INTERNATIONAL CIVIL AVIATION ORGANIZATION

RVSM/RNAV/RNP TF/5 MEETING
REPORT

(DAKAR, 16 – 17 NOVEMBER 2004)

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.

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APPENDICES

PART I - HISTORY OF THE MEETING

1. Introduction

1.1 The Fifth meeting of the RVSM/RNAV/RNP Task Force (RVSM/RNAV/RNP TF/5) was convened pursuant to AFI/7 RAN Meeting Recommendations 5/7, 5/17 and APIRG/13 Decision 13/58 by the International Civil Aviation Organization in Dakar from 16 to 17 November 2004.

1.2 The meeting was opened by Mr. A MENSAH, ICAO Regional Deputy Director WACAF Office. He emphasized the preliminary studies which have to be done prior to the implementation of the required procedures aimed at increasing or improving the capacity of a given airspace in order to satisfy the demand of ever growing air traffic. In that regard, he emphasized the importance of the Fifth Meeting of the RVSM/RNAV/RNP Task Force being organized pursuant to APIRG/13 Decision 13/58. He recalled APIRG 14 Conclusion 14/21 relating to the development of an AFI RVSM strategy/action plan within specific target dates and wished the members fruitful deliberations with a view to further enhance the safety of air navigation in the Region.

2. Officers and Secretariat

2.1 The meeting nominated Mr. GUITTEYE Amadou, Director of operations ASECNA, as its moderator.

2.2 Mr. Apolo KHARUGA, Regional Officer, Air Traffic Management of the ICAO ESAF Office, acted as the Secretary of the meeting. He was assisted by Messrs. Ibrahim Usman AUYO, Regional Officer ATM, WACAF Office, Dakar, BROU Konan, RO/ATM, Dakar and Vic Van Der Westhuizen (ICAO RVSM Program Officer).

3. Attendance

3.1 The meeting was attended by 58 participants from 22 States and 08 International Organizations namely IATA, AFRAA, ALTRAN, ARMA, ASECNA, IFALPA, IFATCA and Jeppesen. 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 only.

5. Agenda

5.1 The following Agenda was adopted:

Agenda Item 1: Review and follow-up action of conclusions of fourth meeting of RVSM/RNAV/RNP Task Force.

Agenda Item 2: Review of RVSM Strategy/Action Plan.

Agenda Item 3: Any other business.

6. Conclusions

6.1 The Task Force recorded its actions in the form of Conclusions.

Summary of Conclusions

Number	Title
Conclusion 5/1:	**Safety assessment data** That States continue to provide the required safety assessment data to ARMA on monthly basis initially for a period of eight months commencing 1 November 2004.
Conclusion 5/2:	**Civil/military coordination** That in order to ensure the safe and coordinated implementation of RVSM in the AFI Region, States should ensure that the military aviation authorities are fully involved in the planning and implementation process.
Conclusion 5/3:	**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.
Conclusion 5/4	**Reporting of data for monitoring and/or carrying out safety assessment** That: a) All States institute procedures for reporting of data, incidents and conditions necessary for performing the collision risk calculations prerequisite for RVSM implementation to the AFI monitoring agency. 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.

Number	Title
	v) Turbulence; and vi) Traffic data. b) All States institute procedures for reporting to the AFI monitoring agency data, incidents and conditions necessary for performing the collision risk calculations prerequisite for RVSM implementation; and c) GMU will be used for height monitoring in AFI Region which will be coordinated by the ARMA.
Conclusion 5/5:	**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 between 290 and 410 inclusive; b) RVSM implementation date of 20 January 2005 be postponed by one year to facilitate States/Operators to complete their required strategy/action Plan. c) Implementation of RVSM in the AFI Region be harmonized and coordinated within the AFI Region as well as the adjacent Regions.
Conclusion 5/6:	**Training of all personnel involved with the implementation of RVSM in the AFI Region** **That:** a) Seminars be organized in the Region for training of air traffic services personnel in the RVSM field; and 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.

Number	Title
Conclusion 5/7:	**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 a designated RVSM airspace based on provisions of ICAO Annex 6 Part 1 Chapt 7 para. 7.2.3 and the guidance material contained in JAA Temporary Guidance Leaflet (TGL) N°6.
Conclusion 5/8:	**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 (AIPs).Guidance material for Airworthiness and Operational Approval
Conclusion 5/9:	**Amendment to ICAO Doc. 7030** That ICAO process as soon as possible an amendment proposal to the AFI SUPPs (Doc 7030) to include relevant provisions for RVSM implementation.
Conclusion 5/10:	**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 5/11:	**AFI RVSM Strategy/Action Plan** That the updated RVSM Strategy/Action Plan at **Appendix B** be circulated to States for action.

