in order to safely implement RVSM in the AFI Region.</p>
Conclusion 8/10:	<p>Monitoring of Height Deviations</p> <p>That:</p> <ul style="list-style-type: none"> a) States which have radar established at the ACC a unit to conduct monitoring of aircraft height deviations, Assigned Altitude Deviations (AAD) in the AFI RVSM airspace; and b) The data collected in a) above be forwarded to ARMA for action.
Conclusion 8/11:	<p>Revised AFI RVSM Safety Policy</p> <p>That States expedite the publication of the revised version of the AFI RVSM Safety Policy in an AIC as amended at the Task Force 8 meeting in Lagos Nigeria at Appendix B to this report.</p>

Number	Title
Conclusion 8/12:	<p>National Safety Plan (NSP)</p> <p>That:</p> <ul style="list-style-type: none"> a) the States of Burundi, Cape Verde, Djibouti, Lesotho, Libyan Arab Jamahiriya, Morocco, La Réunion (France) and Swaziland submit to ARPO their National Safety Plans as soon as possible but not later than 30 November 2005; and b) States which have submitted their NSPs to the NSP Validation Panel send to ARPO their revised NSPs for validation, taking into consideration the comments from the NSP Validation Panel, as soon as possible but not later than 30 November 2005.
Conclusion 8/13:	<p>State RVSM Readiness Assessment</p> <p>That:</p> <ul style="list-style-type: none"> a) That ICAO urge the States which have not done so, to provide their State RVSM readiness assessment to ARPO, as soon as possible however not later than 31 December 2005, using the questionnaire at Appendix C; and b) That ICAO urge the States to update “the State RVSM Readiness survey”.
Conclusion 8/14:	<p>Pre-Implementation Safety Case (PISC)</p> <p>That the date of submission of PISC to the ANC will be determined by the Task Force.</p>
Conclusion 8/15:	<p>AFI RVSM Programme Office (ARPO)</p> <p>That the AFI RVSM Programme Office (ARPO) is located at the ICAO ESAF Office and coordinates the activities relating to RVSM implementation (ICAO website: www.icao.int/ESAF/RVSM).</p>
Conclusion 8/16:	<p>Adoption of the FHA Final Report</p> <p>That the results of the AFI RVSM Functional Hazard Assessment of the AFI RVSM Implementation in the AFI Region at Appendix G (ICAO website: www.icao.int/ESAF/RVSM) will be used for the development of NSPs and PISC.</p>

Number	Title
Conclusion 8/17:	<p data-bbox="549 239 911 275">AFI RVSM Core Airspace</p> <ul style="list-style-type: none"> <li data-bbox="549 309 1461 495">a) That for Req_{core}_12 (refer AFI FHA report at Appendix G (ICAO website: www.icao.int/ESAF/RVSM) “Air/Ground Communication system shall be designed to ensure a total coverage of the RVSM Airspace with a minimum MTBF (Mean Time Between Failure) of two months for a given FIR”; and <li data-bbox="549 528 1461 633">b) That for Req_{core}_88 (refer to FHA report at Appendix G (ICAO website: www.icao.int/ESAF/RVSM) “Aircraft shall be equipped with ACAS II version 7”.
Conclusion 8/18:	<p data-bbox="549 710 994 745">AFI RVSM Switch-Over Period</p> <ul style="list-style-type: none"> <li data-bbox="549 779 1461 927">a) That for _{swit}_24 (refer AFI FHA report at Appendix G (ICAO website: www.icao.int/ESAF/RVSM) “Use of Eastbound RVSM FL (F1310, FL350 and FL390) shall be suspended for a period of Two (2) hours after the Time Zero (To)”; <li data-bbox="549 936 1461 1041">b) That for _{swit}_40 (refer AFI FHA report at Appendix G (ICAO website: www.icao.int/ESAF/RVSM) “Traffic density shall be limited during switch-over period as appropriate”; <li data-bbox="549 1050 1461 1155">c) A Trigger NOTAM shall be published Two (2) weeks before Time Zero (To) notifying the implementation of RVSM and relevant procedures to be applied; <li data-bbox="549 1164 1461 1312">d) That for _{swit}_25 (refer AFI FHA report at Appendix G (ICAO website: www.icao.int/ESAF/RVSM) “A NOTAM shall be published to suspend FL310, FL350 and FL390 for RVSM operations after ToS during a period of Two hours”; <li data-bbox="549 1321 1461 1449">e) That for _{swit}_35 (refer AFI FHA report at Appendix G (ICAO website: www.icao.int/ESAF/RVSM) “Transit of non-RVSM civil aircraft shall be suspended for a period of Two hours after Time Zero (To)”; <li data-bbox="549 1458 1461 1606">f) That for _{swit}_36 (refer AFI FHA report at Appendix G (ICAO website: www.icao.int/ESAF/RVSM) “Operation above FL410 shall be suspended for non-RVSM aircraft for a period of Two (2) hours after Time Zero (To)”.
Conclusion 8/19:	<p data-bbox="504 1628 1238 1664">Sharing RVSM Readiness Programs and Experience</p> <p data-bbox="504 1697 1461 1845">That, ICAO explore further means of encouraging States to share their readiness programmes, experience, and available expertise/resources between themselves for a safe and economic implementation of RVSM in AFI Region.</p>

Number	Title
Conclusion 8/20:	<p>Regional Airworthiness Certification and Certification Agency for RVSM Operation</p> <p>That:</p> <ul style="list-style-type: none"> a) States having difficulties with the implementation of operational airworthiness certification on the RVSM implementation should seek assistance from other States having this expertise; b) Seminars/Workshops be conducted for airworthiness/operations personnel on issues relating to RVSM certification; and c) Studies be conducted by IATA in cooperation with ICAO relating to the establishment of RVSM Certification Agencies for the AFI Region and results forwarded to the Task Force for their consideration.
Conclusion 8/21:	<p>AFI RVSM Implementation – Cost recovery</p> <p>That:</p> <ul style="list-style-type: none"> a) IATA airlines continue to financially support the RVSM implementation effort in order to improve safety and economy of Air Traffic across Africa; b) IATA puts in place an RVSM cost recovery scheme based on a charge imposed on all international jet flights in Africa operated by its member airlines; and c) IATA to report to RVSM Task Force with the results of the study.
Conclusion 8/22:	<p>RVSM Optimal Switch Over Time</p> <p>That:</p> <ul style="list-style-type: none"> a) The TF Secretariat Support Team composed of Nigeria, South Africa, Tanzania, ASECNA and IATA coordinate and research all the associated elements, including weather and human factors, that will have an effect on the switch over; and b) Considering the switch-over period remains one of the most critical in the management of the implementation of RVSM, RVSM Task Force consider the switch-over Plan at Appendix D be amended by the Task Force and distributed to States.
Conclusion 8/23:	<p>The National Safety Plan Validation Panel (NSPVP) comments and Guidance material</p> <p>That, the comments of the National Safety Plan Validation Panel and Guidance material at Appendix E be used by States to update their National Safety Plans also taking into account the FHA report.</p>

Number	Title
Conclusion 8/24:	Revised version of AFI RMA Manual That, ARMA revises the AFI RMA Manual as required and submits the document to the ARPO for approval.
Conclusion 8/25:	ATS Letters of Procedure/Agreement That the revised ATS Letter of Procedure/Agreement at Appendix F be used by States to update their current letter of Procedure/Agreement to incorporate RVSM procedures.
Conclusion 8/26:	Amendment to the Regional Supplementary Procedures – Doc 7030/4 That <ul style="list-style-type: none"> a) The revised version of the amendment to the Region Supplementary Procedures Appendix G be circulated to AFI States for comments; and b) The updated version with comments from States be submitted to the TF/9 meeting for consideration.
Conclusion 8/27:	Seminars on OPS/Air Certification on RVSM That ICAO organize seminars/workshops to facilitate OPS/Air Certification on RVSM not later than 31 March 2006 .
Conclusion 8/28:	Uncoordinated Military Operations in the Indian Ocean Region That ICAO liaise with FAA and other concerned CAAs concerning the extensive military activities in the Indian Ocean in view of RVSM implementation in AFI Region.
Conclusion 8/29:	Campaign to enhance RVSM Implementation That, sensitisation of Civil Aviation CEO/DGs by Regional Directors of ICAO and IATA on importance of RVSM and the need for its early implementation in the AFI Region be accorded priority during ICAO and IATA missions to States.
Conclusion 8/30:	AFI RVSM Strategy/Action Plan That the updated AFI RVSM Strategy/Action Plan at Appendix H be circulated to States for action.
Decision 8/31:	Aircraft/Operators readiness survey That, the results of ICAO/ARMA surveys be updated and presented at the RVSM TF meetings for consideration.

Number	Title
Decision 8/32:	<p data-bbox="507 230 1278 264">Exchange of RVSM data between ASECNA and ARMA</p> <p data-bbox="507 304 1455 371">That ASECNA sub-regional monitoring unit continue to forward to ARMA the RVSM data collected from their member States.</p>
Decision 8/33:	<p data-bbox="507 414 1455 488">FHA safety requirements needing appropriate actions by the RVSM Programme</p> <p data-bbox="507 528 1455 595">That the following FHA safety requirements are allocated to the RVSM Programme:</p> <ul style="list-style-type: none"> <li data-bbox="555 636 1455 703">a) Req_{Swit_31} “The switch-over period shall be performed during an appropriate low traffic density period”; <li data-bbox="555 707 1455 775">b) Req_{Swit_39} “The switch-over period shall be determined out of Hajj period”; <li data-bbox="555 779 1455 846">c) Req_{Swit_40} “Traffic density shall be limited during switch-over period as appropriate”; <li data-bbox="555 851 1455 918">d) Req_{Swit_41} “The FIR airspace shall be optimized to reduce controller workload”; <li data-bbox="555 922 1455 1034">e) Req_{Swit_52} “The date of switchover shall take into account the effect of adverse weather (thunderstorm, sandstorm, etc.) to minimize the effect on switch over operations”; and <li data-bbox="555 1039 1455 1106">f) Req_{Swit_60} “Civil/Military coordination committee shall be in place”. <p data-bbox="507 1146 1455 1214">Note: Req_{Swit_} “refer to the FHA Report at Appendix G (icao website: www.icao.int/ESAF/RVSM).</p>

PART II: REPORT ON AGENDA ITEMS**Report on Agenda Item 1****1. Review and follow-up of action of conclusions of seventh meeting of RVSM/RNAV/RNP Task Force (RVSM TF/7), the ATS/SG/8 meeting and APIRG/15 meeting**

1.1 Under this Agenda Item the meeting reviewed and noted the action taken on the conclusions of the seventh meeting of the RVSM/RNAV/RNP Task Force the ATS/SG/8 meeting and APIRG/15 meeting. It reinstated conclusions which were still in force and proposed the action to be taken before the next Task Force meeting planned for the first quarter of 2006. The Task Force included the conclusions adopted by APIRG/15 and include them in the Task Force for programme follow-up action. These 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:

- a) RVSM State Readiness Survey;
- b) Fourth Aircraft Readiness Survey;
- c) Report of the RVSM National Safety Plan Validation Panel (NSPVP);
- d) Progress reports on the PISC, CRA and NSPs;
- e) Review of ATS Letters of Agreement/Procedures;
- f) Review of amendment proposal to Doc.7030;
- g) Update of AFI RVSM Safety Policy Documentation;
- h) Update of AFI RMA Manual;
- i) AFI switch-over plan from CVSM to RVSM;
- j) Review of ARMA Safety Assessment Forms;
- k) ARMA Status Report;
- l) Switch-over Plan by the State of Eritrea;
- m) Review and Update the AFI RVSM Strategy/Action Plan.

2.2 Functional Hazard Analysis (FHA)

2.2.1 The Task Force seven meeting took note of the fact that the Functional Hazard Analysis had been adopted by TF/6 for application in AFI Region and will be incorporated in the Pre-Implementation Safety Case (PISC).

2.3 ARMA Aircraft Readiness Survey

2.3.1 In considering the aircraft readiness for RVSM, the AFI RMA reported that 54% of AFI aircraft are RVSM approved. It was recalled that the requirement of the AFI RVSM Safety Policy advocates a 90% target of RVSM approved aircraft operating in the AFI region. The traffic sample revealed that 91% of aircraft operating within the AFI RVSM airspace are RVSM approved (previously 89%) along with 90% of airline operators which is an improvement from the previous of 89% . A fifth readiness survey will be compiled for Task Force 9 meeting in the first quarter of 2006.

2.4 RVSM Implementation in the AFI Region

2.4.1 The meeting recognised that the AFI RVSM Implementation program is undoubtedly the largest ATM implementation project undertaken by the African continent as a whole. The initiative will not only realise the implementation of RVSM as planned, but also, as a spin off has been improving, step by step, the ATM infrastructure contributing to overall safety in the AFI region. At the same time, AFI States and Aviation partners are being drawn closer together in the field of ATM cooperation.

2.4.2 The Meeting recalled that the RVSM preparation process is based on a scientific methodology and the following steps have been undertaken to achieve implementation in accordance with ICAO provisions.

2.4.3 As a first step a comprehensive Functional Hazard Assessment (FHA) has been completed by independent consultants as required and adopted by the RVSM Task Force 6 (25 – 27 May 2005 Nairobi) with participation and input from most African States. The FHA will contribute substantially to aviation safety in Africa by identifying hazards and where necessary mitigation measures. The second step the States used the FHA to compile their own unique National Safety Plans (NSP).

2.4.4 The Group noted with appreciation that 46 out of 54 States have submitted NSP, s. To date 42 NSP, s have been reviewed by an International Panel led by ICAO Headquarters and feedback provided to each State. 4 NSP, s were submitted during the meeting to be processed.

2.4.5 The Task Force recalled that the Air Navigation Commission highlighted the need for a comprehensive Collision Risk Assessment (CRA) prior to implementation. To this end, an expert utilised by Eurocontrol has compiled a CRA. The Group recognised that the CRA was completed at an early stage of RVSM planning, after the implementation date had been postponed, to highlight areas where improvements may be required. The Task Force noted that the CRA would have to be recalculated as a final step before implementation followed by a comprehensive Pre Implementation Safety Case (PISC). States were requested to diligently report all incidents with the aim of rectifying the causes. The improved reporting mechanism will identify deficiencies to be rectified. The overall reduction of incidents is required to achieve an acceptable Target Level of Safety.

2.4.6 The Meeting noted that the AFI Regional Monitoring Agency (ARMA) has been established and corresponds with 53 out of the 54 RVSM National Program Managers.

2.4.7 The Meeting agreed unanimously that RVSM implementation should proceed once all requirements stipulated above are met. For planning purposes the meeting agreed to an implementation date of **28 September 2006**.

2.5 AFI Switch Over Plan from CVSM to RVSM

2.5.1 The Task Force mandated a work group within the meeting to review the work that has already been done and submitted by ASECNA on the draft Switch Over Plan. The work group consisted of Task Force members from ARMA, IFALPA, Eritrea, Nigeria, Egypt, Angola, Algeria, Rwanda and South Africa. ASECNA would also be part of the process however they were unfortunately not available for the meeting. The work group was afforded the time to read through the ASECNA draft plan and then discuss within the work group. The members were of the opinion that there was not sufficient time to fully discuss the plan and make any practical submission to the Task Force however it was acknowledged that the ASECNA work will greatly benefit the process and a lot of good work had gone into drafting the plan. It was decided that the ARMA would, utilize the ASECNA document in conjunction with other examples from other regions and refine the ASECNA document for presentation to the members for comment. The draft document would be briefly discussed at the PISC Mid Project Meeting and then presented at Task Force 9.

2.6 Regional Aircraft Certification Agency for RVSM Operation

2.6.1 The meeting considered issues relating to the need of establishing a Regional aircraft certification Agency on RVSM operation. The meeting considered such an Agency was necessary. The Task Force recommended that States having difficulties with implementation of operational airworthiness should seek assistance from other States having experience. The meeting also recognized the need for seminars/workshops for airworthiness/operations personnel on issues relating to RVSM certification. The Task Force was of the opinion that studies be conducted relating to the establishment of RVSM certification Agencies in the AFI Region.

2.7 AFI RVSM Implementation Cost Recovery

2.7.1 The meeting considered a work paper relating to AFI RVSM implementation cost recovery, and recognized that there was a need to establish a mechanism where all airlines operating in AFI would be charged.

2.8 Revision of the AFI RMA Manual

2.8.1 The Task Force provided comments to be included in the revised AFI RMA Manual and requested the ARMA Manager to finalize the document and forward to ARPO for approval.

2.9 Revision of the ATS Letters of Procedure/Agreement (LOP/LOA) Template

2.9.1 The Task Force revised the current template on the Letters of Procedure/Agreement in order to include RVSM procedures. The revised template will be circulated to States for their use in amending their relevant LOAs/LOPs.

2.10 Amendment to the AFI Regional Supplementary Procedures – Documents 7030/4

2.10.1 The Task Force revised the text relating to RVSM on the AFI Regional Supplement Procedures – Doc-7030/4. The revised document will be circulated to States for comments and the updated version would be submitted to TF/9 meeting for their consideration.

2.11 Other issues relating to RVSM Implementation

2.11.1 Seminar/Workshop on OPS/Air Certification on RVSM

2.11.1.1 The Task Force considered it necessary to organize seminars/workshops on OPS/Air certification on RVSM.

2.12 Uncoordinated Military Operations in the Indian-Ocean

2.12.1 The meeting was concerned on the uncoordinated military operations in the Indian Ocean and that air misses have occurred. The Task Force requested the ICAO Regional Office concerned to follow-up the issue.

In view of the discussions under Agenda Item 2 the following conclusions and decision were formulated:

Conclusion 8/1: Safety assessment data, remedial actions and target date for AFI RVSM Implementation

That:

- 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;
- b) States intensify their efforts in reducing the incident rates to support a positive CRA results;
- c) States provide refresher training to Controllers and ensure that proficiency checks for ATCO's are done;
- d) States continue to provide the required safety assessment data to ARMA on monthly basis using Forms 1, 2, 3 and the revised Form 4;
- e) The actual date/time of implementation of RVSM will be determined taking into account:

- (i) the completion of the activities in the AFI Strategy/Action Plan;
 - (ii) The development of an acceptable PISC and its subsequent approval by the ANC;
 - (iii) The approval by ANC of ICAO AFI RVSM Regional SUPPs (Doc.7030/4) relating to RVSM; and
- f) The target date for implementation of RVSM in the AFI Region will be AIRAC date 28 September 2006.

Conclusion 8/2: Civil/Military Coordination

That, in order to ensure the safe and coordinated implementation of RVSM in the AFI Region, States ensure that the military aviation authorities are fully involved in the planning and the implementation process.

Conclusion 8/3: Nomination of a National RVSM programme manager

That States which have not done so, as a matter of urgency, nominate, a National RVSM Programme Manager who will be responsible for ensuring that the proper mechanisms are put in place for the safe implementation of the RVSM Programme and will also act as the focal point or contact person. Additionally NPMs keep this information up to date.

Conclusion 8/4: Reporting of data for monitoring and/or carrying out safety assessment

That:

- 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:
- (i) Height deviations of 300 ft or more;
 - (ii) Total number of IFR movements for each month;
 - (iii) The average time per movement spent in the level band FL 290 to FL 410;
 - (iv) ATC coordination failures;
 - (v) Turbulence;
 - (vi) Traffic data; and
- b) GPS Monitoring Unit (GMU) will be used as well as Height Monitoring Unit (HMU) (multilateration) where appropriate for height monitoring in AFI Region which will be coordinated by the ARMA.

Conclusion 8/5: Implementation of RVSM in the AFI Region**That:**

- a) All RVSM implementation preparation works (safety, assessment, training) be done taking into consideration the FL band 290 and 410 inclusive, being the AFI RVSM airspace; and
- b) Implementation of RVSM in the AFI Region be harmonized and coordinated within the AFI Region as well as with the adjacent Regions.

Conclusion 8/6: Training of all personnel involved with the implementation of RVSM in the AFI Region**That:**

- a) Seminars continue to be organized in the Region for training all personnel involved in the implementation of RVSM;
- b) States having difficulties in implementing RVSM implementation programme, may either individually or in group explore the possibility of seeking outside expertise;
- c) On site training courses be conducted to expedite the training process; and Inorder to ensure uniformity in the training, States shall use the AFI RVSM training material.

Conclusion 8/7: Guidance material for Airworthiness and Operational Approval

That, States in the AFI Region be urged to include in their national legislation and regulations the Airworthiness and Operational Approval process for aircraft and operators intending to operate within the RVSM airspace based on provisions of ICAO Annex 6 Part 1 Chapt 15 para. 15.2.3 and the guidance material contained in JAA Temporary Guidance Leaflet (TGL) N°6.

Conclusion 8/8: RVSM enforcement in national legislation

That States which have not done so, take the appropriate measures in order:

- a) to publish as a matter of urgency, an AIC informing the users of their intention to implement RVSM; and
- b) to include the necessary provisions in their national legislation.

Conclusion 8/9: Funding of the RVSM implementation programme

That, National Governments, Regulatory bodies, operators, service providers and other stakeholders be granted budgetary allocations for acquisitions and other activities necessary for ensuring that all the requirements are met in a timely manner in order to safely implement RVSM in the AFI Region.