Number	Title
Conclusion 5/12:	**Aircraft/Operators readiness survey** That the results of ICAO/ARMA surveys be updated and presented at the RVSM TF/6 meeting for consideration.
Conclusion 5/13:	**Monitoring of Height Deviations** **That:** a) ICAO request the States of Algeria, Botswana, Cape Verde, Egypt, Ghana, Kenya, Nigeria, South Africa, Spain, Tanzania and Tunisia to establish at the ACC where radar is implemented, a unit to conduct monitoring of aircraft height deviations in the AFI RVSM airspace; and b) The data collected at a) above be forwarded to AFI RMA for action.
Conclusion 5/14:	**Organization of AFI airspace in respect of AFI RVSM airspace** That the ATS/SG of APIRG consider as one of its tasks the issue of restructuring of the AFI Region airspace in light of the introduction of RVSM.
Conclusion 5/15:	**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 5/16:	**AFI Safety Policy** That States expedite the publication of national RVSM safety policy using the sample at **Appendix C** to this report.
Conclusion 5/17:	**National Safety Plan** That States expedite the publication of their National Safety Plan using the sample at **Appendix D** to this report.

Number	Title
Conclusion 5/18:	**Strategic Lateral Offset Procedures** That the APIRG ATS Sub-Group address the issue relating to Strategic Lateral Offset Procedures taking into account the work being done by the ICAO Separation and Airspace Safety Panel (SASP).
Conclusion 5/19:	**State Readiness Assessment** That ICAO urge States which have not done so, to provide the State RVSM readiness assessment using the form at **Appendix E** to this report.
Conclusion 5/20:	**Exchange of RVSM data in ASECNA** That ASECNA sub-regional monitoring unit forward to AFI RMA the RVSM data collected from their member States.
Conclusion 5/21:	**Exchange of RVSM data** That States send the RVSM data to ARMA on a monthly basis in a timely manner.
Conclusion 5/22:	**AFI RVSM Functional Hazard Assessment meetings** That the ARMA arrange for two FHA Sessions before March 2005.
Conclusion 5/23:	**Functional Hazard Assessment (FHA)** That ARMA provide the FHA and all Safety objectives and requirements to ICAO for inclusion in the AFI Pre-Implementation Safety case.
Conclusion 5/24:	**Collision Risk Assessment** That RMA provide the CRA to ICAO for inclusion in the AFI Pre-Implementation Safety Case.
Conclusion 5/25:	**Continuation of AFI RVSM Programme Office (ARPO)** That the AFI RVSM Programme Office (ARPO) be continued until the Pre-Implementation Safety Case (PISC) documentations are completed.

PART II REPORT ON AGENDA ITEMS

Agenda Item 1: Review and follow-up action of conclusions of the fourth meeting of RVSM/RNAV/RNP Task Force

1.1 Under this Agenda Item the meeting reviewed and noted the action taken on the conclusions of the fourth meeting of the RVSM/RNAV/RNP/Task Force. It reinstated those conclusions which were still in force and proposed the action to be taken before the next Task Force Meeting planned for 3 to 4 May 2005. These conclusions appear at Part I of this report.

Agenda Item 2: Review of RVSM Strategy/Action Plan

2.1 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.

2.2 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 be presented for approval.

2.3 It recalled that the RVSM TF/4 meeting had developed the strategy/action plan and reviewed relevant comments from States, Task Force Members and the interested international organizations. The comments thereby received have been incorporated in the new revised version of the strategy/action plan and it has been circulated to States for their appropriate action.

2.4 The meeting agreed that the implementation of RVSM in AFI should be pursued in a pragmatic manner and in detail following the steps in the revised strategy/action plan. The meeting agreed that the strategy/action plan will be reviewed on each of the several TF meetings scheduled for next year before any decision is made to implement the RVSM.

2.5 Furthermore, the meeting agreed that the revised AFI strategy/action plan at **Appendix B,** AFI Safety Policy at **Appendix C** and the National Safety Plan **Appendix D** be circulated to States for action.

2.6 The Meeting recalled the requirements for the implementation of Strategic Lateral Offset procedures in accordance with ICAO Annex 2 Paragraph 3.6.2.1.1 which requires aircraft to operate along defined centre line of established ATS routes and work being pursued by the SASP on the subject. The meeting agreed that the subject be addressed by the APIRG ATS Sub Group.

2.7 The meeting noted the slow progress in responding to the AFI action plan required for RVSM implementation in the Region and considered that there was a need for the issue to be addressed at the highest level of the Civil Aviation Chief Executive Officers and Director Generals. The TF agreed that there was a need for ICAO to intensify campaign and missions to assist States with the RVSM Implementation process.
The meeting was also concerned with the lack of ASECNA involvement in RVSM Task Force activities.

2.8 The members presented several working papers relating to the RVSM implementation. The Task Force noted that all these papers were emphatic and agreed that the implementation of RVSM was a reality and the main question was WHEN? And considered the feasibility of the implementation date of 20 January 2005. The meeting noted with concern that there were several issues still pending in the Strategy/Action plan. Among the most important pending items were:

(i) The collection of data to be used by the Safety Assessment team to prepare the Safety Assessment Case and more specifically the Collision Risk Assessment (CRA) and Functional Hazard assessment (FHA).

(ii) Two more FHA sessions will be required in the first quarter of 2005 and scheduled to be completed by end of March 2005.

(iii) The CRA height keeping deviations and traffic flow data from all States for a period of 12 months to estimate the parameters of the collision risk model.

2.9 Furthermore, the Pre-Implementation Safety Case (PISC) should be developed using the FHA and CRA assessment reports by end June 2005. The ARTF must validate the PISC in August at the 7th Meeting in order to approve this document for presentation at the ANC in September 2005. Should the ANC approve the PISC the Task Force will have to meet immediately to consider the NOTAM, AICs and other relevant documents to be issued by States. These information will be reviewed by the GO/Delay Stakeholders Meeting in October 2005.

2.10 The TF noted with satisfaction the following ongoing activities within the AFI Region which proved commitment towards the early implementation of RVSM:

1) Several AICs relating to RVSM implementation have been issued and continued to be issued.

2) Some States were ready to implement RVSM on 20 January 2005.

3) One large service provider for 16 States was ready to implement RVSM in January 2005 but their member States have yet to confirm their readiness.

4) Some States needed to be sensitised to update their RVSM implementation readiness survey questionnaires and forward to ARPO at the earliest possible date but not later than February 2005.

5) Training courses of ATC and other relevant operational staff is ongoing in several Regional training institutes and that these institutes were ready to offer any State such kind of training if required. It was noted that on-site training would be more cost effective and expedite the training process.

6) Training for pilots was ongoing through company training programmes.

7) RVSM seminars have been organised by ICAO and will continue to be offered.

8) RVSM seminars are being conducted at national level at several States and other States are encouraged to do the same.

9) Some States were taking appropriate steps in accordance with the Strategy/Action Plan to implement RVSM and operators who are RVSM approved will not benefit from the delay of RVSM Implementation.

2.11 Given all the above issues it was agreed by the Task Force that the implementation of RVSM be postponed by one year to AIRAC date of 19 January 2006 based on the AFI Strategy/Action Plan in Appendix B and the Attachment thereto.

2.12 In view of the foregoing, the following conclusions were formulated:

Conclusion 5/1: Safety assessment data

That States continue to provide the required safety assessment data to ARMA on monthly basis initially for a period of eight months.

Conclusion 5/2: Civil/military coordination

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

Conclusion 5/3: 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.

Conclusion 5/4: Reporting of data for monitoring and/or carrying out safety assessment

That:

a) All States institute procedures for reporting of data, incidents and conditions necessary for performing the collision risk calculations prerequisite for RVSM implementation to the AFI monitoring agency. 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; and**
- **(vi) Traffic data.**

b) All States institute procedures for reporting to the AFI monitoring agency data, incidents and conditions necessary for performing the collision risk calculations prerequisite for RVSM implementation; and

c) GMU will be used for height monitoring in AFI Region which will be coordinated by the ARMA.

Conclusion 5/5: 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 between 290 and 410 inclusive;

b) RVSM implementation date of 20 January 2005 be postponed by one year to facilitate States/Operators to complete their required action Plan.

c) Implementation of RVSM in the AFI Region be harmonized and coordinated within the AFI Region as well as the adjacent Regions.

Conclusion 5/6: Training of all personnel involved with the implementation of RVSM in the AFI Region

That:

a. Seminars be organized in the Region for training of air traffic services personnel in the RVSM field; and

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 be conducted to expedite the training proces**s.

Conclusion 5/7: 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 a designated RVSM airspace based on provisions of ICAO Annex 6 Part 1 Chapt 7 para. 7.2.3 and the guidance material contained in JAA Temporary Guidance Leaflet (TGL) N°6.

Conclusion 5/8: 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 (AIPS).Guidance material for Airworthiness and Operational Approval.**

Conclusion 5/9: Amendment to ICAO Doc. 7030

That ICAO process as soon as possible an amendment proposal to the AFI SUPPs (Doc 7030) to include relevant provisions for RVSM implementation.

Conclusion 5/10: 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 5/11: AFI RVSM Strategy/Action Plan

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

Conclusion 5/12: Aircraft/Operators readiness survey

That the results of ICAO/ARMA surveys be updated and presented at the RVSM TF/6 meeting for consideration.

Conclusion 5/13: Monitoring of Height Deviations

That:

a) ICAO request the States of Botswana, Cape Verde, Egypt, Ghana, Kenya, Nigeria, South Africa, Spain, Tanzania and Tunisia to establish at the ACC where radar is implemented, a unit to conduct monitoring of aircraft height deviations in the AFI RVSM airspace; and

b) **The data collected at a) above be forwarded to AFI RMA for action**.

Conclusion 5/14: Organization of AFI airspace in respect of AFI RVSM airspace

That the ATS/SG of APIRG consider as one of its tasks the issue of restructuring of the AFI Region airspace in light of the introduction of RVSM.