Conclusion 8/10: Monitoring of Height Deviations

That:

- a) States which have radar establish at the ACC a unit to conduct monitoring of aircraft height deviations, Assigned Altitude Deviations, (AAD) in the AFI RVSM airspace; and
- b) The data collected in a) above be forwarded to ARMA for action.

Conclusion 8/11: Revised AFI RVSM Safety Policy

That States expedite the publication of the revised version of the AFI RVSM Safety Policy in an AIC as amended at the Task Force 8 meeting in Lagos Nigeria at Appendix H to this report.

Conclusion 8/12: National Safety Plan (NSP)

That:

- a) the States of Burundi, Cape Verde, Djibouti, Lesotho, Libyan Arab Jamahiriya, Morocco, La Réunion (France) and Swaziland submit to ARPO their National Safety Plans as soon as possible but not later than 30 November 2005; and
- b) States which have submitted their NSPs to the NSP Validation Panel send to ARPO their revised NSPs for validation, taking into consideration the comments from the NSP Validation Panel, as soon as possible but not later than 30 November 2005.

Conclusion 8/13: State RVSM Readiness Assessment

That:

- a) That ICAO urge the States which have not done so, to provide their State RVSM readiness assessment to ARPO, as soon as possible however not later than 31 December 2005, using the questionnaire at Appendix C; and
- b) That ICAO urge the States to update “the State RVSM Readiness survey”.

Conclusion 8/14: Pre-Implementation Safety Case (PISC)

That the date of submission of PISC to the ANC will be determined by the Task Force.

Conclusion 8/15: AFI RVSM Programme Office (ARPO)

That the AFI RVSM Programme Office (ARPO) is located at the ICAO ESAF Office and coordinates the activities relating to RVSM implementation. ICAO website: (www.icao.int/ESAF/RVSM).

Conclusion 8/16: Adoption of the FHA Final Report

That the results of the AFI RVSM Functional Hazard Assessment of the AFI RVSM Implementation in the AFI Region at Appendix G (icao website: www.icao.int/ESAF/RVSM) will be used for the development of NSPs and PISC.

Conclusion 8/17: AFI RVSM Core Airspace

- a) That for Req_{core}_12 (refer AFI FHA report at Appendix G (icao website: www.icao.int/ESAF/RVSM) “Air/Ground Communication system shall be designed to ensure a total coverage of the RVSM Airspace with a minimum MTBF (Mean Time Between Failure) of two months for a given FIR”; and
- b) That for Req_{core}_88 (refer to FHA report at Appendix G (icao website: www.icao.int/ESAF/RVSM) “Aircraft shall be equipped with ACAS II version 7”.

Conclusion 8/18: AFI RVSM Switch-Over Period

- a) That for swit_24 (refer AFI FHA report at Appendix G (icao website: www.icao.int/ESAF/RVSM) “Use of Eastbound RVSM FL (F1310, FL350 and FL390) shall be suspended for a period of Two (2) hours after the Time Zero (To)”;
- b) That for swit_40 (refer AFI FHA report at Appendix G (icao website: www.icao.int/ESAF/RVSM) “Traffic density shall be limited during switch-over period as appropriate”;
- c) A Trigger NOTAM shall be published Two (2) weeks before Time Zero (To) notifying the implementation of RVSM and relevant procedures to be applied;
- d) That for swit_25 (refer AFI FHA report at Appendix G (icao website: www.icao.int/ESAF/RVSM) “A NOTAM shall be published to suspend FL310, FL350 and FL390 for RVSM operations after ToS during a period of Two hours”;
- e) That for swit_35 (refer AFI FHA report at Appendix G (icao website: www.icao.int/ESAF/RVSM) “Transit of non-RVSM civil aircraft shall be suspended for a period of Two hours after Time Zero (To)”;
- f) That for swit_36 (refer AFI FHA report at Appendix G (icao website: www.icao.int/ESAF/RVSM) “Operation above FL410 shall be suspended for non-RVSM aircraft for a period of Two (2) hours after Time Zero (To)”.

Conclusion 8/19: Sharing RVSM Readiness Programs and Experience

That, ICAO explore further means of encouraging States to share their readiness programmes, experience, and available expertise/resources between themselves for a safe and economic implementation of RVSM in AFI Region.

Conclusion 8/20: Regional Airworthiness Certification and Certification Agency for RVSM Operation**That:**

- a) States having difficulties with the implementation of operational airworthiness certification on the RVSM implementation should seek assistance from other States having this expertise;
- b) Seminars/Workshops be conducted for airworthiness/operations personnel on issues relating to RVSM certification; and
- c) Studies be conducted by IATA in cooperation with ICAO relating to the establishment of RVSM Certification Agencies for the AFI Region and results forwarded to the Task Force for their consideration.

Conclusion 8/21: AFI RVSM Implementation – Cost recovery**That:**

- a) IATA airlines continue to financially support the RVSM implementation effort in order to improve safety and economy of Air Traffic across Africa; and
- b) IATA puts in place an RVSM cost recovery scheme based on a charge imposed on all international jet flights in Africa operated by its member airlines.
- c) IATA to report to RVSM Task Force with the results of the study.

Conclusion 8/22: RVSM Optimal Switch Over Time**That:**

- a) The TF Secretariat Support Team composed of Nigeria, South Africa, Tanzania, ASECNA and IATA coordinate and research all the associated elements, including weather and human factors, that will have an effect on the switch over; and
- b) Considering the switch-over period remains one of the most critical in the management of the implementation of RVSM, RVSM Task Force consider the ASECNA CVSM – RVSM switch-over Plan at Appendix D be amended by the Task Force and distributed to States.

Conclusion 8/23: The National Safety Plan Validation Panel (NSPVP) comments and Guidance material

That, the comments of the National Safety Plan Validation Panel and Guidance material at Appendix E be used by States to update their National Safety Plans also taking into account the FHA report.

Conclusion 8/24: Revised version of AFI RMA Manual

That, ARMA revises the AFI RMA Manual as required and submits the document to the ARPO for approval.

Conclusion 8/25: ATS Letters of Procedure/Agreement

That the revised ATS Letter of Procedure/Agreement at Appendix F be used by States to update their current letter of Procedure/Agreement to incorporate RVSM procedures.

Conclusion 8/26: Amendment to the Regional Supplementary Procedures – Doc 7030/4

That:

- a) The revised version of the amendment to the Region Supplementary Procedures Appendix G be circulated to AFI States for comments; and
- b) The updated version with comments from States be submitted to the TF/9 meeting for consideration.

Conclusion 8/27: Seminars on OPS/Air Certification on RVSM

That ICAO organize seminars/workshops to facilitate OPS/Air Certification on RVSM not later than 31 March 2006.

Conclusion 8/28: Uncoordinated Military Operations in the Indian Ocean Region

That ICAO liaise with FAA and other concerned CAAs concerning the extensive military activities in the Indian Ocean in view of RVSM implementation in AFI Region.

In view of the foregoing, the meeting formulated the following conclusions:

Conclusion 8/29: Campaign to enhance RVSM Implementation

That, sensitisation of Civil Aviation CEO/DGs by Regional Directors of ICAO and IATA on importance of RVSM and the need for its early implementation in the AFI Region be accorded priority during ICAO and IATA missions to States.

Draft Conclusion 8/30: AFI RVSM Strategy/Action Plan

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

Decision 8/31: Aircraft/Operators readiness survey

That, the results of ICAO/ARMA surveys be updated and presented at the RVSM TF meetings for consideration.

Decision 8/32: Exchange of RVSM data between ASECNA and ARMA

That ASECNA sub-regional monitoring unit continue to forward to ARMA the RVSM data collected from their member States.

Decision 8/33: FHA safety requirements needing appropriate actions by the RVSM Programme

That the following FHA safety requirements are allocated to the RVSM Programme:

- a) **Req_{Swit_31} “The switch-over period shall be performed during an appropriate low traffic density period”;**
- b) **Req_{Swit_39} “The switch-over period shall be determined out o Hajj period”;**
- c) **Req_{Swit_40} “Traffic density shall be limited during switch-over period as appropriate”;**
- d) **Req_{Swit_41} “The FIR airspace shall be optimized to reduce controller workload”;**
- e) **Req_{Swit_52} “The date of switchover shall take into account the effect of adverse weather (thunderstorm, sandstorm, etc.) to minimize the effect on switch over operations”; and**
- f) **Req_{Swit_60} “Civil/Military coordination committee shall be in place”.**

Note: Req_{swit} “refer to the FHA Report at Appendix G (icao website: www.icao.int/ESAF/RVSM).

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

3.1 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.

3.2 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.

3.3 The meeting re-affirmed its earlier conclusion that there was an urgent need for campaign on the implementation of RVSM at the highest level in the Aviation Administration of each State.

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

3.5 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 revised 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.

Report on Agenda Item 4

Any other Business

Venue and date of the Ninth RVSM/RNAV/RNP

4.1 The ninth meeting of the RVSM Task Force Meeting will be held in **March 2006** at a venue to be notified.

INTERNATIONAL CIVIL AVIATION ORGANIZATION
WESTERN AND CENTRAL AFRICAN OFFICE

AFI RVSM SEMINAR AND TASK FORCE/8 MEETING

(Lagos, Nigeria 10 – 14 October 2005)

LIST OF PARTICIPANTS

Country/Etat	Name/Nom	Designation/Fonction	Address/Adresse	E-mail, Telephone, Fax
ALGERIA	Mr. Omar ZOUAOUT	DACM - Algeria	01 Avenue de l'Indépendance Algers - Algeria	Tel. : 213 21 66.96.14 Fax : E.mail : dena.cca@enna.dz
	Mr. Abdelrahil DJATOUF	DACM - Algeria	01 Avenue de l'Indépendance Algers - Algeria	Tel. : 213 70.93.39.84 Fax : 213 21.67.73.95 E.mail : dena.dca@enna.dz
	Mr. Ali ABCHICHE	ENNA/DENA	B.P 070D, route de Cherarba Dar El-Beida, Alger – Algeria	Tel. : 213 21.67.13.09 / 21.67.21.30 Fax : 213 21.67.21.30 E.mail : expl.ccr@caramail.com
ANGOLA	Mrs. Dulce C.C. MANUEL	NPM – ENANA	Luanda Int. Airport P.O. Box 841 - Angola	Tel.: 244 222 65.10.13 Fax: 244 222 35.12.67 E.mail : dulcecachimbombo@yahoo.com.br
	Mr. Manuel NZAKIMUENA	Member of National RVSM TEAM, Angola	Luanda Int. Airport P.O. Box 841 - Angola	Tel.: 244 222 65.12.06 Fax : 244 222 35.12.67 E.mail : manuelnzakimuena@hotmail.com
EGYPT	Mr. Moatassm B. BALIGHA	Egypt, ATC Instructor/Trainer	Cairo Air Navigation Centre Airport road – Cairo - Egypt	Tel.: 202 0101695252 / 8830652 E.mail: moatassem_5@hotmail.com
	Mr. Shehata Ahmed EI NAGGAR	Egypt, ATC Supervisor	Cairo Air Navigation Centre Airport road – Cairo - Egypt	Tel.: 202 20552845577 E.mail: moatassem_5@hotmail.com
ERITREA	Mr. Getachew BEKURETSION	Director, Air Navigation Division and Manager, National RVSM Program Office	P.O. Box 11844, Asmara, Eritrea (private) P.O. Box 252 C.A..A	Tel.: 291 – 1 127250 / 127222/ 123090 Fax: 291 1 124334 E.mail: gbekuretsion2003@yahoo.com
	Mr. Michael ASFAHA	Mr. Chief ATS Operation, CAA, Eritrea	P.O. Box 252, Asmara, Eritrea	Tel.: 291 – 1 181822 or 186752 Fax: 291 124334 E.mail:
	Mr. Nugussie TEKLEMARIAM	Flight Safety Inspector, Eritrea	Eritrean Civil Aviation Authority, P.O. Box 252, Asmara, Eritrea	Tel.: 291 – 1 123090 Fax: 291 - 1 124334 E.mail: negussietg@yahoo.com
THE GAMBIA	Mr. Sulayman JABANG	Air Traffic Service Manager, The Gambia CAA	P.O Box 285 Banjul, The Gambia	Tel.: 220 447.27.30 / 447.28.31 /990.20.63 Fax: 220 447.21.90 E.mail: junkung78@hotmail.com
	Mr. Kebba Lamin JAMMEH	Flight Safety Manager (Ops) The Gambia CAA	P.O. Box 285 Banjul, The Gambia	Tel.: 220 447.26.83 / 775.99.08 Fax: 220 447.21.90 / 447.28.39 E.mail: kebbalamin@hotmail.com
GHANA	Mr. Daniel Klutei ABOSSEY	Manager, Airworthiness, Ghana Civil Aviation	Kotoka Int. Airport P.O. Box 16423, Accra, Ghana	Tel.: 233 21.77.69.95 / 244 95.22.94 Fax: 233 21.77.69.95 E.mail: safetyreg@gcaagh.com
	Mr. Martey Boye ATOKLO	ATC Manager, Ghana	Ghana C.A.A. PMB, Accra, Ghana	Tel.: 233 21773283 / 233 776171 Ext. 256 Fax: 233 21.77.32.93 E.mail: matoklo@hotmail.com
KENYA	Mr. Patrick M. KINUTHIA	RVSM Programme Manager	Kenya Civil Aviation Authority P.O. Box 30163-00100 NBI Kenya	Tel.: 254 – 020 – 827470 Fax: 254 – 020 – 824716 / 823 000 E.mail: kcaa.nbnet.co.ke
NIGERIA	Mr. Godwin C. ANUSONWU	The RVSM National Programme Manager, NAMA	Makia – Kano, Nigeria	Tel.: 064 632.254 / 08032879843 Fax : 064 632254 E.mail: anusonwugo@yahoo.com

	Emperor ONASANYA	Managing Director,NAMA	NAMA Muritala Mohammed Airport Ikeja Lagos.	Tel.: 4933418 Fax : 234 12702592 E.mail: onasanyaeo@yahoo.com
	Mr.OGOCHUKWU I.F	NAMA Information Technology Manager.	NAMA Muritala Mohammed Airport Ikeja ,Lagos.	Tel.: 2348053075428 Fax : 23414970993 E.mail: iogochukwu@nama-nig.com
	Mr.Edmond YOUNG	Representative	Capital Airlines	Tel.: 08023049351 Fax : E.mail : yankeesharon29@yahoo.com
	Mr.Q.M KOLOSI	The Pointer	Press	E.mail: adisid@com
	Mr.Oke OYINLOLA	Representative	Press,Travel &Bus News Lagos.	E.mail:onyinola@yahoo.com
	Mr . Felix NWARERI	Reprententative	Champion Newspaper	nwarerif@yahoo.com
	Mr.Niyi ADEJOLA	Representative	Aviation&Allied B 3 Publisher(Landover) 17, Simbat Abiola Road Ikeja, Lagos.	E.mail:publication@landover.company.com
	Mr.Isaac AYODELE	Representative	The Comet,21, Fatai Atere way,Lagos.	Tel.: 08028307441
	Mr.Sanni ADEWALE	Lufthansa German Airlines	MMA	E.mail:adewalesanni@olh.oe
	Mr.Albinus CHIEDU	Representative	Aviation & Allied Bus	Tel: 01_49797805 E.mail: ecaeditor@yahoo.com
RWANDA	Mr. Alphonse MAKUZA	RVSM Program Manager	Kigali International Airport P.O. Box 1122	Tel.: 250 585499 Fax: 250 583462 E.mail: alphonsemakuza@yahoo.com
SOUTH AFRICA	Mr. Harry ROBERTS	National Program Manager/Manager Operational Planning	Private Bag x 15 Kempton Park South Africa 1620	Tel.: 27 11 961 0303 Fax: 27 11 392 3946 E.mail : harryr@atns.co.za
	Mr. Arthur DOWNES	Flight Operations Inspector	18 Friar Tuck Rd 2194 S.A	Tel.: 27 11 545.1214 Fax: 27 11 545.1350 E.mail: downesa@caa.co.za
	Mrs. Thato MACHOSI	OPS Inspector, South Africa	16 Treu Close Water Fall Park Midland S.A	Tel.:27115451300 Fax:27115451350 E.mail: machosit@caa.co.za
SPAIN	Mr. Hugo ARIAS	IBERIA		Tel.: 0802864 7934 E.mail: losuu@iberia.es
TANZANIA	Mr. Godwin MAKOROMA	Chief of ATM	P.O. Box 2819 Dar-es-Salaam	Tel. : 255 022 2115079 Fax : 255 022 118905 E.mail : gmakoroma@tcaa.go.tz
ZIMBABWE	Mr. Richard MUNYENYIWA	National RVSM Programme Manager	Civil Aviation Authority of Zimbabwe ATC, P.Bag6002 Harare Int. Airport	Tel.: 263-4-575187/3 Fax: 263-4-575163 / 263-4-585100 E.mail: rmunyenyiwa@yahoo.co.uk
INTERNATIONAL ORGANIZATIONS/ORGANISATIONS INTERNATIONALES				
ARMA	Mr. K.V. EWELS	M: ARMA		Tel.: 27-11 9286506 Fax: 27 11 9286420 E.mail: afirma@atns.co.za
IFALPA	Mrs. Carole COUCHMAN	Regional Officer	Interpilot House, Gogmore Lane Chertsey, Surrey KT169AP, England	Tel.: 44 1932 579029 Fax: 44 1932 566551 E.mail: carolecouchman@ifalpa.org
IFATCA	Mr. Albert TAYLOR	Executive Vice President Africa/Middle East	Aviation Training Academy Private Bag x 1, Bonaero Park 1622 South Africa	Tel.: 27 11 5700417 Fax: 27 11 3901209 E.mail: evpafm@ifatca.org
ICAO	Mr. Apolo KHARUGA	Regional Officer, ATM , ICAO Nairobi	Box 4629xNBI Kenya	Tel.: 254 20 622372 Fax: 254 20 623028 E.mail: apolo.kharuga@icao.unon.org
	Mr. Ibrahim U. AUYO	Regional Officer/ATM, ICAO Dakar	P.O. Box 2356, Dakar, Sénégal	Tel. : 221 839.93.93 Fax : 221 823.69.26 E.mail : iauyo@icao.sn

**AFI REDUCED VERTICAL
SEPARATION MINIMUM (RVSM)
RVSM SAFETY POLICY**

OCTOBER 2005

TABLE OF CONTENTS

CONTENTS.....	PAGE
SECTION 1: INTRODUCTION.....	2
SECTION 2: RVSM OPERATIONAL CONCEPT	2
SECTION 3: AFI RVSM PROGRAM SAFETY POLICY	3
SECTION 4: RVSM IMPLEMENTATION SAFETY OBJECTIVES	3
SECTION 5: SAFETY OBJECTIVES OF RVSM IMPLEMENTATION	4
SECTION 6: RVSM SAFETY DELIVERABLES	4
6.1 Detailed RVSM Functional Hazard Analysis	5
6.2 Collision Risk Assessment.....	5
6.3 National Safety Plans	5
6.4 AFI RVSM Pre-Implementation Safety Case.....	5
6.5 AFI RVSM Post-Implementation Safety Case	5

AFI REDUCED VERTICAL SEPARATION MINIMUM (RVSM) SAFETY POLICY

1. INTRODUCTION

This document, the RVSM Safety Policy Document, sets out the Safety Policy, the Safety Objectives and describes the RVSM Safety Sub-Program tasks and actions necessary to ensure the safe implementation of RVSM in the AFI region.

The RVSM Safety Policy Document is intended to provide a framework to facilitate the safety regulation process of the AFI RVSM Program. As such, it is considered to be a formal deliverable of the RVSM Program.

The RVSM Safety Policy Document describes the deliverables of the RVSM Safety Sub-Program together with their role in the overall AFI RVSM Program and in the national safety assurance programs.

2. RVSM OPERATIONAL CONCEPT

The principal concept behind RVSM is the reduction of the vertical separation minimum between adjacent aircraft from 2000 feet to 1000 feet between the Flight Levels FL290 and FL410 inclusive. This will provide six additional cruising levels to air traffic, increase the capacity of the Air Traffic Management system and facilitate the task of Air Traffic Services in maintaining a safe, orderly and expeditious flow of traffic. It can be expected that the capacity and system benefits of RVSM will, by facilitating the Air Traffic Control function, also have the potential for possible safety benefits.

This vertical separation minimum shall be applied between RVSM approved aircraft within the airspace of the designated RVSM airspace. Therefore, all operators proposing to operate across the lateral limits of the RVSM airspace shall be required to indicate on Filed Flight Plans their RVSM status. Non-RVSM approved aircraft, other than state aircraft, shall not be permitted to operate within RVSM airspace.

There will be no RVSM Transition Airspace within the AFI Region.

The RVSM Program requires that specific training for aircrew and ATC staff shall be performed prior to the start of RVSM operations. The Program also requires ATC equipment and procedures to be modified according to specific Program requirements prior to the start of RVSM operations.