Conclusion 5/15: 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 5/16: AFI Safety Policy

That the States expedite the publication of national RVSM safety policy using the sample at Appendix C to this report.

Conclusion 5/17: National Safety Plan

That States expedite the publication of their National Safety Plan using the sample at Appendix D to this report.

Conclusion 5/18: Strategic Lateral Offset Procedures

That the APIRG ATS Sub-Group address the issue relating to Strategic Lateral Offset Procedures taking into account the work being done by the ICAO Separation and Airspace Safety Panel (SASP).

Conclusion 5/19: State Readiness Assessment:

That ICAO urge States which have not done so, to provide the State RVSM readiness assessment using the form at Appendix E to this report.

Conclusion 5/20: Exchange of RVSM data in ASECNA

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

Conclusion 5/21: Exchange of RVSM data:

That States send the RVSM data to ARMA on a monthly basis in a timely manner.

Conclusion 5/22: AFI RVSM Functional Hazard Assessment meetings:

That the ARMA arrange for two FHA Sessions before March 2005.

Conclusion 5/23: Functional Hazard Assessment

That ARMA provide the FHA and all Safety objectives and requirements to ICAO for inclusion in the AFI Pre-Implementation Safety case.

Conclusion 5/24: Collision Risk Assessment:

That RMA provide the CRA to ICAO for inclusion in the AFI Pre-Implementation Safety Case.

Agenda Item 3: Any other Business

Continuation of AFI RVSM Programme Office (ARPO)

3.1 The meeting considered that it was counter productive if the ARPO project was to be terminated. The Task Force strongly recommended that ARPO project be continued until the PISC documentation was completed by the incumbent programme manager. In view of the foregoing the following conclusion was formulated:

Conclusion 5/25: Continuation of AFI RVSM Programme Office (ARPO)

That the AFI RVSM Programme Office (ARPO) be continued until the Pre-Implementation Safety Case (PISC) documents are completed.

Venue and date of the Fifth RVSM/RNAV/TF meeting and Stake Holders Coordination Meeting

3.2 The Task Force noted that the Sixth RVSM Task Force meeting will be held from 3 to 4 May 2005, the Seventh Task Force meeting from 8 to 9 August 2005 and Eighth TF/Stakeholders Coordination Meetings (APIRG/14 Conclusion 14/21 refers) from 10 to14 October 2005.

APPENDIX A

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APPENDIX B

ACTION PLAN FOR IMPLEMENTATION OF REDUCED VERTICAL SEPARATION MINIMA IN THE AFRICA-INDIAN OCEAN REGION

17 November 2004

Prepared by the AFI RVSM Program Office [ARPO]
Revision 17/11/04

	AFI RVSM IMPLEMENTATION 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 © ANC Approval	01/06/04 15/06/04 15/11/04	Completed Completed In Progress	ICAO ICAO ICAO	* Completed 31 May * Circulated to States - T/Date for comments 15 Aug
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
13	Coordination and harmonization of procedures with adjacent Regions	Ongoing	Ongoing	ICAO and AFI RMA	Continuous contact
14	States to send AIC re RVSM Implementation intention	31/05/04	In Progress	ICAO/States	
15	Confirm target AIRAC implementation date (AIP Supplement to be published)	15/11/05	In progress	ICAO/States	TF8 to review requirement
16	Regional RVSM implementation status reports	Ongoing	Ongoing	ICAO	Monthly

	AFI RVSM IMPLEMENTATION ACTION PLAN				
ID	**Description**	**Target Date**	**Status**	**Resources**	**Remarks**
17	State Readiness Assessment	May 2005	In Progress	ICAO	TF/6
18	RVSM/ARTF/5	15-16/11/04	Completed	ICAO/RVSM ITF/5	
19	Go/Delay Meeting	17-19/11/04	Completed	Meeting all Stakeholders	
20	RVSM/ARTF/6	04 -05/05/05	In Progress	ARTF	
21	RVSM/ARTF/7	08-09/08/05	In Progress	ARTF	
22	RVSM/ARTF/8	10-11/10/05	In Progress	ARTF	
23	Go/Delay Meeting 2005	12-14/10/05	In Progress	Meeting all Stakeholders	
24	Publish Trigger NOTAM	28/11/05	In Progress	States	TF8 to confirm date
	Aircraft Operations and Airworthiness				
25	Regional OPS/Airworthiness RVSM Guidance Doc	21/11/03	Completed	ICAO	Sent 05 Dec 2003
26	Develop regional Pilot Training RVSM Guidance Material	30/04/04	Completed	IATA	
27	Aircraft Operational approval process guidelines	31/05/04	Completed	States, ICAO	
28	Aircraft RVSM Approval Survey	May 2005	In progress	ICAO/States	
29	Monitor aircraft/operator approval process	May 2005	In progress	ARMA/ICAO	
	Air Traffic Management				
30	National RVSM plan	31/03/04	Completed	States, ICAO	Sent to States – 05/05/04
31	Regional ATC OPS Manual	31/03/04	Completed	ICAO	Sent to States – 05/05/04
32	Determine the limits of RVSM airspace	30/06/04	Completed	States/ICAO	TF4 to verify limits
33	Regional ATC Training Program & Guidance Material	31/03/04	Completed	South Africa/ ASECNA / Nigeria	State letter sent re course dates 28/05/04. First course commenced mid August.
34	Simulations to assess ATC workload and possible need for airspace/air route Sector changes	31/05/05	In Progress	States	In National RVSM Plan
36	Identify issues to be addressed in Letters of Agreement	31/05/04	Completed	ICAO/States	
37	Military aviation preparation	31/05/05	In progress	States	In National RVSM Plan
38	National RVSM Regulatory Material	31/01/05	In progress	States, ICAO	To Identify requirements
39	States assess the impact of RVSM implementation on controller automation systems and plan for upgrades/ modifications	31/05/05	In progress	States	In National Plan
40	Collect weather and turbulence data for analysis	31 /05/05	In progress	ARMA ICAO/States	TF/6
41	States to conduct local ATC RVSM training	31/10/05	In progress	States	TF/6

	AFI RVSM IMPLEMENTATION ACTION PLAN				
ID	**Description**	**Target Date**	**Status**	**Resources**	**Remarks**
	RVSM Safety Assurance				
42	Conduct preliminary data collection and readiness assessment	31/05/05	In progress	ARMA/ICAO	Ongoing
43	Develop AFI RVSM Safety Policy	30/06/04	Completed	RVSM/ARTF4	
44	Develop National RVSM Safety Plan	30/06/04	Completed	ICAO	
45	RVSM Functional Hazard Assessment	31/04/05	In progress	ARMA/ICAO	Subject data from States
46	Validate Functional Hazard Assessment	31/05/05	In progress	RVSM ARTF/6	TF/6
47	RVSM Collision Risk Assessment	30/06/05	In progress	ARMA/ICAO	
48	Validate Collision Risk Assessment	31/08/05	In progress	RVSM ARTF/7	TF/7
49	Develop AFI Pre-Implementation Safety Case	30/08/05	In Progress	ARPO	
50	AFI Pre-Implementation Safety Case: ANC Approval	31/09/05	In Progress	ARPO/ANC	ANC Requirement
	Monitoring Agency				
51	Evaluate options for setting up AFI RMA	21/11/03	Completed	RVSM/ITF2	Completed on time
52	Identify an AFI RMA	21/11/03	Completed	RVSM/ITF/2	Completed on time
53	Establish an AFI RMA.	31/03/04	Completed	South Africa/ICAO	Completed on time
54	Validate implementation readiness assessment	15/11/04	Completed	ICAO/ARMA	Ongoing

DRAFT SCHEDULE FOR AFI RVSM PRE-IMPLEMENTATION SAFETY CASE														
	Nov. 03	**Dec. 03**	**Jan**	**Feb**	**March**	**Apr**	**May**	**June**	**Jul**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
FHA				2nd Meeting	3 rd Meeting	Final Report	Review By TF	Approve By TF						
CRA			State Data Collected by ICAO	State Data Collected by ICAO	State Data Collected by ICAO	State Data Collected by ICAO	State Data Collected By ICAO	CRA Report						
Pre-Implemen-tation Safety Case (PISC)									Pre-Imple-menta-tion Safety Case	PISC Review by ARTF	PISC Review by ANC			
ARTF							**ARTF/6**			**ARTF/ 7**		**ARTF/8**		
GO/Delay												**GO/ Delay**		

Appendix C

AFI REDUCED VERTICAL SEPARATION MINIMUM (RVSM) SAFETY POLICY

TABLE OF CONTENTS

AFI REDUCED VERTICAL SEPARATION MINIMUM (RVSM) SAFETY POLICY

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.

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. Except within the AFI RVSM Transitional Airspace Non-RVSM approved aircraft, other than state aircraft, shall not be permitted to operate within RVSM airspace.

For the transition between RVSM and non-RVSM airspace specific procedures shall be established to facilitate the safe transition between RVSM and Non-RVSM airspace. The transition tasks shall be accomplished so as to make RVSM operations transparent to adjacent non-RVSM regions.

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.

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 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.

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 x 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 x 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.

These Safety Objectives will be complemented by Safety Requirements which may arise as results from the detailed Functional Hazard Analysis which yet has to be carried out.

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.

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.

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 particular situation in States which have to ensure the transition between RVSM and non-RVSM airspace and (iii) 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.

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.

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 to order to form one section of the AFI RVSM Pre-Implementation Safety Case.