3. AFI RVSM PROGRAM SAFETY POLICY

The Safety Policy for RVSM implementation has been established to meet the requirements of ICAO Standards and Recommended Practices and guidance material on managing collision risk consequent on the implementation of RVSM.

The following statements define the Safety Policy of the RVSM Program:

- (i) The AFI RVSM Program uses an explicit, pro-active approach to safety management in the development, implementation and continued operation of RVSM.
- (ii) The responsibility of management for the safety performance of the RVSM Program is recognised. The RVSM Program Manager is responsible for the overall management of the Program. The RVSM Safety Program Manager is responsible to the RVSM Program Manager for ensuring the compliance of the Program with AFI Safety Policy and appropriate international standards and requirements. The RVSM Safety Program Manager is also responsible for liaison with the Regulation Authorities.
- (iii) The implementation of RVSM shall be conducted in accordance with ICAO requirements and requires ninety percent RVSM approved aircraft operating within the Region;
- (iv) The safety of air navigation has been given the highest priority in the development of the RVSM operational concept and the Implementation Program;
- (v) The RVSM Program shall minimise the program's contribution to the serious or risk bearing incidents or aircraft accidents as far as is reasonably practicable.

4. RVSM IMPLEMENTATION SAFETY OBJECTIVES

- (i) The RVSM Program shall conduct a full Functional Hazard Analysis looking at the whole system including air and ground segments and the proposed operational concept. This analysis shall adopt a total aviation system perspective and a risk based approach to the classification of hazards. The analysis shall include, but not be restricted to, those risks already identified by ICAO for RVSM implementation;
- (ii) The RVSM Program shall, as its principal safety objective, minimise the program's contribution to the risk of an aircraft accident. The RVSM Program recognises the AFI Safety Objectives and Strategy, in particular the general objective to improve safety levels by ensuring that the number of ATM induced accidents and serious or risk bearing incidents do not increase and, where possible, decrease. Therefore, the implementation of RVSM shall not adversely affect the risk of en-route mid-air collision;
- (iii) The RVSM Program shall establish an explicit Safety Sub-Program to ensure that Program's contribution to the risk of an aircraft accident is minimised in accordance with the principal safety objective;

- (iv) In accordance with ICAO Guidance Material the management of vertical collision risk within RVSM airspace shall meet the Target Level of Safety of 5×10^{-9} fatal accidents per flight hour;
- (v) In accordance with ICAO Guidance Material, the risk of mid-air collision in the vertical dimension within RVSM airspace, due to technical height keeping performance, shall meet a Target Level of Safety of 2.5×10^{-9} fatal accidents per flight hour.
- (vi) Guidance shall be given to the States to explain the necessary activities to provide evidence about the safe implementation of RVSM on the national level and subsequently assure the preparedness of the States.

Safety Requirements that may arise as results from the detailed Functional Hazard Analysis that yet has to be carried out will complement these Safety Objectives.

5. RVSM IMPLEMENTATION SAFETY OBJECTIVES

As part of the RVSM Program, an RVSM Safety Sub-Program has been developed to provide evidence on the compliance of the Implementation Program with the RVSM Safety Policy and the RVSM Safety Objectives.

The work program of the RVSM Safety Program comprises the following elements:

- (i) Detailed Hazard Analysis, Preliminary System Safety Assessment and System Safety Assessment of the proposed RVSM operational concept;
- (ii) Assessment of operational error reports, both prior to and after implementation, to identify any additional risks and hazards associated with the proposed operational concept and to provide data for the assessment of the target levels of safety;
- (iii) Establishment of formal requirements for participating states to demonstrate that all necessary national activities and actions have been undertaken prior to implementation.
- (iv) Assessment of the risk of mid-air collision, using methods specified in ICAO guidance material;
- (v) A major assessment of aircraft height keeping performance to monitor compliance with height keeping requirements.

Each of these elements will produce deliverables, in the form of reports, which will be formally presented to the ARTF as the Program proceeds.

6. RVSM SAFETY DELIVERABLES

In this section, the major deliverables of the RVSM Safety Sub-Program are described. Although the deliverables are in the form of formal documents, interim reports will be provided for review prior to completion of the final version of a deliverable document.

6.1 RVSM Functional Hazard Analysis

A detailed Functional Hazard Analysis (FHA) shall be carried out to provide assurance that all hazards and risks associated with RVSM have been identified and classified. The FHA shall cover (i) the situation that RVSM is operational one year after its introduction, (ii) the change-over on the day of RVSM introduction. The results of the FHA shall be documented in a detailed report and a hazard/risk matrix. It will be used as input to the Collision Risk Assessment and the National Safety Cases where appropriate. A summary of the results will constitute one chapter of the AFI RVSM Pre-Implementation Safety Case and the detailed report will appear as an Annex.

6.2 Collision Risk Assessment

A Collision Risk Assessment (CRA) shall be carried out in order to provide the evidence that the collision risk in RVSM airspace meets the Target Level of Safety required by ICAO. A summary of the results will form one chapter of the AFI RVSM Pre-Implementation Safety Case and the detailed report will appear as an Annex.

6.3 National Safety Plans

Guidance shall be given to the States to explain the necessary activities to provide evidence about the safe implementation of RVSM on the national level. Using the guidance material National Safety Plans should be produced by the States, submitted to the National Regulator as appropriate and shall be summarised by the RVSM Safety Sub-Program in order to form one section of the AFI RVSM Pre-Implementation Safety Case.

6.4 AFI RVSM Pre-Implementation Safety Case

The AFI RVSM Pre-Implementation Safety Case shall provide the assurance that the objectives stated in the AFI RVSM Safety Policy Document are met. Evidence will be provided that (i) all identified hazards and risks are managed and mitigated, (ii) the collision risk meets the ICAO Target Level of Safety and (iii) States show they will safely implement RVSM through the development of national safety documentation.

6.5 AFI RVSM Post-Implementation Safety Case

The required contents of the Post-Implementation Safety Case will be developed as a result of the pre-implementation safety activities. However, the main objective will be to confirm assumptions and estimations being made in order to determine if in an operational RVSM environment the safety objectives can be met. It is expected that the document demonstrates *inter alia* that safety is continuously ensured, the aircraft approval process is effective, the target levels of safety are being met, operational errors do not increase and ATC procedures introduced for RVSM remain effective.

RVSM IMPLEMENTATION READINESS ASSESSMENT SURVEY: AFI REGION

State

SUBJECT	ITEMS ASSESSED	TD	DC	NA	REMARKS	Ref. ICAO Regional/National Doc
RVSM Implementation Program						
1. RVSM Implementation Program – Target Date 28 September 2006	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	TD	DC	NA	REMARKS	Ref. ICAO Regional/National Doc
RVSM Implementation Program						
	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	TD	DC	NA	REMARKS	Ref. ICAO Regional/National Doc
RVSM Implementation Program						
	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	TD	DC	NA	REMARKS	Ref. ICAO Regional/National Doc
RVSM Implementation Program						
	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
	Has your administration analysed the impact that would have in RVSM implementation if the required documentation were not taken into account?					Conclusion: ARTF 4/18

SUBJECT	ITEMS ASSESSED	TD	DC	NA	REMARKS	Ref. ICAO Regional/National Doc
Operations & Airworthiness						
2. RVSM Operations & Airworthiness	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 28 September 2006?					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
	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

SUBJECT	ITEMS ASSESSED	TD	DC	NA	REMARKS	Ref. ICAO Regional/National Doc
Operations & Airworthiness						
3. RVSM Operations & Airworthiness Training	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 28 September 2006? If such were the case, the finalization of the training program?					Conclusion: APIRG 14/21
	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?					

SUBJECT	ITEMS ASSESSED	TD	DC	NA	REMARKS	Ref. ICAO Regional/National Doc
Operations & Airworthiness						
	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)?					
	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?					

SUBJECT	ITEMS ASSESSED	TD	DC	NA	REMARKS	Ref. ICAO Regional/National Doc
Air Traffic Management						
4. Modification in the Airspace Structure	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
	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

SUBJECT	ITEMS ASSESSED	TD	DC	NA	REMARKS	Ref. ICAO Regional/National Doc
Air Traffic Management						
5. ATC Procedures	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
	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

SUBJECT	ITEMS ASSESSED	TD	DC	NA	REMARKS	Ref. ICAO Regional/National Doc
Air Traffic Management						
	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	TD	DC	NA	REMARKS	Ref. ICAO Regional/National Doc
Air Traffic Management						
6. ATC Equipment	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	TD	DC	NA	REMARKS	Ref. ICAO Regional/National Doc
Air Traffic Management						
7. RVSM ATCO Training	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 19 January 2006? 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	TD	DC	NA	REMARKS	Ref. ICAO Regional/National Doc
Air Traffic Management						
	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	TD	DC	NA	REMARKS	Ref. ICAO Regional/National Doc
RVSM Safety Assurance						
8. RVSM Safety Assurance from FL 290 to FL 410 inclusive	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
	Has your administration implemented the National RVSM ATS Training Program?					ICAO Doc 7030/4 Conclusion: ARTF 2/7 & ARTF 4/6 National RVSM Plan

SUBJECT	ITEMS ASSESSED	TD	DC	NA	REMARKS	Ref. ICAO Regional/National Doc
RVSM Safety Assurance						
	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	TD	DC	NA	REMARKS	Ref. ICAO Regional/National Doc
RVSM Safety Assurance						
	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	TD	DC	NA	REMARKS	Ref. ICAO Regional/National Doc
RVSM Monitoring						
9. RVSM Operations Monitoring	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	TD	DC	NA	REMARKS	Ref. ICAO Regional/National Doc
RVSM Monitoring						
	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	TD	DC	NA	REMARKS	Ref. ICAO Regional/National Doc
RVSM Switch-Over						
10. RVSM Switchover	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	TD	DC	NA	REMARKS	Ref. ICAO Regional/National Doc
RVSM Resources						
11. Assignment of Resources for the Implementation of RVSM program	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

AFI SWITCH OVER PLAN FROM CVSM TO RVSM

Implementation Date: September 28, 2006 – 09:01 UTC

(Draft)

OCTOBER 2005

TABLE OF CONTENTS

1. Introduction	3
2- Switch over Organization and Management	3
3. Communications and monitoring	6
4. Maintenance and engineering	6
5. Resources	7
6. Transfer procedures from CVSM to RVSM airspace.....	8
7. Interface: European and Southern American RVSM Airspace	9
8. Military civil coordination	9
9. Emergencies.....	9
APPENDIXES –	11

1. Introduction

- 1.1. The passage to the RVSM is the process of Switching over from a 2000 ft vertical separation (CVSM) environment to a 1000 ft vertical separation (RVSM) environment.
- 1.2. AFI Region States plan to implement RVSM in all the AFI Region on September 26, 2006 at 09:01 UTC.
- 1.3. The implementation of RVSM in AFI Airspace will:
 - i) increase the capacity of airspace by providing the cruising aircraft, six supplementary flight levels between FL 290 and FL 410.
 - ii) reduce operating costs for customers.
 - iii) provide more flexibility for air traffic control to manage en-route traffic;
 - iv) provide a continuous RVSM environment from AFI Region towards the surrounded areas.

2- Switch over Organization and Management

2.1. Transition to RVSM

- 2.1.1. The transition to RVSM is based on this Switch over Implementation Plan, completed by the Appendix A attached to the document.
- 2.1.2. This switch over plan describes the provisions made by each center to ensure a switch over in accordance with the requirements of its National Safety Plan. It covers the operational aspects during the switch over period.
- 2.1.3. The plan establishes the directives and procedures for the transfer to RVSM environment between FL 290 and FL 410 within the airspace under the responsibility of the ACC of (name of the centre).
- 2.1.4. The centres which do not manage airspace between the indicated flight levels, will however establish this plan with the mention that all the operating specifications of the switch over are carried out on their authority by the ACC of (name of the centre).

2.2. Organization

- 2.2.1. For the needs of switch over to RVSM, a National Switch over Coordination and Monitoring Centre is created at each ACC. [T07] (Task n° 07 of Appendix A)
- 2.2.2. The centres which do not manage airspace between the indicated flight levels, will however establish this centre with the mention that all the operating specifications of the switch over are carried out on their authority by the ACC of (name of the centre).
- 2.2.3. ICAO will establish in Dakar and Nairobi a Regional Centre of Monitoring and Coordination of RVSM switch over operations. [T06]

2.3. Responsibilities, Attributions and Operation

- 2.3.1. The National Centers will be physically located near the ATS organism concerned. The National and Regional Centres will be equipped with suitable means of communication allowing the exchanges of information between them. The minimum equipment for a centre should include: an AFTN terminal, a telephone line and a fax line. [T08]
- 2.3.2. The role of the National Centre is to coordinate with the Regional Centre (ICAO) and the National Authority in charge of Civil aviation, all the actions related to the sure implementation of the switch over plan. It will inform ICAO on all the actions undertaken in coordination either with the adjacent ACCs or with the Authority within the implementation of RVSM. It will daily collect statistics during the period of its activation and retransmit them to Authority and to ICAO.
- 2.3.3. National and Regional Centres will be activated from September 25, 2006 at 18:00 UTC to September 30, 2006 at 13:00 UTC. [T09]
- 2.3.4. The implementation of this centre doesn't replace the normal activities of the official structures in place that will continue to operate as before.
- 2.3.5. Each centre will issue by AIC its contacts according to Appendix A attached to the switch over plan, for the needs of customers and other centres. . [T10]
- 2.3.6. The activities of the centre are coordinated by a team led by the NPM (National Program Manager). This team will include moreover the responsible of air traffic management, the chief of the ACC, a weather forecaster and a technician of maintenance. The note of the implementation of this Committee is attached. [T11]
- 2.3.7. Just as the centre is implemented, operational tests will be carried out with the regional and the adjacent centres in accordance with the appendix A. [T12]
- 2.3.8. The role of the ICAO regional centres is to supervise the activities of switch over and to provide to the national centres last essential information to a sure transition. In return, these regional centres will receive all the data from States and will inform the other States for coordination when necessary. A final report on the switch over will be elaborated for the attention of the national centres.

2.4. Documentation

- 2.4.1. The reference documents are:
 - 2.4.1.1. The National Safety Plan
 - 2.4.1.2. The switch over plan validated by each State
 - 2.4.1.3. dangers and their attenuations

2.5 Procedures

- 2.5.1. As from the date specified in appendix A of the switch over plan, all the flight plans will indicate RVSM status of the aircraft accomplishing the flight. The centres will issue a NOTAM for this purpose. [T13]
- 2.5.2. The centre will carry out the tests of communication with the regional and the adjacent centres according to the chronogram established in the RVSM switch over plan. [T16]
- 2.5.3. From September 25, 2006 at 18:00UTC, the national monitoring centre of the switch over will be activated and every hour, a " normal operation" message will be sent by AFTN to the regional centre of coordination if there is no information or action affecting the switch over. If not, by fax or telephone, the regional centre will be immediately informed of any unfavourable tendency and by all together, suitable measures will be implemented.
- 2.5.4. The ACC will issue a NOTAM at the date indicated into the appendix A of the switch over plan in order to prohibit the flight levels 310, 350 and 390 from September 28 at 03:00UTC until September 28, 2006 at 15:59UTC. This will allow evacuating the aircraft already flying at these CVSM levels, in opposite direction of these flight levels in RVSM. [T15]
- 2.5.5. The local control office or the competent ATS organism will make sure that the flight plans to be transmitted or received from September 28 at 03:00UTC until September 28, 2006 at 15:59 UTC, respect strictly the requirements of the NOTAM indicated above. If not, the FPL will be rejected and the sender or the applicant will be informed by the same way. [T31]
- 2.5.6. From 09:01UTC on September 28, 2006, all RVSM flight levels except the levels 310, 350 and 390 come into effect. They will be normally allocated by ACC. [T36]
- 2.5.7. From 16:01UTC, all the RVSM flight levels come into effect and are likely to be allocated by the ACC. [T37]
- 2.5.8. The emergency cases are treated in accordance with the table of the indexed risks and the corresponding attenuations according to the item 9.
- 2.5.9. LOAs/LOPs integrating RVSM requirements, including those existing with the military air traffic management centres, will be revised and signed in accordance with the RVSM Manual at the deadlines indicated in appendix A. The amended documents will be available to controllers and soldiers in ACCs concerned; and familiarization briefing on the new procedures will be organized when necessary for the personnel concerned. [T14]

2.6. Quality assurance

- 2.6.1. The Civil aviation Authority will make sure that all the official documents including the letters of agreement duly signed are quite available in the operational structures. [T22]

- 2.6.2. The Civil aviation Authority will make sure, on September 24, 2006, that all the requirements of this switch over plan are in place, particularly the activation of the national monitoring centre. [T34]
- 2.6.3. The Civil aviation Authority will send a fax, on September 24, 2006, to ICAO to confirm the correct operation of the national device. [T33]

3. Communications and monitoring

- 3.1 The RVSM switch over national centre will daily transmit to the regional centre all the data concerning the flights between flight levels 290 and 410 according to the table below:

Statement of the traffic of.... . SEPTEMBER 2006							
call sign	Departure	Destination	ATS Route	Entry FL	Exit FL	Type of acft and RVSM status approval	Remarks

- 3.2 The RVSM switch over national centre will be opened H24 and reachable at any time by all the customers at the following addresses:

- AFTN :
- TELEPHONE :
- FAX :
- E-MAIL (if possible) :

The above-mentioned information will be issued by NOTAM according to appendix A of the switch over plan.[T10]

- 3.3. After the implementation, the exploitation of RVSM will be systematically controlled by the national centre which will daily diffuse information related to this implementation.

- 3.4 A list of the key persons by State is provided in appendix. [T23]]

4. Maintenance and engineering

- 4.1. All the systems in place are in conformity with RVSM.
- 4.2 There is no other requirement related to communication between the units concerned by the implementation of RVSM.
- 4.3 From September 22, 2006, a daily situation of the operating condition of the equipment contributing to the implementation of RVSM is produced by the ACC. [T25]

4.4 The operating condition of the equipment is daily transmitted to the national centre that retransmits it to the regional centre. [T26]

5. Resources

5.1. The ACCs staffing will be adjusted, where required, to provide extra personnel including Subject Matter Experts during the Switch over period [T27].

5.2. The maintenance technicians staffing will be adjusted, where required, to provide extra personnel including Subject Matter Experts during the Switch over period. [T28].

5.3. The weather forecaster staffing will be adjusted, where required, to provide extra personnel including Subject Matter Experts during the Switch over period. [T29].

5.4. The Subject Matter Experts will provide, when necessary: [T30].

- Briefings and assistance to operational personnel (Air Traffic Controllers, local control officers, maintenance technicians, weather forecaster and so on...) that will be on duty immediately prior to, and during switch over.
- Non stop briefings and assistance to operational staff working in RVSM airspace

A shift system will be implemented to ensure the management of the RVSM regional and national monitoring centres according to the table below:

Date	Sept 25 th	Sept 26 th	Sept 27 th	Sept. 28 th	Sept. 29 th	Sept. 30 th
Schedule						
00h - 06h		E	A	B	C	D
06h- 13h		A	B	C	D	E
13h - 20h	A	B	C	D	E	
20h -24h	E	A	B	C	D	

Equip A: Chief of maintenance unit (Responsible). Members: two agents concerned by RVSM process

Equip B: Chief of Telecommunication unit (Responsible). Members: two agents concerned by RVSM process

Equip C: Chief of Air Navigation unit (Responsible); Members: two agents concerned by RVSM process

Equip D: Chief of Air Traffic Management (Responsible); Members: two agents concerned by RVSM process

Equip E: Chief of meteorological unit (Responsible); Members: two agents concerned by RVSM process

6. Transfer procedures from CVSM to RVSM airspace

- 6.1. A refresher seminar will be organized for the attention of all personnel concerned two months before the effective RVSM implementation. The date is indicated in the Switch over Plan. [T17]
- 6.2. A NOTAM issued at the date indicated to the Switch over Plan requires to all the users to indicate their RVSM status from the date of August 31, 2006. All the users will conform to it. [T18]
- 6.3. The flight levels 310, 350 and 390 will not be accepted within flight plan as from September 28 at 03H00UTC until September 28, 2006 at 15H59UTC. A NOTAM will be issued for this purpose. [T15]
- 6.4. In coordination with the adjacent centres, the new Flight Levels Allocation System (FLAS) in the centre will be also diffused by NOTAM at the latest on September 10, 2006. [T21]
- 6.5 With the exception of flight levels 310, 350 and 390, all the other RVSM flight levels are applicable from September 28, 2006 at 03h01UTC. [T36]
- 6.6. The allocated or coordinated RVSM flight levels will be systematically read back. The controller will particularly make sure that the pilot and/or the controller of the adjacent centres have same information as him. [T38]
- 6.7 The flight levels 310, 350 and 390 will be normally usable from September 28, 2006 at 16h01UTC. [T37]
- 6.8 The Letters of Agreement in force between the centres will be available for controllers in ACCs . [T05]
- 6.9. The RVSM homologation status of all aircraft that fly or would fly the RVSM airspace must be established and compared with the suffix of flight plan ("W"), with the strips and the information indicated on the display systems. Only the military, customs and police aircraft are regarded as State aircraft, and also authorized to operate in AFI RVSM airspace independently of their RVSM status.
- 6.10 The non-RVSM aircraft (except for the State aircraft) will be prohibited of flight in the sections between Flight Levels 290 and 410 from September 28, 2006 at 03H00.A NOTAM will be issued for this purpose. [T17bis]
- 6.11. The ferry flights of State aircraft are accepted in AFI RVSM airspace, and considered as non- RVSM flights, whatever the status of homologation of the various aircraft concerned. As such, they must ask a special treatment by the ATC, and profit from a minimum of vertical separation of 600 m (2 000 ft) between them and any other operative aircraft in AFI RVSM airspace.

7. Interface: European and Southern American RVSM Airspace

- 7.1. The RVSM is already implemented in Europe and Latin America as well as in the EUR/SAM corridor. Requirements in force ensure the transition between these airspaces and the others in AFI Region where the RVSM was not yet implemented. As from September 28, 2006, all AFI Region applies the RVSM. All transition requirements become null and void. The coordination procedures remain in conformity with the LOAs requirements. The requirements enacted above ensure a transition without risk.

8. Military civil coordination

- 8.1. All the operational documents relating to the RVSM will be accessible to military Authorities. These documents are: the NSP, the Switch over Plan, all the NOTAMS and AICs related to the RVSM as well as the procedures related to the State aircraft. [T05]
- 8.2. The military Authorities will also take part in the refresher course envisaged in the Training Plan. [T17]
- 8.3. If part of the airspace is managed by the military Authorities, coordination procedures including RVSM requirements must be implemented. Particularly, a Letter of Agreement defining the limits of responsibility and the coordination of the procedures must be signed and accessible to the parts concerned, at the latest date of August 15, 2006. [T14]
- 8.4. A particular campaign to increase the military hierarchy awareness will be organized on September 02, 2006 in order to encourage the Military Authorities to reduce to the maximum their flight during the switch over period to avoid the increase in traffic and consequences that would generate on RVSM implementation. A training seminar with their intention will be organized. [T19]

9. Emergencies

- 9.1. An emergency affecting an aircraft flying in AFI RVSM airspace is a part of unforeseen circumstances having direct incidences on the aptitude of one or several aircraft to respect the Required Navigation Performance in the vertical plan to fly in RVSM airspace. This incapacity can come from the technical failures of the air or ground equipments (RDPS/ADS...) or of the severe weather phenomena.

- 9.2. The pilots inform the ATC, as soon as possible, of any circumstance that prevent them from respecting the Required Navigation Performance in the vertical plan to operate in RVSM airspace. In similar case, the pilot must obtain a revised ATC clearance before beginning any variation compared to the airways and/or at the cleared Flight Levels, as far as possible. If it cannot obtain a revised ATC clearance before such a variation, the pilot must obtain it afterwards as soon as possible.
- 9.3. The ATC must provide all the possible assistance to a pilot undergoing an emergency in flight. The later interventions of the ATC will be based on the intentions of the pilot, the general situation of the air traffic and the evolution in real time of the emergency. The RVSM Letters of Agreement/Procedures requirements envisage to immediately relay information to adjacent ATC centres and when necessary to activate the corresponding Flights Levels (FLAS) for the emergency cases.
- 9.4. Maintenance in ACCs will be reinforced from 25th to 30th September 2006 to bring when necessary correction to any possible detected dysfunctions. [T34]
- 9.5. The requirements in ACCs will avoid any change in the equipment configuration during all the month of September 2006. [T20]
- 9.6. If an emergency in flight requires the suspension of the RVSM, a minimum of vertical separation of 600 m (2 000 ft) is applied between all the aircraft operating in the part of RVSM airspace where the RVSM is suspended, independently of the RVSM homologation status for the aircraft. However all the "RVSM" cruising Flight Levels (290, 300, 310, 320, 330, 340, 350, 360, 370, 380, 390, 400 and 410) remain assignable by the ATC, according to:
- a) the cruising Flight Levels Tables published with Appendix 2, Appendix 3.a) of the ICAO; and/or
 - b) the Flight Levels Allocation System , or The Emergency Flight Levels Allocation System, if necessary; and/or
 - c) the Letters of agreement between centres. [T39]
- 9.7. The indexed hazards in similar circumstances and their mitigations appear in the following table:

#	Severity/ Consequence	Risk	Hazard description	Mitigations control

APPENDIXES –

Appendix 1:
ACC of.....

Airspace

RVSM Airspace boundaries to be defined

ADJACENT ACCs Interface

ACC 1:

- ACC address (RSFTA and ATS/DS status between the two centres)
- Contact of the national centre (RSFTA, telephone and fax and address of the person in charge)
- transfer Points of responsibility with this centre by specifying the agreed flight levels .

ACC 2 :

Checklist

Equipment /automatization: - Lists of the equipment taking part in the RVSM implementation and their operating condition

Resources:

- Switch over period staffing as controllers, technicians of maintenance and weather forecasters
- Monitoring centre staffing

Appendix 2 –

Key-persons in the centre

Name and first name	Responsibility in Switch over operation	Mobile Telephone


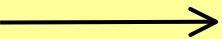

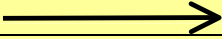
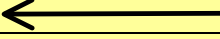
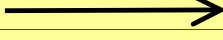
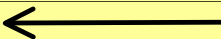
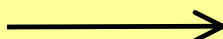
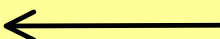
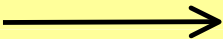
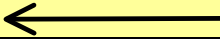
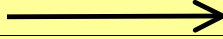
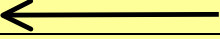
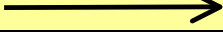
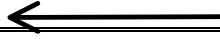
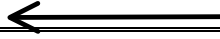
Appendix 3-

National Committee of the implementation of RVSM



Appendix 4 : Cruising Levels Table

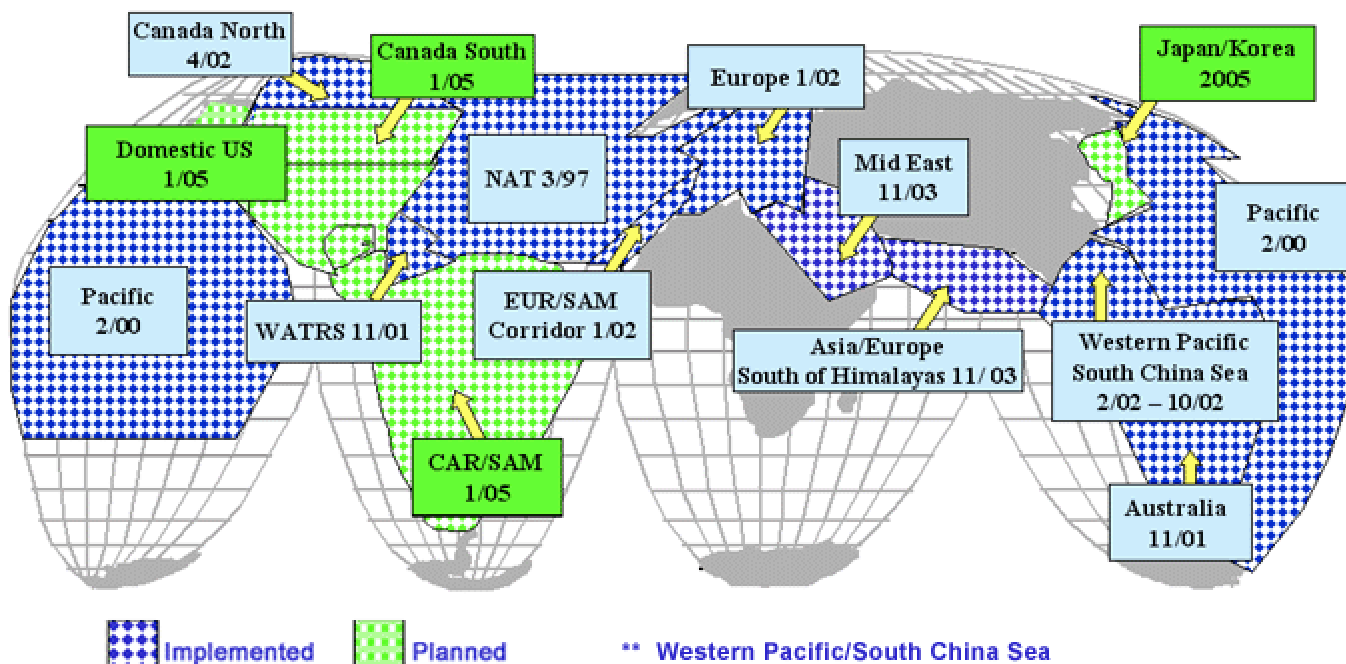
- Reference : Annex 2 of ICAO, Appendix 3a.

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)	
	FL 410 
	
	
	
	
	
	FL 350 
	
	
	
	
	
	
	
 FL 280 (non RVSM level below RVSM airspace)	

* Except in airspaces where, on the basis of regional air navigation accords, other flight levels can be authorized or indirect ATS routes can be established with appropriate transition procedures.

The application of ICAO cruising levels table in an RVSM environment inverses the direction of the flight at FL310, FL350 and FL390. These flight levels are infact West-East cruising levels in RVSM environment whereas they are East-West cruising flight levels in non-RVSM environment.

Appendix 5 : State of RVSM implementation in the World (FAA document)



February 2002 Implementation

Bangkok, Ho Chi Minh, Kota Kinabalu, Kuala Lumpur, Manila, Phnom Penh, Sanya, Singapore, Taipei

October 2002 Implementation

Hanoi, Hong Kong, Jakarta, Ujung Pandang, Vientiane

RVSM Status Americas - Europe		
North Atlantic:	March 1997	FL 330-370
	October 1998	FL 310-390
	Jan 24, 2002	FL 290-410
West Atlantic Route Syst (WATRS):	Nov 1, 2001	FL 310-390
	Jan 24, 2002	FL 290-410
Europe Tactical (UK, Ireland, Germany, Austria)	April 2001	FL 290-410
Europe-wide	Jan 24, 2002	FL 290-410
South Atlantic:	Jan 24 2002	FL 290-410
Canada Northern Domestic	April 2002	FL 290-410
Canada Southern Domestic	Coordinate with US domestic	
Domestic US - <i>Proposed Implementation</i>	January 20, 2005	FL 290-410
Caribbean/South America	January 20, 2005	Consult AIPs
RVSM Status Asia/Pacific		
Pacific:	February 2000	FL 290-390
*FL 410 is available for non-RVSM approved flights	Tactical Use	FL 400-410
Australia:	November 2001	FL 290-410
Western Pacific/South China Sea	Feb 21, 2002	Consult AIPs
Mid East:	11/2003	Consult AIPs
Asia-Europe/South of Himalayas:	11/2003	Consult AIPs

NB : In the AFI Region, the GO/NO –GO Decision for the implementation of RVSM foreseen on 20/01/2005 will be reviewed on 19/11/04

THE NATIONAL SAFETY PLAN VALIDATION PANEL (NSPVP)

COMMENTS AND GUIDANCE REPORT

The Panel was satisfied to see that the vast majority of the States used the NSP template as it was developed by the RVSM Task Force earlier this year. However, the Panel was concerned by what it perceived to be a lack of detail and substance behind the plans. In many cases, it seemed that the plans were completed simply by replacing blanks in the template with the name of the State but without specifying details of how the State is complying or what specific actions are being taken to comply with requirements or make its plans a reality.

It appeared to the Panel that often the text on the template was simply replaced with the name of the State and that no further examination of the text was made, often resulting in confusing or contradictory information. In that regard, the Panel recommends that States conduct a thorough examination of the template for application in the State.

Many of the details of activities are written in the past tense and they need to be updated to reflect current realities. For example, plans sometimes mention that training was conducted but there is no evidence to show that the training actually took place. In addition, the NSP template proposes two different texts for certain sections and States were expected to select the most appropriate and often this was not the case. States are reminded that they will need to continue to reflect the current situation and change the selected paragraph if so required.

The comments offered in this cover document apply to a majority of the States that sent NSPs for validation and assessment by this Panel. The attached document contains detailed comments on the NSP as submitted by your State. The NSP assessments were conducted by evaluating the State's compliance with each of the following eight sections:

1. Section 1: Introduction
2. Section 2: Aircraft and Operator Approvals for RVSM
3. Section 3: ATS Training
4. Section 4: ATS Equipment
5. Section 5: ATS Procedures
6. Section 6: Airspace Design
7. Section 7: RVSM Switchover
8. Section 8: Operational Monitoring of RVSM

In addition, the Panel reviewed NSPs for references to various documents that must be part of the NSP such as ICAO documentation, manuals, switchover plans, and others. An example of the minimum reference documentation is at **Attachment A**.

During the review process, the Panel found serious deficiencies with significant portions of the plans of the majority of States. Although those deficiencies are identified in the State's individual document, the Panel was of the opinion that these matters required further clarification and correction. The common areas requiring particular attention by the States are found below with suggestions on how they may be improved. The eight sections mentioned above share two elements judged to be deficient in the opinion of the Panel. The Panel was very concerned to find that there seems to be broad misunderstanding and confusion on how to address these two activities. The two activities are:

1. RVSM RISK MANAGEMENT and,
2. CRITERIA FOR APPROVAL OF ACTIVITIES

Given the importance of these two activities, the Panel decided to include particular comments about these in addition to the general comments about the eight sections mentioned above.

RISK MANAGEMENT

Given that Risk Management is a key activity to be described in each of the significant sections of the plan, the Panel is very concerned by the unsatisfactory responses received from the majority of the States. The Panel was of the opinion that there appears to be a broad misunderstanding of the activities that need to be undertaken in the area of Risk Management. It is the intent of the Panel to clarify the concept of Risk Management and what the Panel expects from States in future submissions of the NSP for review.

The templates on Risk Management provided to the States to assist them in the preparation of their safety plans, contained a list of Hazard Identification as well as proposed Mitigations for those hazards. States in their plans were requested to include in their NSPs the actions or activities to be undertaken by the States in order to comply or fulfill the various mitigations identified.

The responses that were reviewed by the Panel under the Actions/Activities column of the template showed that there was broad confusion and/or misunderstanding by States on what constituted appropriate actions/activities to fulfill the various mitigations listed. An example of a properly completed hazard log and mitigation tables is attached at **Attachment B**.

Risk is an integral part of any activity and in this case it is the responsibility of the civil aviation authorities to mitigate those risks by undertaking activities that bring those risks to an acceptable level. These activities need to have a level of detail and granularity that guarantees that the acceptable levels of risk will not be exceeded. This level of detail is missing from this plan.

Many plans seemed to have the necessary text to indicate that the actions have been taken but upon closer examination there is no backing evidence to indicate that the actions mentioned have actually occurred or how the State intends to ensure that the actions are appropriately executed.

In addition to the description of activities related to risk management, States should explain the process/methodology they used to review and adapt the FHA results to their national airspace. This explanation can be provided in the Appendix related to the State's hazard log matrices. To this end, States can refer to the guidance material provided during the NSP workshops (material is available from ARPO).

CRITERIA FOR APPROVAL OF ACTIVITIES

Criteria for approval of the necessary activities (ATS Training, ATS Equipment Changes, etc), prior to implementation are in the opinion of the Panel widely misunderstood by a majority of States. Consequently, NSPs were found to be generally vague when specifying and documenting criteria.

The Panel acknowledges that some States may have problems with identifying criteria. However, these criteria must be explicitly stated in the subsequent editions of the NSP. To this end, States are encouraged to use the regional guidance material as developed by the RVSM Task Force as appropriate as a basis for the criteria. **Attachment C** contains an example of approval criteria related to ATS training activities.

Included below are general comments by the Panel about each of the sections of the NSP. Specific comments about each of these sections related to your State NSP are included in the attached document.

DOCUMENT APPROVAL

The Panel found that the table that identifies the authorities that are responsible for various levels of implementation activities are often not filled or only filled partially. The Panel would like to remind authorities that the final edition of these plans will need to be signed by the designated authorities as reflected in the NSP. The Panel is of the opinion that this will help in certifying that the activities and plans contained in the document are substantiated and carried out in the State.

DOCUMENT CHANGE RECORD

The document change table needs to reflect all the successive editions of the plan including the present edition.

INTRODUCTION

Generally this section was properly completed with the appropriate substitutions on the part of States. This section contains information from States on their approach to RVSM implementation as well as information on individuals who will be responsible for RVSM implementation in that State. The Panel would like to stress the fact that this section is critical in that it places responsibility for various implementation activities on specific personnel within the administration. In that regard, States and specifically the authorities and personnel named as responsible for the activities in these plans are to be reminded that these documents will become a permanent part of Regional ICAO documentation for future reference.

States should note that the guidance material on the safe implementation of RVSM requires not only pre-implementation planning to assure a smooth transition but also specifies that specific follow up and monitoring activities need to be carried out in order to support post implementation safety assessment. These follow-up activities are critical in helping to ensure that safety levels are maintained at an acceptable level after implementation. The Panel would like to urge States that have not done so, to immediately consider the inclusion of the responsible team members for post implementation activities in their RVSM planning efforts in the introduction section.

AIRCRAFT AND OPERATOR APPROVALS

The Panel was concerned with the level of detail provided in the description of the awareness activities related to aircraft and operator approval. In this regard, the level of detail was, in the opinion of the Panel, not sufficiently documented. For example, there are no references made to mandatory AICs or to the existence of required committees that need to be established with the local operators.

The Panel would also like to remind that status reports of aircraft and operator approvals are required in this section. These reports among other details should include the number of operators, aircraft (civil and military), approved and not approved. In that regard, the Panel was concerned by the fact that most of the plans contain information not consistent with the ARMA database.

ATS TRAINING

A review of this section by the Panel found that there was a general lack of detailed training programs including refresher training related to RVSM. Panel commentaries are contained in the attached individual report.

In reviewing some training syllabus submitted the Panel noted that those documents were not consistent with mitigations related to training. States need to ensure that their training syllabus complies with the mitigation activities related to ATS training.

ATS EQUIPMENT

In reviewing this section the Panel found that the necessary equipment changes and associated planning activities in individual States were often poorly documented. The Panel would like to remind States that should these changes not be completed or carried out before implementation, States should develop a contingency plan to be included in the appendix of their NSP. This contingency plan should be able to accommodate possible changes in dates of implementation. In addition, States are reminded that both, technical and operational approvals of modified ATS equipment is required

ATS PROCEDURES

In general the Panel found that the need for simulation activities was often misunderstood. When simulations activities are planned, States need to describe those activities in detail, even if the simulations consist of desktop studies.

AIRSPACE DESIGN

The Panel was of the opinion that the Flight Level Allocation Scheme was often overlooked and that it needed to be considered and included as part of the airspace redesign effort. In that regard, States are reminded that they need to include this activity as part of their NSPs.

When simulations activities are planned, States need to describe those activities in detail, even if the simulations consist of desktop studies.

RVSM SWITCHOVER

In reviewing this section the Panel found that this item would need to be delayed due to the lack of guidance material at a regional level. However, States should start working on the mitigations reflected in the FHA with regard to the switchover period.

OPERATIONAL SAFETY MONITORING

The Panel found a significant number of NSP that utilised earlier editions of the templates and as a result, there was a wide variation in the quality and level of detail in the submitted plans. The Panel urges States to ensure that their operational safety monitoring plans use the newest templates as issued by the RVSM NSP Workshops.

In relation to Quality Assurance of Operational Safety Monitoring, States can describe any elements that provide confidence in the efficiency and quality of the post-implementation activities. For example, one element could be the review of the data collected, the documentation of that review, the experience of the people responsible for these activities, etc.

APPENDICES TO BE INCLUDED

In reviewing the NSPs, the Panel found that a significant number of NSPs did not include the required appendix listing the supporting reference documents as shown in Attachment A.

In addition, the following documents must be attached to the NSP:

- National RVSM Hazard Log Matrices (Core airspace and Switchover period)
- National Switchover Plan
- Reference Documents List
- ATS Equipment Contingency Plan (if appropriate)

ATTACHEMENT A : REFERENCES DOCUMENTATION

APPENDIX

Note from the NSPVP: the following constitute the minimum references to be included in a specific appendix of the National Safety Plan. These documents should be available to the NSPVP upon request.