AFI RVSM Pre-Implementation Safety Case

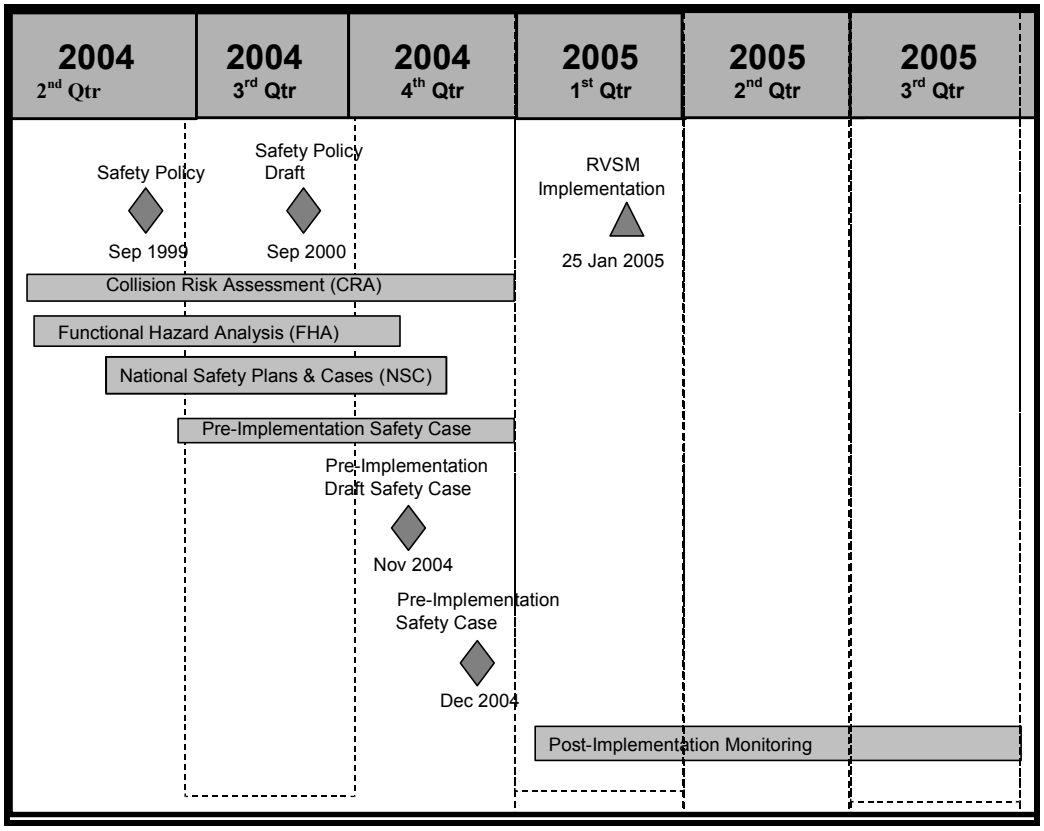
The AFI RVSM Pre-Implementation Safety Case shall provide the assurance that the objectives stated in the AFI RVSM Safety Policy Document are met. Evidence will be provided that (i) all identified hazards and risks are managed and mitigated, (ii) the collision risk meets the ICAO Target Level of Safety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

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.

AFI RVSM Safety Program Schedule

The following graphic depicts the timescales for the principal elements of the RVSM Safety Sub-Program and the major deliverables foreseen.


2004
2nd Qtr
2004
3rd Qtr
2004
4th Qtr
2005
1st Qtr
2005
2nd Qtr
2005
3rd Qtr
Safety Policy
Sep 1999
Safety Policy
Draft
Sep 2000
RVSM
Implementation
25 Jan 2005
Collision Risk Assessment (CRA)
Functional Hazard Analysis (FHA)
National Safety Plans & Cases (NSC)
Pre-Implementation Safety Case
Pre-Implementation
Draft Safety Case
Nov 2004
Pre-Implementation
Safety Case
Dec 2004
Post-Implementation Monitoring

Appendix D:

[*Insert Name of State*] Safety Plan for the Implementation of RVSM

DOCUMENT APPROVAL

The following table identifies all Authorities that have successively approved the present issue of this document.

AUTHORITY	NAME AND SIGNATURE	DATE
National RVSM Safety Manager		
National RVSM Program Manager		
Head of Operations in National ATS Provider		
Approval Authority		

NOTES

- This draft plan is written to provide a template for use by individual States
- Where possible the text is written to be suitable for direct inclusion in State's Safety Plans.
- Where additional text is required to be inserted by the State, this is indicated in the text in Italics within brackets, for example [*insert Name of responsible authority here*].
- Some of the text is illustrative. In such circumstances a State may need to develop text appropriate to its circumstances, which reflects its local environment and activities etc. The illustrative text does, however, broadly represent best practice and may be used by States for their planning. States should note that there may be more than one way to achieve best practice and the text in this draft plan only reflects one of these possibilities.
- This draft plan does not try to take into account all the specifics of safety planning in use in the States. Each State needs to identify those aspects of their safety planning that are not included in this draft plan. States should include, as appropriate, such aspects within their State Safety Plan

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1 INTRODUCTION

1.1 Safety Plan Objective

The objective of this Safety Plan for [*Name of State*] is to set out those Nationalactivities that are required to support the RVSM Safety Case. The plan also addresses safety requirements identified by the State's Regulator [*Insert Name of regulatory authority*]. Each of the National activities required for the implementation of RVSM by [*Name of State*] is described in some detail. The descriptions address:

- The role of the activity in support of the safe implementation and operation of RVSM in [*Name of State*],
- The standards to be applied to the conduct of the activity,
- The additional supporting activities that will provide confidence that the identified National activities will lead to the successful implementation of RVSM within [*Name of State*]. These supporting activities include:
- Those that help achieve quality,
- Those that help manage identified risks.