ICAO Document:

- ICAO Doc 9574

Regional documents:

- TGL6 edition 1 or FAA 91-RVSM
- ICAO Document 7030/4 AFI Regional Supps
- AFI RVSM ATC Manual
- AFI RVSM Switch-over Plan
- AFI RVSM Functional Hazard Assessment – edition 0.1 – 12 May 2005

References related to the necessary activities prior to RVSM:

- [State] National RVSM Action Plan
- [State] RVSM ATC Manual
- *[References of document(s) related to aircraft and operator RVSM approval awareness activities: AICs references, RVSM workshops reports, RVSM committee terms of reference...]*
- *[References of the State ATS training material]*
- *[reference of contract with the external supplier who will/has perform(ed) the necessary changes to ATS Equipment]*

References related to the Approval of the necessary activities prior to RVSM:

- *[Reference of the documented evidence of the approval of the State training program: report or minutes of approval meeting...]*
- *[Reference of the documented evidence of the approval of the modified ATS Equipment (technical approval): report or minutes of approval meeting...]*
- *[Reference of the documented evidence of the approval of the modified ATS Equipment for operational use in ACC(s): report or minutes of approval meeting...]*
- *[Reference of the documented evidence of the approval of the ATSU operations manual (for each ACC)]*
- *[Reference of the documented evidence of the approval of the ACC amended agreements (LoA/P)(for each ACC)]*
- *[Reference of the documented evidence of the approval of the Airspace Design changes: report or minutes of approval meeting...]*
- *[Reference of the documented evidence of the approval of the State switch-over plan]*

References related to the Quality Assurance Activities:

- *[Reference of the documented evidence of the review of the training material by ACC operational and management staff]*
- *[Reference of the documented specification of the functional requirements for ATS Equipment changes]*
- *[Reference of the internal contractor software development procedures (for ATS Equipment changes)]*
- *[Reference of the modified ATS Equipment acceptance criteria]*
- *[Reference of the documented evidence of the review of the ATSU operations manual by ACC operational and management staff]*

- *[Reference of the documented evidence of the review of the amended LoA/Ps]*
- *[Reference of the documented description of the ATS simulations (or desktop exercises) for ATS procedures and Airspace Design changes]*
- *[Reference of the documented evidence of the review of the Airspace Design changes: report or minutes of meeting...]*
- *[Reference of the documented evidence of the review of the State switch-over plan by ACC operational and management staff: report or minutes of meeting...]*

ATTACHEMENT B : RVSM RISK MANAGEMENT - EXAMPLES

The process of review of the FHA results and of their adaptation to the national airspace is presented in detail in the guidance material provided during the NSP workshops (material is available from ARPO).

This process is based on a 4-steps approach that can be summarised as follows:

- Step 1 : Development of the hazard/risk log matrices (for the core airspace and the switch-over period) applicable to the State national airspace
- Step 2 : Assessment of hazard severity and specification of the safety objectives
- Step 3 : Development of the mitigation strategy to ensure the acceptability of the risks associated to the hazards
- Step 4 :
 - Step 4a: Allocation of the mitigations to the RVSM System elements (ATS Training, ATS Equipment...)
 - Step 4b: Identification of the project activities to be undertaken to ensure the implementation of the mitigations

Step 1 aims to develop the list of the hazards relevant to the national airspace. It is composed of FHA-proposed hazard (FHA Appendix D) and of additional hazards identified by the State (if any). The FHA-proposed hazards judged as not relevant (if any) should also be listed and the rationale of their exclusion should be provided.

Step 2 is an intermediate step. It should be reflected in the tables at State discretion. It aims to assess the effects of the hazards on the safety of RVSM operations (severity) and then to specify the safety objectives (maximum likelihood) according to these severities. It should be remembered that the combination of the severity and the safety objective of a given hazard represent the acceptable level of risk to be achieved.

Step 3 aims to specify the mitigation strategies. These strategies are derived from the severities and the safety objectives along two approaches and they are, the hazard control (reduction of the operational effects) and the hazard reduction (reduction of the likelihood). They are composed of mitigating factors expressed as safety requirements to be fulfilled to ensure an acceptable level of risk. States should review the mitigations proposed by the FHA (Appendix E) and to identify additional ones if appropriate.

Step 4 firstly aims to allocate these mitigations (safety requirements) to the national RVSM System (ATS Training, ATS Procedures...). States should review the allocation proposed by the FHA (Appendix F) and to allocate additional safety requirements as appropriate. Secondly, each mitigation should be associated to project actions/activities to be undertaken to ensure its implementation. These activities provide evidence that the State has/will undertake(n) the appropriate actions to ensure that the mitigation will be efficiently in place prior to the RVSM implementation.

It should be remembered that the FHA results are classified by operational environment. It means that States should identify the FHA operational environment(s) (ENV_X) applicable to their national airspace.

The following tables contain some examples that are illustrative and aim to provide clarifications:

For a given State in ENV 1 (controlled airspace with surveillance capabilities).

Extract of the State Hazard Log for its RVSM Core Airspace (Appendix of the Safety Plan)

Hazard ID	Hazard Description	Mitigations (safety requirements)
AH_{core_6}	Loss of aircraft communications capabilities (voice)	Req_{Core_9} Radio Communications Failure procedures shall be defined. Req_{Core_10} Controllers shall be trained appropriately with regards to Radio Communications Failure procedures. Req_{Core_11} Flight crew shall be trained appropriately with regards to Radio Communications Failure procedures.
AH_{core_7}	Loss of ground/air (ATC R/T) communications capabilities	Req_{Core_9} Radio Communications Failure procedures shall be defined. Req_{Core_10} Controllers shall be trained appropriately with regards to Radio Communications Failure procedures. Req_{Core_11} Flight crew shall be trained appropriately with regards to Radio Communications Failure procedures. Req_{Core_12} Air/Ground Communication system shall be designed to ensure a total coverage of the RVSM Airspace with a minimum MTBF of 2 months for a given FIR Req_{Core_13} Air/Ground Communications system maintenance procedures shall be defined to ensure a communication system recovery in MTTR defined in Service Level Agreement Req_{Core_14} Air/Ground Communications Maintenance team shall be trained appropriately with regards to Air/Ground Communication system maintenance procedures

Extract of the State table for excluded hazards (Appendix of the Safety Plan)

Hazard ID	Hazard description	Rationale for exclusion
AH_{core_10}	Controller provides incorrect traffic information	This hazard is applicable to an uncontrolled airspace and is judged as not relevant to [State] airspace

Extract of the mitigation table related to ATS Training (§3.7 of the Safety Plan)

Mitigation	Actions / Activities	Hazard ID
Req_{Core_10} Controllers shall be trained appropriately with regards to Radio Communications Failure procedures.	To update the State training material to reflect that RCF procedures (Ref : 7030) will be addressed during training courses To organise training sessions on contingency procedures Responsible : Name of Head of Operational Training Services	AH_{core_6} AH_{core_7}
Req_{Core_14} Air/Ground Communications Maintenance team shall be trained appropriately with regards to Air/Ground Communication system maintenance procedures.	To check the Training Manual of Engineers to ensure that a course about Air/Ground Communications maintenance has been run If not, to specify a specific course for Air/Ground Communications Maintenance to be attended by all technicians by not later than [date]. Responsible : Name of Head of Technical Training Services	AH_{core_7}

Extract of the mitigation table related to ATS Equipment (§4.7 of the Safety Plan)

Mitigation	Actions / Activities	Hazard ID
Req Core_12 Air/Ground Communication system shall be designed to ensure a total coverage of the RVSM Airspace with a minimum MTBF of 2 months for a given FIR	To verify if the Air/Ground Communication system provide a full coverage of the FIR and if its performances meets a MTBF of 2 Months. Evidence to be documented. If the FIR is not full covered, to identify the required new/upgrade of the equipment. If the MTBF does not achieve the required level, to conduct a study to improve equipment robustness Responsible : Name of Head of Engineering Services	AH core_7

Extract of the mitigation table related to ATS Procedures (§5.7 of the Safety Plan)

Mitigation	Actions / Activities	Hazard ID
Req Core_9 Radio Communications Failure procedures shall be defined.	To update the ACC Operations Manual to reflect that RCF procedures described in ICAO 7030/4 are addressed Responsible : Name of Head of ACC Operations	AH core_6 AH core_7
Req Core_13 Air/Ground Communications system maintenance procedures shall be defined to ensure a communication system recovery in MTTR defined in Service Level Agreement	To define the acceptable MTTR at a service level To verify if the procedure in place are sufficient to meet this MTTR. If not, to improve the current procedure. Responsible : Name of Head of Engineering Services	AH core_7

ATTACHEMENT C: APPROVAL CRITERIA - EXAMPLES

This attachment aims to provide guidance to States on how to provide supporting criteria for the various activities that need to be carried out during the RVSM planning and implementation process. The example below refers to criteria related to the approval of the State's training material. The same rationale or methodology can be applied to specify approval criteria applicable to other activities such as ATS equipment, airspace design, etc. This example is illustrative and aims to provide clarification.

In this case the assumption is made that :

Firstly, the basis for the State Training Material is the AFI RVSM Training Guidance Material approved by the AFI RVSM Task Force for application within the AFI Region. The approval could thus be based on this regional material.

Secondly, States have developed mitigations related to ATS Training. These mitigations should be reflected in the Training Material as appropriate.

Thirdly, quality assurance activities have been undertaken during the development of the Training material. These activities include the review of the material by ACC management and operational staff and the approval can be based on the outcome of this review.

As a conclusion, the approval of the State Training Material can be based on the following criteria:

- Consistent with the AFI RVSM Training Guidance Material
- Reflecting and addressing the State mitigations related to ATS Training
- The outcome of the review of the material by ACC management and operational staff is documented and available.

REVISED DRAFT

LETTER OF AGREEMENT BETWEEN (INCORPORATING RVSM)

..... 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. REDUCED VERTICAL SEPARATION MINIMUM (RVSM) OF 300M (1000FT)

Area of Applicability

6.1 RVSM shall be applicable in that volume of airspace between FL290 and FL410 inclusive in the following flight information regions/upper flight information regions (FIRs/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

Note. – The volume of airspace specified in 1.6.1 will be referred to as “AFI RVSM airspace.”

6.2 RVSM Transition Airspace

6.2.1 There will be no RVSM Transition airspace in the AFI Region.

6.3 RVSM Procedures in the AFI Region

6.3.1 The applicable RVSM procedures are contained in the Regional Supplementary Procedures for the AFI Region (Doc.7030/4).

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 6.1.3 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 4.2.12 of Part VIII of the PANS-RAC, 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)	

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

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. Flow Control

8.1 Should it be necessary to implement flow control to avoid excessive delaysACC and ACC would coordinate for an acceptance number of aircraft per hour. All such coordination shall be terminated as soon as circumstances permit for normal flow of air traffic movement.

9. Deviations

9.1 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.

9.2 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.

10. Search and Rescue

10.1 Search and Rescue cooperation 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.

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

(Serial No. ESAF-S 04/1 – 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.206*). Editorial note: Amendments are arranged to show deleted text using strikeout (~~text to be deleted~~), and added text with grey shading (**text to be inserted**).

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 (Part II), Annex 11, PANS-ATM (Doc 4444) and PANS-OPS (Doc 8168).

1.0 FLIGHT RULES

1.1 Visual flight rules (VFR)
(A2 – 4.7 and 4.8)

1.1.1 At selected aerodromes, only VFR flights to be operated within a control zone established at an aerodrome serving international flights and in specified portions of the associated terminal control area shall:

- a) have two-way radio communications;
- b) obtain clearance from the appropriate ATC unit; and
- c) report positions, as required.

Note. - The phrase “specified portions of the associated terminal control area” is intended to signify at least those portions of the TMA used by international IFR flights in association with approach, holding, departure and noise abatement procedures.

1.2 Instrument flight rules (IFR)
(A2 – 2.2 and Chapter 5)

Note.- Annex 2, 2.2 permits a choice for a flight to comply with either the instrument flight rules or the visual flight rules when operated in visual meteorological conditions subject to certain limitations in Chapter 4 of the Annex. The following indicates certain further restrictions to that choice.

1.2.1 Special application of instrument flight rules

1.2.1.1 Flights shall be conducted in accordance with the instrument flight rules (even when not operating in instrument meteorological conditions) when operated above flight level 150.

1.3 Changes of flight levels (A2 – 5.2.2)

1.3.1 All changes of flight levels required by transition from the system of designated cruising levels for flights along controlled routes to the semicircular system of cruising levels, or vice versa, shall be made at points within controlled airspace.

1.3.2 The specific points to be used for the changes of flight levels mentioned in 1.3.1 shall be subject of coordination between the ATS units concerned, bearing in mind the need to avoid border points or other points where transfer of communications/transfer of responsibility would be adversely affected.

1.4 Air traffic advisory service (P-ATM, 9.1.4)

Note.- The PANS-ATM leaves it to the discretion of the pilot whether or not to obtain air traffic advisory service when available. The following procedures make it compulsory to obtain such service under certain circumstances.

1.4.1 All IFR flights shall comply with the procedures for air traffic advisory service when operating in advisory airspace.

1.5 Reduced Vertical Separation Minimum (RVSM) of 300 m (1,000 ft)

1.5.1 Area of Applicability

1.5.2 RVSM shall be applicable in that volume of airspace between FL290 and FL410 inclusive in the following flight information regions/upper flight information regions (FIRs/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

Note. – The volume of airspace specified in 1.5.2 will be referred to as “AFI RVSM airspace.”

2.0 FLIGHT PLANS

2.1 Contents of flight plans (A2 – 2.3; P-ATM, 4.4.1 and Appendix 2)

2.1.1 Route

2.1.1.1 Whenever possible, flights should be authorized to fly direct between any two intermediate or terminal points of the AFI ATS route network. In this case, flight progress reports should be made in relation to the significant points defining the basic route.

2.1.2 Mach number

2.1.2.1 For turbo-jet aircraft intending to operate at or above FL 250 with FIR Canarias. The Mach number planned to be used shall be specified in Item 15 of the flight plan.

2.2 Presentation of flight plan (A2 – 3.3.1.4)

2.2.1 The appropriate ATS authority exercising the Annex 2 provision, 3.3.1.4, to prescribe a lead-time other than 60 minutes before departure for the submission of a flight plan concerning a flight to be provided with air traffic control service, air traffic advisory service or flight information service shall, as far as practicable, prescribe a period of 30 minutes for that purpose.

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 if the aircraft and operator have received RVSM State approval. Furthermore, the aircraft registration shall be indicated in Item 18 of the flight plan.

2.3.2 Submission of a flight plan

2.3.2.1 Information relative to an intended flight or portion of a flight, to be provided to air traffic services units, shall be in the form of a flight plan.

2.3.2.2 In addition to military operations, operators of customs or police aircraft shall insert the letter M in Item 8 of the ICAO flight plan form.

2.3.3 Use of repetitive flight plans

2.3.3.1 Provision shall be made so that repetitive flight plans be accepted for any flight conducted on 19 January 2006 in the AFI RVSM airspace.

2.3.3.2 Flight planning for RVSM approved aircraft

2.3.3.3 Operators of RVSM approved aircraft shall indicate the approval status by inserting the letter W in Item 10 of the ICAO flight plan form, regardless of the requested flight level.

2.3.3.4 Operators of RVSM approved aircraft shall also include the letter W in Item Q of the RPL, regardless of the requested flight level. If a change of aircraft operated in accordance with a repetitive flight plan results in a modification of the RVSM approval status as stated in Item Q, a modification message (CHG) shall be submitted by the operator.

2.3.3.5 Operators of RVSM approved aircraft and non-RVSM approved State aircraft intending to operate within the AFI RVSM airspace, as specified in 2.1, shall include the following in Item 15 of the ICAO flight plan form:

- a) the entry point at the lateral limits of the AFI RVSM airspace and the requested flight level for that portion of the route commencing immediately after the RVSM entry point; and
- b) the exit point at the lateral limits of the AFI RVSM airspace and the requested flight level for that portion of the route commencing immediately after the RVSM exit point.

2.3.3.6 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.

2.3.3.7 Flight planning for non-RVSM approved aircraft

2.3.3.8 Except for operations within the AFI RVSM transition airspace, operators of non-RVSM approved aircraft shall flight plan to operate outside the AFI RVSM airspace.

2.3.3.9 Operators of non-RVSM approved aircraft intending to operate from a departure aerodrome outside the lateral limits of the AFI RVSM airspace to a destination aerodrome within the lateral limits of the AFI RVSM airspace shall include the following in Item 15 of the ICAO flight plan form:

- a) the entry point at the lateral limit of the AFI RVSM airspace; and
- b) a requested flight level below FL 290 or above FL410 for that portion of the route commencing immediately after the entry point.

2.3.3.10 Operators of non-RVSM approved aircraft intending to operate from a departure aerodrome to a destination aerodrome which are both within the lateral limits of the AFI RVSM airspace shall include in Item 15 of the ICAO flight plan form a requested flight level below FL 290 or above FL410.

2.3.3.11 Operators of non-RVSM approved aircraft intending to operate from a departure aerodrome within the lateral limits of the AFI RVSM airspace to a destination aerodrome outside the lateral limits of the AFI RVSM airspace shall include the following in Item 15 of the ICAO flight plan form:

- a) a requested flight level below FL 290 or above FL410 for that portion of the route within the lateral limits of the AFI RVSM airspace; and
- b) the exit point at the lateral limit of the AFI RVSM airspace, and the requested flight level for that portion of the route commencing immediately after the exit point.

2.3.3.12 Operators of non-RVSM approved aircraft intending to operate from a departure aerodrome to a destination aerodrome which are both outside the lateral limits of the AFI RVSM airspace, with a portion of the route within the lateral limits of the AFI RVSM airspace, shall include the following in Item 15 of the ICAO flight plan form:

- a) the entry point at the lateral limit of the AFI RVSM airspace, and a requested flight level below FL 290 or above FL 410 for that portion of the route commencing immediately after the entry point; and
- b) the exit point at the lateral limit of the AFI RVSM airspace, and the requested flight level for that portion of the route commencing immediately after the exit point.

3.0 AIR-GROUND COMMUNICATIONS AND IN-FLIGHT REPORTING

Note.- Annex 2, 3.6.3, 3.6.5.1 and 5.3.3 and PANS-ATM, 4.11, require controlled flights and certain IFR flights outside controlled airspace to maintain a continuous listening watch on the appropriate radio frequency and to report positions in specified circumstances. The following expands such requirements and specifies additional details regarding the transmission and contents of in-flight reports.

3.1 Application

(A2 – 3.6.3, 3.6.5, 5.3.3; P-ATM, 4.11)

3.1.1 All aircraft on VFR flights, and aircraft on IFR flights outside controlled airspace, shall maintain a watch on a radio station furnishing communications for the unit providing flight information service in the flight information region and file with that station information as to their position unless otherwise authorized by the State overflown.

3.2 Time or place of position reports

(A2 – 3.6.3, 3.6.5, 5.3.3; P-ATM, 4.11)

3.2.1 Position reports additional to those required by the general position-reporting procedures shall be made when entering or leaving controlled or advisory airspace.

3.3 Transmission of position reports

(P-ATM, 4.11)

3.3.1 The last position report before passing from one flight information region to an adjacent flight information region shall also be made to the ATS unit serving the airspace about to be entered.

3.4 Air-Ground Communication Failure Procedures

3.4.1 As soon as it is known that two-way communication has failed, ATC shall maintain a vertical separation of 600m (2000ft) between an aircraft with radio communication failure and another aircraft when both aircraft are operating within the AFI RVSM airspace, unless the horizontal separation between the aircraft is considered adequate. The foregoing is based on the assumption that the aircraft will operate in accordance with 3.4.2 or 3.4.3.

Visual Meteorological Conditions (VMC)

3.4.2 Except as provided for in 3.4.3, a controlled flight experiencing communication failure in VMC shall:

- a) set transponder to Code 7600;
- b) continue to fly in VMC;
- c) land at the nearest suitable aerodrome;
- d) report its arrival time by the most expeditious means to the appropriate ATS unit.

Instrument Meteorological Conditions (IMC)

3.4.3 A controlled IFR flight experiencing communication failure in IMC, or where it does not appear feasible to continue in accordance with 3.4.2, shall:

- a) set transponder to Code 7600; and
- b) maintain for a period of 7 minutes the last assigned speed and level or the minimum flight altitude, if the minimum flight altitude is higher than the last assigned level.

FIRs.

The period of 7 minutes commences:

- i) if the aircraft is operating on a route without compulsory reporting points or has been instructed to omit position reports:

1) at the time the last assigned level or minimum flight altitude is reached, or

2) at the time the aircraft sets transponder to Code 7600, whichever is later; or if the aircraft is operating on a route with compulsory reporting points and has not been instructed to omit position reports:

i) at the time the last assigned level or minimum flight altitude is reached, or

ii) at the previously reported pilot estimate for the compulsory reporting point, or

iii) at the time the aircraft fails to report its position over a compulsory reporting point, whichever is later;

Note 1:-The period of 7 minutes is to allow the necessary air traffic control and co-ordination measures.

Note 2:- instrument meteorological conditions (IMC), aircraft will maintain the last assigned speed and level or minimum flight altitude for a period of 20 minutes instead of 7 minutes.

c) thereafter adjust level and speed in accordance with the filed flight plan;

Note: As regards changes to levels and speed, the Filed Flight Plan, which is the flight plan as filed with an ATS unit by the pilot or a designated representative, without any subsequent changes will be used.

d) if being radar vectored or proceeding offset according to RNAV without a specified limit, proceed in the most direct manner possible to rejoin the current flight plan route no later than the next significant point, taking into consideration the applicable minimum flight altitude;

Note: As regards the route to be flown or the time to begin descent to the arrival aerodrome,

the Current Flight Plan, which is the flight plan, including changes, if any, brought about by subsequent clearances, will be used.

e) proceed according to the current flight plan route to the appropriate designated navigation aid serving the destination aerodrome and, when required to ensure compliance with (f) below, hold over this aid until commencement of descent;

f) commence descent from the navigation aid specified in (e) above at, or as close as possible to, the expected approach time last received and acknowledged; or, if no expected approach time has been received and acknowledged, at, or as close as possible to, the estimated time of arrival resulting from the current flight plan;

g) complete a normal instrument approach procedure as specified for the designated navigation aid; and

h) land, if possible, within thirty minutes after the estimated time of arrival specified in (f) above or the last acknowledged expected approach time, whichever is later.

4.0 SPECIAL PROCEDURES FOR IN-FLIGHT CONTINGENCIES EUR/SAM CORRIDOR

4.1 Introduction

4.1.1 The following procedures are intended for guidance only and will be applicable within the EUR/SAM corridor. Although all possible contingencies cannot be covered, they provide for cases of:

- a) inability to maintain assigned flight level due to weather, aircraft performance, pressurization failure and problems associated with high-level supersonic flight;
- b) loss of, or significant reduction in, the required navigation capability when operating in parts of the

airspace where the navigation performance accuracy is prerequisite to the safe conduct of flight operations; and

- c) en-route diversion across the prevailing EUR/SAM traffic flow.

4.1.2 With regard to 4.1.1 a) and c) above, the procedures are applicable primarily when rapid descent, turnback, or both are required. The pilots' judgement shall determine the sequence of actions to be taken, having regard to the specific circumstances. Air traffic control (ATC) shall render all possible assistance.

4.2 General procedures

4.2.1 The following general procedures apply to both subsonic and supersonic aircraft. Although all possible contingencies cannot be covered, they provide for cases of inability to maintain assigned level due to weather, aircraft performance, pressurization failure and problems associated with high-level supersonic flight. They are applicable primarily when rapid descent and/or turnback or diversion to an alternate airport are required. The pilot's judgment shall determine the sequence of actions taken, taking into account specific circumstances.

4.2.1.1 If an aircraft is unable to continue flight in accordance with its ATC clearance, and/or an aircraft unable to maintain the navigation performance accuracy specified for the airspace, a revised clearance shall whenever possible, be obtained prior to initiating any action, using the distress or urgency signals as appropriate. Subsequent ATC action with respect to that aircraft shall be based on the intentions of the pilot and the overall traffic situation.

4.2.1.2 If prior clearance cannot be obtained, an ATC clearance shall be obtained at the earliest possible time and,

until revised clearance is received, the pilot shall:

- a) if possible, deviate away from an organized track or route system before commencing emergency descent;
- b) establish communications with and alert nearby aircraft by broadcasting, at suitable intervals, aircraft identification, flight level, aircraft position (including the ATS route designator or the track code) and intentions, on the frequency in use, and as well as on frequency 121.5 MHz (or, as a back-up[, on the inter-pilot air-to-air frequency 123.45 MHz);
- c) watch for conflicting traffic both visually and by reference to ACAS (if equipped);
- d) turn on all aircraft exterior lights (commensurate with appropriate operating limitations);
- e) switch on the SSR transponder at all times; and
- f) initiate such action as necessary to ensure the safety of the aircraft.

4.3 Subsonic aircraft

4.3.1 Initial action

4.3.1.1 If unable to comply with the provisions of 4.2.1.1 to obtain a revised ATC clearance, the aircraft should leave its assigned route or track by turning 90 degrees to the right or left whenever this is possible. The direction of the turn should, where possible, be determined by the position of the aircraft relative to any organized route or track system, eg. whether the aircraft is outside, at the edge of, or within the system. Other factors that may affect the direction of the turn to consider are the direction to an the alternative airport, terrain clearance and the

flight levels allocated to adjacent routes or tracks.

4.3.2 Subsequent action (RVSM airspace)

4.3.2.1 In RVSM airspace, an aircraft able to maintain its assigned flight level should turn to acquire and maintain in either direction a track laterally separated by 46 km (25 NM) from its assigned route or track in a multi-track system space at 93 km (50 NM) or otherwise, at a distance which is mid-point from the adjacent parallel route or track and:

- a) if above FL 410, climb or descend 300 m (1 000 ft); or
- b) if below FL 410, climb or descend 150 m (500 ft); or
- c) if at FL 410, climb 300 m (1 000 ft) or descend 150 m (500 ft).

4.3.2.2 An aircraft that is unable to maintain its assigned flight level should:

- a) initially minimize its rate of descent to the extent that it is operationally feasible;
- b) turn while descending to acquire and maintain in either direction a track laterally separated by 46 km (25 NM) from its assigned route or track in a multi-track system spaced at 93 km (50 NM) or otherwise, at a distance which is the mid-point from the adjacent parallel route or track; and
- c) for the subsequent level flight, select a level which differs from those normally used by 300 m (1 000 ft) if above FL 410, or by 150 m (500 ft) if below FL 410.

4.3.3 Subsequent action (non-RVSM airspace)

4.3.3.1 In non-RVSM airspace, an aircraft able to maintain its assigned flight level should turn to acquire and maintain in either direction or track laterally separated by 46 km (25 NM) from its assigned route or track in a multi-track system spaced at 93 km (50 NM) or otherwise, at a distance which is mid-point from the adjacent parallel route or track and:

- a) if above FL 290, climb or descend 300 m (1 000 ft); or
- b) if below FL 290, climb or descend 150 m (500 ft); or
- c) if at FL 290, climb 300 m (1 000 ft) or descend 150 m (500 ft).

4.3.3.2 An aircraft unable to maintain its assigned flight level should:

- a) initially minimize its rate of descent to the extent that it is operationally feasible;
- b) turn while descending to acquire and maintain in either direction a track laterally separated by 46 km (25 NM) from its assigned route or track in a multi-track system spaced at 93 km (50 NM) or otherwise, at a distance which is mid-point from the adjacent parallel route or track; and
- c) for the subsequent level flight, a level should be selected which differs from those normally used by 300 m (1 000 ft) if above FL 290 or by 150 m (500 ft) if below FL 290.

4.3.2 En-route diversion across the prevailing SAT air traffic flow

4.3.2.1 Before diverting across the flow of adjacent traffic, the aircraft should climb above FL 410 or descend below FL 280 using the procedures specified in 4.3.1 or 4.3.2 or 4.3.3. However, if the pilot is unable or unwilling to carry out a major climb or descent, the aircraft should be flown at a level as defined in 4.3.2.1 or 4.3.3.1 until a revised ATC clearance is obtained.

4.3.3 Extended range operations by aeroplanes with two-turbine power-units (ETOPS)

4.3.3.1 If these contingency procedures are employed by a twin-engine aircraft as a result of an engine shutdown or failure of an ETOPS critical system, the pilot should advise ATC as soon as practicable of the situation reminding ATC of the type of aircraft involved, and request expeditious handling.

4.4 Supersonic aircraft

4.4.1 Turnback procedures

4.4.1.1 If a supersonic aircraft is unable to continue flight to its destination and a reversal of track is necessary, it should:

- a) when operating on an outer track of a multi-track system, turn away from the adjacent track;
- b) when operating on a random track or on an inner track of a multi-track system, turn either left or right as follows:
 - 1) if the turn is to be made to the right, the aircraft should attain a position 46 km (25 NM) to the left of the assigned track and then turn to the right into its reciprocal heading, at the greatest practical rate of turn;
 - 2) if the turn is to be made to the left, the aircraft should attain a position 46 km (25 NM) to the right of the assigned track and

then turn to the left into its reciprocal heading, at the greatest practical rate of turn;

- c) while executing the turnback, the aircraft should lose height so that it will be at least 1 850 m (6 000 ft) below the level at which turnback was started, by the time the turnback is completed;
- d) when turnback is completed, heading should be adjusted to maintain a lateral displacement of 46 km (25 NM) from the original track in the reverse direction, if possible maintaining the flight level attained on completion of the turn.

Note.- for multi-track systems where the route spacing is greater than 93 km (50 NM), the mid-point distance should be used instead of 46 km (25 NM).

4.5 Weather deviation procedures

4.5.1 General

4.5.1.1 The following procedures are intended to provide guidance. All possible circumstances cannot be covered. The pilot's judgement shall ultimately determine the sequence of actions to be taken. ATC shall render all possible assistance.

4.5.1.2 If the aircraft is required to deviate from track to avoid weather and prior clearance cannot be obtained, an ATC clearance shall be obtained at the earliest possible time. Until an ATC clearance is received, the aircraft shall follow the procedures detailed in 4.5.4 below.

4.5.1.3 The pilot shall advise ATC when weather deviation is no longer required, or when a weather deviation has been completed and the aircraft has returned to the center line of its cleared route.

4.5.2 Obtaining priority from ATC when weather deviation is required.

4.5.2.1 When the pilot initiates communications with ATC, rapid response may be obtained by stating "WEATHER DEVIATION REQUIRED" to indicate that priority is desired on the frequency and for ATC response.

4.5.2.2 The pilot still retains the option of initiating the communications using the urgency call "PAN PAN" (preferably spoken three times) to alert all listening parties to a special handling condition which will receive ATC priority for issuance of a clearance or assistance.

4.5.3 Actions to be taken when controller-pilot communications are established

4.5.3.1 The pilot notifies ATC and requests clearance to deviate from track, advising when possible, the extent of the deviation expected.

4.5.3.2 ATC takes one of the following actions:

- a) If there is no conflicting traffic in the horizontal plane, ATC will issue clearance to deviate from track; or
- b) If there is conflicting traffic in the horizontal plane, ATC separates aircraft by establishing appropriate separation; or
- c) If there is conflicting traffic in the horizontal plane and ATC is unable to establish appropriate separation, ATC shall:
 - 1) advise the pilot of inability to issue clearance for requested deviation;
 - 2) advise the pilot of confliction traffic; and

- 3) request the pilot's intentions.

SAMPLE PHRASEOLOGY

“UNABLE (requested deviation), TRAFFIC IS (call sign, position, altitude, direction), ADVISE INTENTIONS”.

- 4.5.3.3 The pilot will take the following actions:

- a) advise ATC of intentions by the most expeditious means; and
- b) comply with the ATC clearance issued; or
- c) execute the procedures detailed in 4.5.4 below. ATC will issue essential traffic information to all aircraft and;
- d) if necessary, establish voice communications with ATC to expedite dialogue on the situation.

4.5.4 Actions to be taken if a revised ATC clearance cannot be obtained

4.5.4.1 The provisions of this section apply to situations where a pilot has the need to exercise the authority of a pilot-in-command under the provisions of Annex 2, 2.3.1.

4.5.4.2 If a revised ATC clearance cannot be obtained and deviation from track is required to avoid weather, the pilot shall take the following actions:

- a) if possible, deviate away from the organized track or route system;
- b) establish communications with and alert nearby aircraft broadcasting, at suitable intervals: flight level, aircraft identification, aircraft position (including ATS route designator or the track code) and

intentions, on the frequency in use and on frequency 121.5 MHz (or, as a back-up, on the inter-pilot air-to-air frequency 123.45 MHz);

- c) watch for conflicting traffic both visually and by reference to ACAS (if equipped);

Note.- if, as a result of actions taken under the provisions of 4.5.4.2 b) and c) above, the pilot determines that there is another aircraft at or near the same flight level with which a conflict may occur, then the pilot is expected to adjust the path of the aircraft, as necessary to avoid conflict.

- d) turn on all aircraft exterior lights (commensurate with appropriate operating limitations);
- e) for deviations of less than 19 km (10 NM), aircraft should remain at a level assigned by ATC;
- f) for deviation of greater than 19 km (10 NM), when the aircraft is approximately 19 km (10 NM) from track, initiate a level change based on the following criteria in Table 1;

Table 1

Route center line track	Deviations >19 km (10 NM)	Level change
EAST 000° – 179° magnetic	LEFT	DESCEND 90 m (300 ft)
	RIGHT	CLIMB 90 m (300 ft)
WEST 180° – 359° magnetic	LEFT	CLIMB 90 m (300 ft)
	RIGHT	DESCEND 90 m (300 ft)

- g) when returning to track, be at its assigned level, when the aircraft is within approximately 19 km (10 NM) of the center line; and

- h) if contact was not established prior to deviating, continue to attempt to contact ATC to obtain a clearance. If contact was established, continue to keep ATC advised of intentions and obtain essential traffic information.

4.6 Special Procedures for in-flight contingencies involving a loss of vertical navigation performance required for flight within the AFI RVSM airspace

4.6.1 General

4.6.1.1 An in-flight contingency affecting flight in the AFI RVSM airspace pertains to unforeseen circumstances that directly impact on the ability of one or more aircraft to operate in accordance with the vertical navigation performance requirements of the AFI RVSM airspace, as specified in 1.5.2 Such in-flight contingencies can result from degradation of aircraft equipment associated with height-keeping, and from turbulent atmospheric conditions.

4.6.1.2 The pilot shall inform air traffic control as soon as possible of any circumstances where the vertical navigation performance requirements for the AFI RVSM airspace cannot be maintained. In such cases, the pilot shall obtain a revised air traffic control clearance prior to initiating any deviation from the cleared route and/or flight level, whenever possible. Where a revised air traffic control clearance could not be obtained prior to such a deviation, the pilot shall obtain a revised clearance as soon as possible thereafter.

4.6.1.3 Air traffic control shall render all possible assistance to a pilot experiencing an in-flight contingency. Subsequent air traffic control actions will be based on the intentions of the pilot, the over-all air traffic situation, and the real-time dynamics of the contingency.

4.6.2 Degradation of aircraft equipment — pilot reported

4.6.2.1 When informed by the pilot of an RVSM approved aircraft operating in the AFI RVSM airspace that the aircraft's equipment no longer meets the RVSM MASPS, as specified in 18, air traffic control shall consider the aircraft as non-RVSM approved.

4.6.2.2 Air traffic control shall take action immediately to provide a minimum vertical separation of 600 m (2 000 ft) or an appropriate horizontal separation from all other aircraft concerned operating in the AFI RVSM airspace. An aircraft rendered non-RVSM approved shall normally be cleared out of the AFI RVSM airspace by air traffic control, when it is possible to do so.

4.6.2.3 Pilots shall inform air traffic control, as soon as practicable, of any restoration of the proper functioning of equipment required to meet the RVSM MASPS.

4.6.2.4 The first ACC/UAC to become aware of a change in an aircraft's RVSM status shall coordinate with adjacent ACCs/UACs, as appropriate.

4.6.3 Severe turbulence — not forecast

4.6.3.1 When an aircraft operating in the AFI RVSM airspace encounters severe turbulence due to weather or wake vortex that the pilot believes will impact the aircraft's capability to maintain its cleared flight level, the pilot shall inform ATC. Air traffic control shall establish either an appropriate horizontal separation or an increased minimum vertical separation.

4.6.3.2 Air traffic control shall, to the extent possible, accommodate pilot requests for flight level and/or route changes, and pass traffic information, as required.

4.6.3.3 Air traffic control shall solicit reports from other aircraft to determine whether RVSM

should be suspended entirely or within a specific flight level band and/or area.

4.6.3.4 The ACC/UAC suspending RVSM shall coordinate any such suspension(s), and any required adjustments to sector capacities with adjacent ACCs/UACs, as appropriate, to ensure an orderly progression to the transfer of traffic.

4.6.4 Severe turbulence — forecast

4.6.4.1 Where a meteorological forecast is predicting severe turbulence within the AFI RVSM airspace, air traffic control shall determine whether RVSM should be suspended and, if so, the period of time, and specific flight level(s) and/or area.

4.6.4.2 In cases where RVSM will be suspended, the ACC/UAC suspending RVSM shall coordinate with adjacent ACCs/UACs with regard to the flight levels appropriate for the transfer of traffic, unless a contingency flight level allocation scheme has been determined by letter of agreement. The ACC/UAC suspending RVSM shall also coordinate applicable sector capacities with adjacent ACCs/UACs, as appropriate.

5.0 AIR TRAFFIC CONTROL CLEARANCES

5.1 Adherence to ATC-approved Mach number (A2 – 3.6.2)

5.1.1 Air Traffic Control clearances

5.1.1 Turbojet aircraft operating at or above FL 250 within the Canarias FIR shall adhere to the Mach number approved by ATC and shall request ATC approval before making any change thereto. If it is essential to make an immediate change in the Mach number (eg. due to turbulence), ATC shall be notified as soon as possible that such a change has been made.

5.1.2 If it is not feasible, due to aircraft performance, to maintain the last assigned Mach number during en-

route climbs and descents, pilots of aircraft concerned shall advise ATC at the time of the climb/descent request.

5.1.3 ATC clearance into the AFI RVSM airspace

5.1.3.1 Except for operations within the AFI RVSM transition airspace and within specifically designated airspace, only RVSM approved aircraft and non-RVSM approved State aircraft shall be issued an air traffic control clearance into the AFI RVSM airspace.

5.1.3.2 Air traffic control clearance into the AFI RVSM airspace shall not be issued to formation flights of aircraft.

6.0 SEPARATION OF AIRCRAFT

6.1 Lateral separation

(A11 – Attachment B; P-ATM, 5.4.1 and 5.11)

6.1.1 Minimum lateral separation shall be 185 km (100 NM) except as provided for in 6.1.2 and 6.1.3 below.

6.1.2 Where aircraft are transiting into an airspace with a larger lateral minimum than the airspace being exited, lateral separation will continue to exist provided that:

- a) the smaller separation minimum exists;
- b) flight paths diverge by 15 degrees or more until the larger minimum is established; and
- c) it is possible to ensure, by means approved by the appropriate ATS authority, that the aircraft have navigation capability necessary to ensure accurate track guidance.

6.1.3 For flights on designated controlled oceanic routes or areas within the

Canarias FIR (southern sector), Dakar Oceanic, Recife and Sal Oceanic FIRs, the minimum lateral separation that shall be applied between RNAV-equipped aircraft approved to RNP 10 or better shall be 93 km (50 NM).

6.1.3.1 The letter R shall be annotated in Item 10 (Equipment) of the flight plan to indicate that the aircraft meets the RNP type prescribed.

6.1.3.2 Operators shall establish programmes to mitigate the occurrence of large lateral track errors due to equipment malfunction or operational error, which:

- a) ensure that operating drills include mandatory navigation cross-checking procedures to identify navigation errors in sufficient time to prevent aircraft inadvertently deviating from an ATC-cleared route; and
- b) provide for the continued airworthiness of aircraft navigation systems necessary to navigate to the degree of accuracy required.

Note.- Detailed guidance material on RNP is contained in the Manual on Required Navigation Performance (RNP) (Doc 9613).

6.1.3.3 A target level of safety of 5×10^{-9} fatal accidents per flight hour per dimension shall be established for route systems operating a 93 km (50 NM) lateral separation minimum and the safety level of such airspace shall be determined by an appropriate safety assessment.

Note.- Detailed guidance on conducting safety assessments is contained in the Manual on Airspace Planning Methodology for the Determination of Separation Minima (Doc 9689).

6.1.3.4 The following criteria are used in the operational assessment of airspace system safety:

- a) the proportion of the total flight time spent by aircraft 46 km (25 NM) or more off the cleared track shall be less than 7.0×10^{-4} ; and
- b) the proportion of the total flight time spent by aircraft between 74 km and 111 km (40 NM and 60NM) off the cleared track shall be less than 4.1×10^{-5} .

6.1.3.5 Adequate monitoring of flight operations shall be conducted to provide data to assist in the assessment of continuing compliance of aircraft with the lateral navigation performance capabilities of RNP 10 and 6.1.3.3 above. Such data shall include operational errors due to all causes. A safety assessment shall be carried out periodically, based on the data collected, to confirm that the safety level continues to be met.

Note.- Detailed guidance on monitoring is contained in the Air Traffic Services Planning Manual (Doc 9426) and the Manual of Airspace Planning Methodology for the Determination of Separation Minima (Doc 9689).

6.2 Longitudinal separation (P-ATM, 5.4.2 and 5.11)

6.2.1 Except as provided for in 6.2.2, the minimum longitudinal separation between turbo-jet aircraft shall be:

- a) 20 minutes, except as specified below;
- b) 15 minutes at or above FL 250 within the Canarias, Dakar Oceanic, Recife and Sal Oceanic FIRs, provided that the Mach number technique is applied, and, whether in level, climbing or descending flight, the aircraft have reported over the

- same entry point to the ATS routes or a common point into the oceanic-controlled airspace and follow the same track or continuously diverging tracks; or
- c) 10 minutes or 150 km (80 NM), derived by RNAV, when the Mach number technique is applied on designated controlled oceanic routes in the EUR/SAM corridor within the Dakar Oceanic, Recife and Sal Oceanic FIRs.
- 6.2.2 For flight in the EUR/SAM corridor (Canarias (southern sector), Dakar Oceanic, Recife and Sal Oceanic FIRs), the minimum longitudinal separation minima between RNAV-equipped aircraft approved to RNP 10 or better on the same track shall be 93 km (50 NM) provided that:
- a) the letter R shall be annotated in Item 10 (Equipment) of the flight plan to indicate that the aircraft meets the RNP type prescribed; and
- b) a target level of safety of 5×10^{-9} fatal accidents per flight hour per dimension shall be established and the safety level of such airspace shall be determined by an appropriate safety assessment.

6.2.2.1 Adequate monitoring of flight operations shall be conducted to provide data to assist in the assessment of continuing compliance of aircraft with the longitudinal navigation performance capabilities of RNP 10. Such data shall include operational errors due to all causes. A safety assessment shall be carried out periodically, based on the data collected, to confirm that the safety level continues to be met.