The purpose in showing this level of information is to provide early assurance that *[Name of State]* takes its safety responsibilities seriously and has developed a plan to achieve the safe implementation of RVSM.

This safety plan has also been produced to help those within *[Name of State]* who have responsibility for the provision and regulation of the State's Air Traffic Service [*insert Name of ATS Provider*]. It helps them understand the safety aspects of the State's RVSM activities and shows how the National Program Manager is managing these aspects.

1.2 Approach

This National safety plan is divided into sections that consider the National activities for RVSM as follows:

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

Within each section the plan:

(a) Describes those activities that are necessary to provide an appropriate ATS following the implementation of RVSM in the AFI region;

(b) Identifies the appropriate responsible Authorities, together with a description as to how these Authorities discharge their responsibility;

(c) Describes the detailed activities and checks that underpin the achievement of quality of the activities described in item (a) above;

(d) Shows how the hazard and risk information that will be produced by AFI's RVSM Program will be addressed as appropriate by the State.

1.3 Organisation

The Organisation for the RVSM safety plan and associated activities is as follows:

(a) [*Insert Name*] has been appointed as the Safety Manager for RVSM and is responsible for the production of this plan;

(b) The National Program Manager [*insert Name*] has responsibility for the National RVSM program. He approves the safety plan and is responsible for obtaining the further approvals that are described below. In approving the plan the National Program Manager is confirming that in his view the plan is acceptable, and accurately describes the activities that are required to show that the stated safety requirements will be achieved;

(c) The Head of ATS Operations [*insert Name*] has overall responsibility for the ATS operations. In approving the plan the Head of Operations is confirming that from a safety perspective all necessary actions have been or will be undertaken by the ATS provider to ensure that RVSM can be safely implemented and operated within *[Name of State]*;

(d) The CAA/ATS provider company [*insert Name*] is the designated Authority and is responsible for the provision of an appropriate Air Traffic Service within the State. In approving the plan the DG is confirming that he is satisfied that responsibility for the safe implementation of RVSM has been properly delegated; that the staff delegated have been duly authorised to act on his behalf; and that they are competent to act on his behalf.

In addition to the above, specific approvals for individual activities are also required (see sections 2.4, 3.4 through to 8.4).

The above organisation applies during the pre-implementation phase of RVSM. There are activities (in particular safety monitoring activities) that take place post-implementation. The responsibility for post-implementation safety activities rests with responsible staff in the State and the ATS provider [*insert Names, otherwise state that the post-implementation safety organisation and responsibilities are not yet determined*].

2 AIRCRAFT AND OPERATOR APPROVALS

2.1 Introduction

This section deals with Aircraft/operator approval requirements for aircraft to operate within the AFI RVSM region and describes the approval program within the State.

2.2 Safety Requirement

The safety requirement is to show that all Operators based in *[Name of State]* are aware of the RVSM implementation and have obtained RVSM approval for themselves and their aircraft as appropriate. Both the aircraft and the Operator require approval if they are to operate in RVSM airspace. It is the responsibility of the State's CAA to describe their regulatory activities that will lead to documentary proof of the State's CAA diligence with respect to these approvals.

2.3 Standards Applied

[Name of State] is a member of APIRG and will use TGL6 revision 1 to conduct the approval for civil aircraft and operators for RVSM operations (Include as *Appendix* A).

2.4 Planned Aircraft/Operator Activities

An approval program has been developed to support the implementation of RVSM. The details of the program are found in [*Name of State*] National RVSM Plan (*Include as Appendix B*). The program subdivides into two main activities:

(a) Awareness Activities
Operators and State aircraft authorities have already been informed about RVSM approval and monitoring requirements through:

- AICs [*supply details of AICs issued and planned for issue*].
- RVSM Seminars/workshops [*Supply details of seminars/workshops already run and planned to be run*]
- A working group has been set up with the Operators and State aircraft Authorities to discuss RVSM implementation. [*supply details of working group*]

(c) Approval Activities

These are described in 2.5 below.

2.5 Approval Activities

There are two areas for which *[Name of State]* has an established approval/regulatory process:

(a) Operator Approval

Those Operators that are based in *[Name of State]*, and wish to operate within the AFI RVSM Airspace, will apply to the State CAA to obtain operational approval (in line with TGL 6). The responsible officer for giving such approvals is [*insert title and name of current jobholder*]. His approval is based on [*insert approval criteria – this should be based on establishing compliance with the relevant aspects of TGL 6*].