Note.- Detailed guidance on monitoring is contained in the Air Traffic Services Planning Manual (Doc 9426) and the Manual on Airspace Planning Methodology for the Determination of Separation Minima (Doc 9689).

6.3 Vertical separation Minimum

6.3.1. Between FL 290 and FL 410 inclusive within the AFI RVSM airspace, the vertical separation minimum shall be:

- a) 300 m (1 000 ft) between RVSM approved aircraft;
- b) 600 m (2 000 ft) between:
- non-RVSM approved State aircraft and any other aircraft operating within the AFI RVSM airspace; and
 - non-RVSM approved State aircraft and any other aircraft operating within the AFI RVSM transition airspace and within specifically designated airspace.

6.3.2 ATC shall provide a minimum vertical separation of 600 m (2 000 ft) between an aircraft experiencing a communications failure in flight and any other aircraft, where both aircraft are operating within the AFI RVSM airspace.

~~The minimum vertical separation that shall be applied between FL 290 and FL 410 inclusive is 300 m (1 000 ft).~~

~~6.3.1 Area of applicability~~

~~The reduced vertical separation minimum (RVSM) shall be applied for flights between FL 290 and FL 410 inclusive, within the Canarias (Southern sector), Dakar Oceanic, Recife (oceanic portion) and Sal Oceanic FIRs.~~

~~————— Note. ——— Implementation will be carried out in phases and will be promulgated by appropriate AIP Supplements and included in the respective AIPs.~~

~~6.3.2 Establishment of RVSM transition areas (A2 Appendix 3; A6, Parts I and II, 7.2.3; A11 3.3.4; P-ATM, 5.3.2)~~

6.3.2.1 In order to allow for the transition of flights to and from EUR/SAM airspace, the ATS authorities responsible for Canarias, Dakar Oceanic, Recife and Sal Oceanic FIRs may establish designated RVSM transition areas. A 300 m (1 000 ft) vertical separation minimum can be applied between RVSM-approved aircraft within these transition areas.

6.3.2.2 An RVSM transition area shall have a vertical extent of FL 290 to FL 410 inclusive, be contained within horizontal dimensions determined by the provider States, be overlapping with or contained within EUR/SAM RVSM airspace and should have direct controller-pilot communications.

6.3.3 RVSM approval

The minimum separation in 6.3 shall only be applied between aircraft and operators that have been approved by the State of Registry or the State of the Operator, as appropriate, to conduct flights in RVSM airspace and that are capable of meeting the minimum aircraft system performance specification (MASPS) height-keeping requirements (or equivalent).

6.3.4 MASPS

The MASPS height-keeping requirements are as follows:

- a) for all aircraft, the differences between cleared flight level and the pressure altitude actually flown shall be symmetric about a mean of 0 m (0 ft), shall have a standard deviation no greater than 13 m (43 ft) and shall be such that the error frequency decreases with increasing magnitude at a rate which is at least exponential;
- b) for groups of aircraft that are nominally of identical design and built with respect to all details that could influence the accuracy of height-keeping performance in the RVSM flight envelope (FL 290 to FL 410 inclusive):

4) the mean altimetry system error (ASE) of the group shall not exceed 25 m (80 ft) in magnitude; and

5) the sum of the absolute value of the mean ASE and of three standard deviations of ASE shall not exceed 75 m (245 ft);

e) for non-group aircraft for which the characteristics of the airframe and altimetry system fit are unique and so cannot be classified as belonging to a group of aircraft: the ASE shall not exceed 61 m (200 ft) in magnitude in the RVSM flight envelope (FL 290 to FL 410 inclusive); and

f) the following criteria shall be used in the operational assessment of airspace system safety: the total vertical error (TVE), which is the difference between the geometric height of the aircraft and the geometric height of the flight level to which it is assigned, is required to be such that:

1) the probability that TVE equal to or greater than 91 m (300 ft) in magnitude is equal to or less than 2.0×10^{-3} ;

2) the probability that TVE equal to or greater than 152 m (500 ft) in magnitude is equal to or less than 5.0×10^{-6} ;

3) the probability that TVE equal to or greater than 200 m (650 ft) in magnitude is equal to or less than 1.4×10^{-6} ;

4) the probability that TVE between 290 m and 320 m (950 ft and 1 050 ft), inclusive, in magnitude is equal to or less than 1.7×10^{-7} ; and

- 5) ~~The proportion of time that aircraft spend at incorrect flight levels, 300 m (1 000 ft), or multiplies thereof, away from assigned flight levels is equal to or less than 7.1×10^{-7} .~~

Note. — Guidance — material regarding the initial achievement and contained maintenance of the height-keeping performance in 6.3.4 is contained in the Guidance Material on the Implementation of a 300 m (1 000 ft) Vertical Separation Minimum (VSM) for Application in the EUR/SAM corridor.

~~6.3.5 — Target level of safety (TLS)~~

~~Application of RVSM in the airspace designated in 6.3.1 shall meet a TLS of 5×10^{-9} fatal accidents per aircraft flight hour due to all causes of risk in the vertical dimension.~~

~~6.3.6 — Approval status and aircraft registration~~

~~Item 10 of the flight plan (Equipment) shall be annotated with the letter W if the aircraft and operator have received RVSM State approval. Furthermore, the aircraft registration shall be indicated on Item 18 of the flight plan.~~

~~6.3.7 — Operation of aircraft not approved for RVSM~~

~~6.3.7.1 — Except for areas where transition areas have been established, aircraft not meeting the requirements of 6.3.4 shall not be allowed to operate in EUR/SAM RVSM airspace.~~

~~6.3.7.2 — Exceptionally, aircraft that have not received RVSM State approval may be cleared to operate in airspace where RVSM may be applied in accordance with policy and procedures established by the State provided that 5=600 m (2 000 ft) vertical separation is applied.~~

Note. — Transitions to and from EUR/SAM RVSM airspace will normally take place in the first FIR in EUR/SAM RVSM airspace.

~~6.3.8 — Monitoring~~

~~Adequate monitoring of flight operations in the EUR/SAM RVSM airspace shall be conducted to assist in the assessment of continuing compliance of aircraft with the height keeping capabilities in 6.3.4. Monitoring shall include assessment of other sources of risk to ensure that the TLS specified in 6.3.5 is not exceeded.~~

Note. — Details of the policy and procedures for monitoring established by the South Atlantic Monitoring Agency (SATMA) are contained in the Guidance Material on the Implementation of a 300 m (1 000 ft) Vertical Separation Minimum (VSM) for Application in the EUR/SAM Corridor.

~~6.3.9 — Wake turbulence procedures~~

~~6.3.9.1 The following special procedures are applicable to mitigate wake turbulence encounters in the airspace where RVSM is applied.~~

~~6.3.9.2 An aircraft that encounters wake turbulence should notify ATC and request a revised clearance. However, in situations where a revised clearance is not possible or practicable:~~

- ~~a) — the pilot should establish contact with other aircraft, if possible, on the air to air frequency 123.45 MHz; and~~
- ~~b) — one (or both) aircraft may initiate lateral offset(s) not to exceed 3.7 km (2 NM) from the assigned route(s) or track(s), provided that:~~

- ~~1) as soon as it is practicable to do so, the offsetting aircraft notify ATC that temporary lateral offset action has been taken and specify the reason for doing so; and~~
- ~~2) the offsetting aircraft notify ATC when re-established on assigned routes(s) or track(s).~~

Note. In the contingency circumstances above, ATC will not issue clearances for lateral offsets and will not normally respond to action taken by pilots.

6.4 Information on application of separation minima

(A11 – 3.4; P-ATM, 5.4.1, 5.4.2 and 5.11)

6.4.1 Where, circumstances permitting, separation minima lower than those specified in 6.1 and 6.2 will be applied in accordance with the PANS-ATM, ~~appropriate information should be published in Aeronautical Information Publications so that users of the airspace are fully aware of the portions of airspace where the reduced separation minima will be applied and of the navigation aids on the use of which those minima are based.~~

7.0 ALTIMETER SETTING PROCEDURES APPLICABLE TO AIR TRAFFIC SERVICES AND MINIMUM LEVELS

(P-ATM, 4.10 AND 4.10.3)

7.1 The lowest usable flight level for holding and approach manoeuvres shall be calculated from actual QNH, unless the pressure variation is so small that reference to climatological data is acceptable.

Note 1.- The lowest usable flight will provide a terrain clearance of at least 300 m (1 000 ft) and, for operation in the vicinity of an aerodrome will not be established below 450 m (1 500 ft) above aerodrome elevation.

Note 2.- MET Offices will inform ATS units when, in abnormal conditions, pressure goes below the minimum climatological value, in order that appropriate steps can be taken to cancel temporarily the use of the lowest flight level or levels that would not ensure the minimum terrain clearance.

7.2 Based on current and anticipated atmospheric pressure distribution, area control centers shall coordinate, where required, the lowest flight level to be used.

7.3 In determining the transition level, the table at Appendix A should be used when necessary. This table shows the transition level directly as a function of the transition altitude of the aerodrome and of the current QNH altimeter setting value.

8.0 FLIGHT INFORMATION SERVICE

8.1 Information on runway conditions

(A11 – 4.2.1; P-ATM, 6.6)

8.1.1 Unless otherwise provided, area control centers shall have available for transmission to aircraft on request immediately prior to descent, information on the prevailing runway conditions at the aerodrome of intended landing.

8.2 Transmission of SIGMET information

(P-ATM, 9.1.3.2)

8.2.1 Transmission of SIGMET information to aircraft shall be at the initiative of the appropriate ATS unit, by the preferred method of directed transmission followed by acknowledgement, or by a general call when the number of aircraft would render the preferred method impracticable.

8.2.2 SIGMET information passed to aircraft shall cover a portion of the route up to two hours' flying time ahead of the aircraft.

8.3 Transmission of amended aerodrome forecast (P-ATM, 9.1.3.5)

8.3.1 Amended aerodrome forecasts shall be passed to aircraft within 60 minutes from the aerodrome of destination, unless the information would have been made available through other means.

8.4 Transmission of trend forecasts (A11 – 4.2.2)

8.4.1 The latest trend forecasts available to the ATS unit, provided it is no more than one hour old, shall always be transmitted to an aircraft together with the latest report of routine or special observation, when the aircraft requests the latter information.

9.0 AIR TRAFFIC SERVICES COORDINATION

9.1 Coordination between units providing area control service (P-ATM, 10.3)

9.1.1 If a flight should enter an adjacent area information concerning any review of estimate of three minutes or more shall be forwarded to the adjacent area control center.

10. AIR TRAFFIC SERVICES MESSAGES

10.1 Flight plan and departure messages (P-ATM, 11.3.3 and 11.4.2.2)

10.1.1 The procedures applicable for the AFI RVSM airspace are contained in the PANS-ATM Doc.4444 paragraphs 11.3.3 and 11.4.2.

~~10.1.1 Filed flight plan messages for flights intending to operate within the NAT Region at a distance of 60 NM or less from the northern and southern boundaries of Gander Oceanic and Shanwick Oceanic flight information regions shall be addressed to the area control centers in charge of the NAT flight information regions along the route and, in addition, to the area~~

~~control centers in charge of the nearest adjacent NAT flight information regions.~~

~~10.1.2 For flights departing from points within the adjacent regions and entering the NAT Region without intermediate stops, filed flight plan message shall be transmitted to the appropriate area control centers immediately after the flight plan has been submitted.~~

10.1 Computer-assisted coordination process

10.1.1 Procedures

10.1.1.1 *Operational procedure*

10.1.1.1.1 The following basic rules shall apply for the use of EST and ACT messages:

- a) These messages shall be automatically generated, exchanged and processed to obviate human intervention to the extent practicable.
- b) A single message shall be sent in respect of each flight due to be transferred and any subsequent revision shall be the subject of verbal coordination.
- c) The message shall provide the most recent information available on all transfer conditions at the time of transmission.
- d) Acceptance by the receiving unit of the transfer conditions implied in the message shall be assumed, unless the receiving unit initiates verbal coordination to amend the transfer conditions.

Note.— Bilateral arrangement may be required to cover the event of failure of the ATS direct speech circuit.

- e) There shall be bilateral agreement as to the boundary point and transmission times for each route. The normal transmission time shall be 15 minutes before the flight concerned is expected to cross the boundary.
 - f) In the event of data not being correlated by the receiving computer with an appropriate entry in its flight plan database, the computer shall originate a warning to the appropriate air traffic control sector to take necessary action for the acquisition of missing flight plan details. This shall normally involve a telephone inquiry.
 - g) In the event of incomprehensible or illogical data being detected within the message, the computer shall initiate an appropriate warning to the air traffic control sector involved, if this can be determined, for further action.
- Note.— Any system-initiated warning shall require reversion to verbal coordination.*
- h) If the receiving unit has not received a flight plan, the sending air traffic control unit shall verbally inform the receiving unit of whether or not the aircraft is RVSM approved.
 - i) When an automated message does not contain the information filed in Item 18 of the ICAO flight plan form relevant to RVSM operations, the sending air traffic control unit shall inform the receiving unit of that information by supplementing the ACT message verbally, using the term “NEGATIVE RVSM” or “NEGATIVE RVSM STATE AIRCRAFT”, as applicable.
 - j) When a verbal coordination process is being used, the sending air traffic control unit shall include the information filed in Item 18 of the ICAO flight plan form relevant to RVSM operations at the end of the verbal estimate message, using the term

“NEGATIVE RVSM” or “NEGATIVE RVSM STATE AIRCRAFT”, as applicable.

- k) When a single aircraft is experiencing an in-flight contingency which impacts on RVSM operations, the associated coordination message(s) shall be supplemented verbally by a description of the cause of the contingency.

11.0 ALERTING AND SEARCH AND RESCUE SERVICES

11.1 Routes and equipment of private aircraft (P-ATM, 11.3.3 and 11.4.2.2)

11.1.1 General aviation aircraft operating over designated areas, land or sea, where search and rescue operations would be difficult, should:

- a) carry appropriate survival equipment:
- b) follow the route or specified procedures if not equipped with two-way radio, except that under special circumstances, the appropriate authority may grant specific exemptions from this requirement.

11.2 Alerting services (P-ATM, 9.2)

11.2.1 The procedures for “Alerting Service” detailed in the PANS-ATM, 9.2, are applicable to all flights except those conducted wholly in the vicinity of an aerodrome when exempted by the appropriate air traffic control unit.

12.0 IDENTIFICATION OF ATS ROUTES (A11, Appendix 1 – 2.4)

12.1 Composition of designators

12.1.1 The letter D to indicate that on a route or portion thereof advisory service only is provided and the letter F to indicate that on a route or portion thereof flight information service only is provided shall be added after the basic designators of the ATS route in question.

13.0 USE OF SECONDARY SURVEILLANCE RADAR (SSR) (P-ATM, Chapter 8)

13.1 Secondary surveillance radar information may be used alone for the provision of horizontal separation between properly equipped aircraft in the circumstances and under the conditions specified below:

- a) Within the coverage area of the associated primary radar, in order to overcome known deficiencies of that radar, eg. the fact that primary radar echoes of certain aircraft are not, or not continuously, presented on the radar display due to the reflecting characteristics of such aircraft, clutter, etc. In this case, SSR responses may be used for the separation of transponder-equipped aircraft and, additionally, for the separation of transponder-equipped aircraft from other known aircraft not using SSR but displayed clearly on the primary radar display, provided that the SSR responses from any aircraft (not necessarily the one being provided separation) coincide with the primary radar echo of the same aircraft.

Note.-Where SSR accuracy cannot be verified by means of monitor equipment or by visual correlation of the SSR response with the primary radar echo from a given aircraft, SSR

responses alone may be used only to provide identification.

- b) Outside the coverage area of the associated primary radar, or in certain areas (which shall be defined horizontally as well as vertically) and under circumstances specified by the appropriate authority in consultation with the operators, provided:
 - 1) reliable SSR coverage exists within the area;
 - 2) the area is designated as controlled airspace;
 - 3) the control of the air traffic in the area is vested in one ATC unit unless adequate means of coordination exists between all ATC units concerned;
 - 4) actual operating experience has shown that loss of SSR responses is not occurring at a rate affecting the safety of operations and adequate measures for earliest possible detection of such losses have been developed;
 - 5) density and/or complexity of air traffic in the area and provision of navigational guidance allow a safe reversion to other forms of separation in case of SSR failure;
 - 6) the aircraft concerned have previously been identified and identification has been maintained;
 - 7) procedural separation is applied between aircraft with

functioning transponders and other aircraft; and

- 8) when primary radar fails and until procedural separation is established:
 - i) the positional accuracy of the SSR responses has been verified (see 13.1 a) and Note): and
 - ii) the pilots of the aircraft concerned have been advised.
- c) In the case of aircraft emergency.

13.2 — Carriage and operation of pressure-altitude reporting SSR transponders

13.2.1 With effect from 1 January 2000, all aircraft operating as IFR flights in the AFI Region shall be equipped with a pressure-altitude reporting SSR transponder.

13.2.2 Unless otherwise directed by air traffic control, the last assigned identity (Mode A) code shall be retained. If no identity code has been assigned, Mode A code 2000 shall be selected and retained.

**14.0 USE OF AIRBORNE COLLISION
— AVOIDANCE SYSTEMS (ACAS)**
 — (A2 3.2; A6, Part I 6.18; A10
 — Vol. IV; A11 2.4.2; P OPS, Vol. I,
 — Part VIII; P ATM, Chapter 4)

14.1 — Carriage and operation of ACAS II

14.1.1 ACAS II shall be carried and operated in the AFI Region by all aircraft that meet the following criteria:

- a) With effect from 1 January 2000 all civil fixed-wing turbine-engined aircraft having a maximum take-off mass exceeding 15 000 kg or maximum approved passenger seating configuration of more than 30.

- b) With effect from 1 January 2005, all civil fixed-wing turbine-engined aircraft having a maximum take-off mass exceeding 5 700 kg or a maximum approved passenger seating configuration of more than 19.

14.2 — Responsibility for separation of aircraft during manoeuvres in compliance with a resolution advisory (RA)

14.2.1 The use of ACAS II does not alter the respective responsibilities of pilots and controllers for the safe operation of aircraft.

14.2.2 On being notified that an aircraft, under air traffic control, is manoeuvring in accordance with a resolution advisory (RA), a controller should not issue instructions to that aircraft which are contrary to the RA as communicated by the pilot. Once an aircraft departs from the current ATC clearance compliance with an RA, the controllers cease to be responsible for providing separation between that aircraft and other aircrafts affected as a direct consequence of the manoeuvre induced by the RA. However, when circumstances permit, the controller should endeavour to provide traffic information to aircraft affected by the manoeuvre. The controller's responsibility for providing separation for all the affected aircraft resumes when:

- a) the controller acknowledges a report from the pilot that the aircraft has resumed the current clearance; or
- b) the controller acknowledges a report from the pilot that the aircraft is resuming the current clearance and issues an alternative clearance which is acknowledged by the flight crew.

14.3 — ACAS

14.3.1 ACAS can have a significant effect on air traffic control. Therefore there is a continuing need to monitor the performance of

~~ACAS in the developing air traffic management environment.~~

~~14.3.2 Following and RA event, or other significant ACAS event, pilots and controllers should complete an ACAS RA report; aircraft operators and ATS authorities should forward the completed reports through established channels.~~

14. Special procedures applicable to designated airspace

14.1 RVSM approved aircraft and non-RVSM approved State aircraft entering the AFI RVSM airspace from a non-RVSM environment

14.2 RVSM approved aircraft and non-RVSM approved State aircraft entering the AFI RVSM airspace from a non-RVSM environment shall be established at a flight level in accordance with:

- a) the Tables of Cruising Levels, as published in ICAO Annex 2, Appendix 3, a); and/or
- b) a flight level allocation scheme, if applicable; and/or
- c) as specified in an inter area control centre (ACC) letter of agreement.

14.3 Any changes from non-RVSM levels to RVSM flight levels shall be initiated by the first ACC/upper area control centre (UAC) providing air traffic control service to the aircraft within the AFI RVSM airspace, and shall be achieved before the aircraft passes the transfer of control point to the adjacent ACC/UAC, unless otherwise specified in an inter ACC letter of agreement.

14.4 Aircraft entering a non-RVSM environment from the AFI RVSM airspace

14.4.1 Aircraft entering a non-RVSM environment from the AFI RVSM airspace shall be established with the applicable vertical separation minimum.

14.4.2 The applicable vertical separation minimum shall be established by the last ACC/UAC providing air traffic control service to the aircraft within the AFI RVSM airspace, and before the aircraft passes the transfer of control point to the adjacent ACC/UAC.

14.4.3 Such aircraft shall be established at a flight level in accordance with:

- a) the Tables of Cruising Levels, as published in ICAO Annex 2, Appendix 3, b); and/or
- b) a flight level allocation scheme, if applicable; and/or
- c) as specified in an inter ACC letter of agreement.

14.5 Non-RVSM approved civil operations

14.5.1 Non-RVSM approved State aircraft operating from a departure aerodrome outside the lateral limits of the AFI RVSM airspace with a destination aerodrome within the lateral limits of the AFI RVSM airspace:

- a) shall be cleared to a flight level below FL 290; and
- b) any such flight level changes shall be initiated by the first ACC/UAC providing air traffic control service to the aircraft within the AFI RVSM airspace, and shall be achieved before the aircraft passes the transfer of control point to the adjacent ACC/UAC.

14.5.2 Non-RVSM approved aircraft operating from a departure aerodrome to a destination aerodrome which are both within the lateral limits of the AFI RVSM airspace shall be cleared to a flight level below FL 290.

14.5.3 Non-RVSM approved aircraft operating from a departure aerodrome within the lateral limits of the AFI RVSM airspace to a destination aerodrome outside the lateral limits of the AFI RVSM airspace:

- a) shall be cleared to a flight level below FL 290; and
- b) may be cleared to FL 290 or above by the last ACC/UAC providing air traffic control service to the aircraft within the AFI RVSM airspace, and any such flight level changes shall be achieved before the aircraft passes the transfer of control point to the adjacent ACC/UAC.

14.5.4 Non-RVSM approved aircraft operating from a departure aerodrome to a destination aerodrome which are both outside the lateral limits of the AFI RVSM airspace, with a portion of the route within the lateral limits of the AFI RVSM airspace:

- a) shall be cleared to a flight level below FL 290 or above FL 410 by the first ACC/UAC providing air traffic control service to the aircraft within the AFI RVSM airspace, and any such flight level changes shall be achieved before the aircraft passes the transfer of control point to the adjacent ACC/UAC, in accordance with the flight level allocation system (FLAS), if applicable, and/or as specified in an inter ACC letter of agreement; and
- b) may subsequently be cleared to a requested flight level within, or through, the AFI RVSM airspace by the last ACC/UAC providing air traffic control service to the aircraft within the AFI RVSM airspace, and any such flight level changes shall be achieved before the aircraft passes the transfer of control point to the adjacent ACC/UAC.

15 Phraseology related to RVSM Operations in the AFI RVSM AIRSPACE

15.1 Controller/pilot RTF phraseology

Phrase Meaning	Phrase Meaning
(<i>call sign</i>) CONFIRM RVSM APPROVED	For a controller to ascertain the RVSM approval status of an aircraft.
NEGATIVE RVSM*	For a pilot to report non-RVSM approval status: a) on the initial call on any frequency within the AFI RVSM airspace (controllers shall provide read back with this same phrase); and b) in all requests for flight level changes pertaining to flight levels within the AFI RVSM airspace; and
	c) in all read backs to flight level clearances pertaining to flight levels within the AFI RVSM airspace. Additionally, except for State aircraft, pilots shall include this RTF phrase to read back flight level clearances involving the vertical transit through FL 290 or FL 410.
AFFIRM RVSM*	For a pilot to report RVSM approval status.
NEGATIVE RVSM STATE AIRCRAFT*	For a pilot of a non-RVSM approved State aircraft to report non-RVSM approval status, in response to the RTF phrase (<i>call sign</i>) CONFIRM RVSM APPROVED.

UNABLE RVSM DUE TURBULENCE*	Denial of air traffic control clearance into the AFI RVSM airspace.
UNABLE RVSM DUE EQUIPMENT*	For a pilot to report that the aircraft's equipment has degraded below the MASPS required for flight within the AFI RVSM airspace. This phrase is to be used to convey both the initial indication of the non-MASPS compliance, and henceforth, on initial contact on all frequencies within the lateral limits of the AFI RVSM airspace until such time as the problem ceases to exist, or the aircraft has exited RVSM airspace.
READY TO RESUME RVSM*	For a pilot to report the ability to resume operation within the AFI RVSM airspace after an equipment or weather-related contingency.

Phrase Meaning	Phrase Meaning
REPORT ABLE TO RESUME RVSM	For a controller to confirm that an aircraft has regained its RVSM approval status, or to confirm that the pilot is ready to resume RVSM operations.

*Note.-*indicates a pilot transmission*

15.2 Phraseology between ATS units

NEGATIVE RVSM or NEGATIVE RVSM STATE AIRCRAFT [as applicable]	To verbally supplement an automated estimate message exchange that does not automatically transfer Item 18 information. Also used to verbally supplement estimate messages of non-
---	--

	RVSM approved aircraft.
UNABLE RVSM DUE TURBULENCE [or EQUIPMENT, as applicable]	To communicate the cause of a contingency relating to an aircraft that is unable to conduct RVSM operations due to severe turbulence or other severe weather-related phenomenon [or equipment failure, as applicable]. End of new text.

16. RVSM Approval

16.1 Except for State aircraft, operators intending to conduct flights within the volume of airspace specified in 14.1.2 where RVSM is applied shall 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 RVSM approval, operators shall satisfy the said State that:

- a) aircraft for which the RVSM approval is sought have the vertical navigation performance capability required for RVSM operations through compliance with criteria of the RVSM minimum aircraft systems performance specifications (MASPS);
- b) they have instituted procedures in respect of continued airworthiness (maintenance and repair) practices and programmes; and they have instituted flight crew procedures for operations in AFI RVSM airspace specified in 14.1.2

Note 1.— 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.

Note 2.— Aircraft that have received State approval for RVSM operations will be referred to as “RVSM approved aircraft”.

Note 3.— Aircraft that have not received State approval for RVSM operations will be referred to as “non-RVSM approved aircraft”.

17. Minimum Aircraft Systems Performance (MASPS)

17.1 The characteristics of total vertical error (TVE) distribution form the basis of the MASPS which were developed to support the introduction of RVSM operations in accordance with agreed global safety standards. The MASPS were designed to ensure that:

- a) in respect of groups of aircraft that with respect to all details that could influence the accuracy of height-keeping performance, height-keeping capability shall be such that TVE for the group of aircraft shall have a mean no greater than 25 m (80ft) in magnitude and shall have standard deviation no greater than $92 - 0.004z$ for $0 < z < 0$ where z is the magnitude of the mean TVE in feet or $28 - 0.013z$ for $0 < z < 25$ when z is in metres. In addition, the components of TVE must have the following characteristics:

- 1) the mean altimetry system error (ASE) of the group shall not exceed 25 m (80ft) in magnitude;
- 2) the sum of the absolute value of the mean ASE and of three standard

deviations of ASE shall not exceed 75 m (245 ft); and

- 3) the differences between cleared flight levels and the indicated pressure altitude actually flown shall be symmetric about a mean of 0 m, with standard deviation no greater than 13.3 m (43.7 ft), and in addition, the decrease in frequency of differences with increasing difference magnitude shall be at least exponential.

- b) in respect of a non-group aircraft for which the characteristics of the airframe and altimetry system fit are unique and so cannot be classified as belonging to a group of aircraft, height-keeping performance capability shall be such that the components of the TVE of the aircraft have the following characteristics:

- 1) the ASE of non-group aircraft shall not exceed 60 m (200 ft) in magnitude under all flight conditions; and
- 2) the differences between the cleared flight level and the indicated pressure altitude actually flown shall be symmetric about a mean of 0 m, with a standard deviation no greater than 13.3 m (43.7 ft), and in addition, the decrease in frequency of differences with increasing difference magnitude shall be at least exponential.

17.2 Guidance material of use to those involved in the initial achievement and continued maintenance of the height-keeping performance capability has been issued by ICAO under the title Manual on the Implementation of a 300 m (1,000 ft) Vertical Separation Minimum (VSM) between FL290 and FL410 Inclusive. Detailed technical guidance material on the airworthiness, continued airworthiness, and the operational practices and procedures for AFI airspace is

provided in the Joint Aviation Authorities Administrative and Guidance Material, Section one: General, part 3: Leaflet No. 6

18. RVSM Monitoring

18.1 Adequate monitoring of flight operations in the AFI RVSM airspace shall be conducted to assist in the assessment of continuing compliance of aircraft with the height-keeping capabilities in 17. Monitoring shall include assessment of other sources of risk to ensure that the TLS specified in 19 is not exceeded.

Note. — Details of the policy and procedures for monitoring established by the AFI Monitoring Agency (South Africa) are contained in the Guidance Material on the Implementation of a 300 m (1000 ft) Vertical Separation Minimum (VSM) for Application in the AFI Region are contained in ICAO Doc 9574 and other appropriate documentations on the subject.

19. Target level of safety (TLS)

19.1 Application of RVSM in the airspace designated in 6.3.1.1 shall meet a TLS of 5×10^{-9} fatal accidents per aircraft flight hour due to all causes of risk in the vertical dimension.

21. ~~Wake turbulence procedures~~

~~21.1 The following special procedures are applicable to mitigate wake turbulence encounters in the airspace where RVSM is applied.~~

~~21.2 An aircraft that encounters wake turbulence should notify air traffic control (ATC) and request a revised clearance. However, in situations where a revised clearance is not possible or practicable:~~

- ~~a) the pilot should establish contact with other aircraft, if possible, on the~~

~~appropriate VHF inter-pilot air-to-air frequency; and~~

- ~~b) one (or both) aircraft may initiate lateral offset(s) not to exceed 2 NM from the assigned route(s) or track(s), provided that:~~

~~as soon as it is practicable to do so, the offsetting aircraft notify ATC that temporary lateral offset action has been taken and specify the reason for doing so; an the offsetting aircraft notify ATC when re-established on assigned route(s) or track(s).~~

~~*Note. — In the contingency circumstances above, ATC will not issue clearances for lateral offsets and will not normally respond to action taken by pilots.*~~

20. Special procedures for strategic lateral offsets in Oceanic Controlled Area (OCA) and remote continental airspace within AFI Region

Note. — The following incorporates lateral offset procedures for both the mitigation of the increasing lateral overlap probability due to increased navigation accuracy, and wake turbulence encounters.

20.1 The use of highly accurate navigation systems (such as the global navigation satellite system (GNSS)) by an increasing proportion of the aircraft population has had the effect of reducing the magnitude of lateral deviations from the route centre line and consequently increasing the probability of a collision should a loss of vertical separation between aircraft on the same route occur.

20.2 The application of lateral offsets to provide lateral spacing between aircraft, in accordance with the procedures specified in 20.3 and 20.4, can be used to mitigate the effect of this reduction in random lateral deviations, thereby improving overall system safety.

Implementation considerations for ATS authorities

20.3 The application of lateral offsets requires authorization from the ATS authority responsible for the airspace concerned. The following considerations shall be taken into account by the ATS authority when planning authorization of the use of strategic lateral offsets in a particular airspace:

- a) Strategic lateral offsets shall only be authorized in en-route oceanic or remote continental airspace. Where part of the airspace in question is within radar coverage, transiting aircraft should normally be allowed to initiate or continue offset tracking.
- b) Strategic lateral offsets may be authorized for the following types of routes (including where routes or route systems intersect):
 - 1) uni-directional and bi-directional routes; and
 - 2) parallel route systems where the spacing between route centre lines is not less than 55.5km (30 NM).
- c) In some instances it may be necessary to impose restrictions on the use of strategic lateral offsets, e.g. where their application may be inappropriate for reasons related to obstacle clearance.
- d) These offset procedures should be implemented

on a regional basis after coordination between all States involved.

- e) The routes or airspace where application of strategic lateral offsets is authorized, and the procedures to be followed by pilots, shall be promulgated in aeronautical information publications (AIPs).
- f) Air traffic controllers shall be made aware of the airspace within which strategic lateral offsets are authorized.

Lateral offset procedures to be applied by pilots

20.4 In the application of strategic lateral offsets, pilots should take the following points into consideration:

- a) Offsets shall only be applied in airspace where this has been approved by the appropriate ATS authority.
- b) Offsets shall be applied only by aircraft with automatic offset tracking capability.
- c) The decision to apply a strategic lateral offset is the responsibility of the flight crew.
- d) The offset shall be established at a distance of one or two nautical miles to the right of the

centre line relative to the direction of flight.

- e) The strategic lateral offset procedure has been designed to include offsets to mitigate the effects of wake turbulence of preceding aircraft. If wake turbulence needs to be avoided, one of the three available options (centreline, 1 NM or 2 NM right offset) shall be used.
- f) In airspace where the use of lateral offsets has been authorized, pilots are not required to inform air traffic control (ATC) that an offset is being applied.
- g) Aircraft transiting areas of radar coverage in airspace where offset tracking is permitted may initiate or continue an offset.

20.5 Pilots may, if necessary, contact other aircraft on the air-to-air frequency 123.45 MHz to coordinate offsets.

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	Djibouti	Ireland	Mauritius
Burundi	Egypt	Israel	Mexico
Cameroon	Equatorial Guinea	Italy	Morocco
Canada	Eritrea	Jamaica	Mozambique

Namibia	Sweden
Netherlands	Switzerland
New Zealand	Syrian Arab Republic
Niger	Thailand
Nigeria	The former Yugoslav Republic of Macedonia
Norway	Togo
Oman	Tunisia
Pakistan	Turkey
Philippines	Uganda
Poland	United Arab Emirates
Portugal	United Kingdom
Qatar	United Republic of Tanzania
Republic of Korea	United States
Romania	Uruguay
Rwanda	Viet Nam
Russian Federation	Yemen
Sao Tome and Principe	Zambia
Saudi Arabia	Zimbabwe
Senegal	ASECNA
Seychelles	IATA
Sierra Leone	IFALPA
Singapore	
Slovakia	
Slovenia	
Somalia	
South Africa	
Spain	
Sri Lanka	
Sudan	
Swaziland	

f) Secretariat comments

- a) 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.
 - b) 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.
-

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

OCTOBER 2005

Prepared by the Secretary of the RVSM/TF

AFI RVSM IMPLEMENTATION STRATEGY/ACTION PLAN					
ID	Description	Target Date	Status	Resources	Remarks
	Program Management				
1	Agree on structure of TF to enable efficient handling of specialist technical tasks	21/11/03	Completed	Secretariat Support Team: ASECNA, SA, IATA, 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	Completed	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	01/06/04 15/06/04 May 06	Completed Completed In Progress	ICAO ICAO ICAO	* Completed 31 May * Approval draft by (TF/6) * Approval final draft by TF/9 March 2006
9	States comments on RVSM implementation Strategy/Action Plan	31/-3/04	Completed	States, ICAO RVSM/ITF3	Completed 31 March 04
10	Regional RVSM informational Website	31/03/04	Completed	IACO/IATA/States	Completed 1 Feb 04
11	RVSM Seminar/RVSM ITF3	19-22/04/04	Completed	ICAO	Completed on Time
12	RVSM Seminar /RVSM/ITF/4	26-30/07/04	Completed	ICAO/RVSM ITF/4	Completed on Time

AFI RVSM IMPLEMENTATION STRATEGY/ACTION PLAN					
ID	Description	Target Date	Status	Resources	Remarks
13	Coordination and harmonization of procedures with adjacent Regions	Ongoing	Ongoing	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	Confirm target AIRAC implementation date (AIP Supplement to be published)	Oct 05	In progress	ICAO/States	TF8 to review requirement
16	Regional RVSM implementation status reports	Ongoing	Ongoing	ICAO	Monthly
17	State Readiness Assessment, CRA, PISC, Doc.7030	March 2006	In Progress	ICAO	TF/9
18	RVSM/ARTF/5	15-16/11/04	Completed	ICAO/RVSM ITF/5	
19	RVSM/ARTF/6	25-27/05/05	Completed	ARTF/6	
20	RVSM/ARTF/7 ATS/AIS/SAR/SG/8	08-09/08/05 10-12/08/5	Completed Completed	ARTF/7 ATS SG/8	
21.	RVSM/ARTF/8 and RVSM Seminar	10 – 14 October 2005	Completed		
22.	RVSM/ARTF/9 meeting	March 06	In Progress	ARTF	
23.	RVSM TF/10 meeting and GO/NO GO meeting	June 06	In Progress	States and Stakeholders	TF/10 to confirm date
24	Publish Trigger NOTAM	June 06	In	States	TF/10 and GO/NO GO

AFI RVSM IMPLEMENTATION STRATEGY/ACTION PLAN					
ID	Description	Target Date	Status	Resources	Remarks
			Progress		meeting to confirm date
25	Develop switch over plan	TBA ARPO		ICAO	TF8
	Aircraft Operations and Airworthiness				
26	Regional OPS/Airworthiness RVSM Guidance Doc	21/11/03	Completed	ICAO	Sent 05 Dec 2003 to states for action.
27	Develop regional Pilot Training RVSM Guidance Material	30/04/04	Completed	IATA	Sent to States for action May 2004.
28	Aircraft Operational approval process guidelines	31/05/04	Completed	States, ICAO	Sent to States for action June 2004.
29	Aircraft RVSM Approval Survey	On Going	In progress	ICAO/States	Continuous
30	Ensure aircraft/operator approval process	On Going	In progress	ICAO/ARMA/IATA	Airworthiness training to be provided for State authorities
	Air Traffic Management				
31	National RVSM plan	31/03/04	Ongoing	States, ICAO	States to complete by June 2006.
32	National Safety Plan Validation Panel	12-23-09-05	In progress	ARMA/IATA/ICAO	
33	APIRG/15 Consideration of TF Reports	25-30-9-05	Completed	ICAO	
34	Regional ATC OPS Manual	31/03/04	Completed	ICAO	Sent to States – 05/05/04
35	Determine the limits of RVSM airspace	30/06/04	Completed	States/ICAO	TF4 verified limits.
36	Regional ATC Training Program & Guidance Material	June 06	On Going	States	Instructor training completed. Refresher Retraining necessary for all ops staff

AFI RVSM IMPLEMENTATION STRATEGY/ACTION PLAN					
ID	Description	Target Date	Status	Resources	Remarks
37	Simulations to assess ATC workload and possible need for airspace/air route Sector changes	March 06	In Progress	States	In National RVSM Plan
38	Letters of Agreement	March 2006	Completed	States	Specimen LOA sent to States.
39	Military aviation preparation	March 06	In progress	States	In National RVSM Plan
40	National RVSM Regulatory Material	March 06	In progress	States, ICAO	To Identify requirements
41	States assess the impact of RVSM implementation on controller automation systems and plan for upgrades/ modifications	Sept 05	In progress	States	In National Plan
42	Collect weather and turbulence data for analysis	31 /05/05	Completed	ARMA ICAO/States	TF/7
43	a) States to conduct local ATC RVSM training b) Re-training for all operational Staff	May 06 July 2006	In progress	States	TF/10 and GO/NO GO meeting June 2006
	RVSM Safety Assurance				
44	Conduct preliminary data collection and readiness assessment	On Going	In progress	ARMA/ICAO	Ongoing
45	Develop AFI RVSM Safety Policy	30/06/04	Completed	RVSM/ARTF4	Sent to States for publication July 2004.

AFI RVSM IMPLEMENTATION STRATEGY/ACTION PLAN					
ID	Description	Target Date	Status	Resources	Remarks
46	a) Develop National RVSM Safety Plan	30/06/04	Completed	ICAO	Sent to States for Action July 2004.
	b) Conduct NSP workshops facilitated by ATC experts	July 05	Completed	ICAO /IATA/ATNS/ASEC NA	Nairobi & Dakar July 2005
	c) Submit NSP's for validation	31/08/05	In Progress	States	TF7
	d) Submit final NSP's after validation comments have being taken into account	31/08/05		States	TF7
	e) Once NSP's are implemented, DCA's to confirm State readiness to Implement RVSM in writing	June 06		States	TF7
	f) Update State readiness document	June 06		ICAO	
47	RVSM Functional Hazard Assessment (FHA)	4-8/04/05	Completed	ARMA/ICAO	3 FHA meetings conducted Final FHA 4-8/04/05. Report Completed May 2005 and adopted.
48	Validate Functional Hazard Assessment	31/05/05	Completed	RVSM ARTF/6	TF/6/25-27/05/05
49	Update activities on NSPVP, PISC, CRA, Doc.7030	10-12/10/05	Completed	TF/8	October 2005
50	RVSM Collision Risk Assessment	March 06	In progress	ARMA/ICAO/IATA	Revised assessment
51	Validate Collision Risk Assessment	March 06	In progress	RVSM ARTF/9	
52	Develop AFI Pre-Implementation Safety Case	March 06	In Progress	ARMA/ICAO/IATA	TF9 review PISC progress
53	AFI Pre-Implementation Safety Case: APIRG/ANC	May 06	In Progress	ARPO/ANC/IATA	

AFI RVSM IMPLEMENTATION STRATEGY/ACTION PLAN					
ID	Description	Target Date	Status	Resources	Remarks
54	RVSM Implementation	28/09/06		States	Tentative target date.
	Monitoring Agency				
55	Evaluate options for setting up AFI RMA	21/11/03	Completed	RVSM/ITF2	Completed on time
56	Identify an AFI RMA	21/11/03	Completed	RVSM/ITF/2	Completed on time
57	Establish an AFI RMA.	31/03/04	Completed	South Africa/ICAO	Completed on time
	Post Implementation Safety Case (POSC)				
58	Validate implementation readiness template	15/11/04	Completed	ICAO/ARMA	
59	Data collection to continue for submission to ARMA	Monthly	In Progress	States	
60	Evaluate system safety after implementation plus 3, 6, 12 and 24 months			ARMA	
61	Monitor system safety in adjacent Regions			ARMA	

- END -