(b) Aircraft Certification and Approval

Operators (or owners) of aircraft registered within *[Name of State]* will apply to the State CAA for certification and approval (in line with TGL 6). The responsible officer for giving such approvals is [*insert title and name of current jobholder*]. His approval is based on [*insert approval criteria – this should be based on establishing compliance with the relevant aspects of TGL 6*].

In addition military Authorities have elected to submit identified military transport aircraft for RVSM certification and approval. The responsibility for this rests with *[Name of State]* Ministry of Defence. It has elected to implement the principles embodied in TGL 6 Issue 1. The responsible officer for giving such approvals is [*insert title and name of current jobholder*]. His approval is based on [*insert approval criteria*].

2.6 Quality Assurance of Activities

It is important to ensure that the approval activities are effective and lead to RVSM approved aircraft that are capable of meeting the more stringent height keeping requirements within the AFI RVSM airspace and air crew that are familiar with RVSM rules and procedures. There are several elements that provide confidence in this capability.

2.6.1 Aircraft Technical Height Keeping Performance Monitoring

The ARMA has established a Height Monitoring Infrastructure that will provide ongoing monitoring of a substantial proportion of the aircraft fleet operating within the AFI RVSM region.

Aircraft that are not within the specified standards will be reported to the appropriate State Authorities that approved the aircraft for RVSM operations. The Operator of the non-compliant aircraft will also be contacted. [*Insert Name of State Authority*] will follow up all such reports with the Operators concerned. This review will take place within the normal framework of aircraft certification and operator licensing.

2.6.2 Operational Error Monitoring

The AFI Regional Monitoring Agency (ARMA) has an established and ongoing program of operational error data collection and assessment. Information is obtained from ACCs and States on operational altitude deviations of 300 ft or greater. ARMA will use the data as part of the RVSM Safety Case. At present mechanisms have not been developed to inform the appropriate States of clusters of events associated with a specific operator or region of airspace. These will be established prior to the implementation of RVSM.

In addition to the above, [*insert Name of State Authority*] monitors and reviews aircraft airworthiness and Operator Licenses both on a regular basis and in response to identified concerns or trends.

2.7 Aircraft and Operator Risk Management

Hazards associated with regulatory or approval processes are not normally covered within FHAs. It is however appropriate to review those hazards in the AFI FHA that are associated with aircraft, aircrew and Operator hazards. The results of the FHA are currently not available to the States. When made available, *[Name of State]* will review the hazards and risks that will have been identified by the FHA. The purpose of the review is to identify those aspects where the local circumstances are different from those assumed within the AFI FHA (*Include as Appendix C*). Any additional activities, required as a result of this review, will be listed as actions in future updates to this safety plan.

3 ATS TRAINING

3.1 Introduction

This section focuses on [*Name of State*] ATS training activities that are needed to ensure that operational staff is familiar with RVSM procedures. Additionally further details are provided to show how this training program supports and underpins the safe implementation of RVSM.

3.2 Safety Requirement

The safety requirement associated with the ATS training is to show that all relevant staff have been appropriately trained in RVSM procedures and are competent to operate within an RVSM environment.

3.3 Standards Applied

There are no standards. The AFI training material supplied by AFI has been used as reference guidance for the development of *[Name of State]*'s training material. (*Include as Appendix D*).

3.4 Planned ATS Training Activities

An ATS training program has been developed to support the implementation of RVSM. The details of the program are found in [*insert reference to appropriate documents*]. The detailed program subdivides into four main activities and shows that it is the intent to train all controllers licensed in RVSM airspace sectors prior to RVSM Implementation on 25 Jan 2005.

3.4.1 Training Roles and Responsibilities

Staff has been identified to lead, prepare and deliver RVSM training to ACC Staff. [Include *Names, staff positions and RVSM training roles*].

3.4.2 Training Material

The training material supplied by ARPO will be used as the basis for the State training material. This will be supplemented by locally developed material. All the designated instructors will become familiar with the material.

3.4.3 Training Program

A program of courses will be established at each ACC [*Names of the ACCs and summary of each training program to be included*]. The program will be developed in close co-operation with managers at each ACC. All controllers who will have operational responsibility in the AFI RVSM region (ie above FL 290) will receive this training. Other controllers and staff within the Air Traffic Provider will as a minimum be familiarise with RVSM operations and how it affects them in their duties. As far as is practical all controllers at an ACC will receive the full RVSM training. This is subject to operational and staffing constraints.

3.4.4 ACC Training Program

Courses will be run at each ACC as required. Follow-up and refresher training will be provided as needed.

3.5 RVSM Training Program Approval

There are two aspects of these training activities for which *[Name of State]* has established an approval process. These two aspects are:

3.5.1 Training Material Approval

All ATS training material is subject to strict control and changes must be approved prior to first use. The RVSM training material is subject to this process. The responsible officer for the approval of the training material is [*insert title and name of current jobholder*]. His approval is based on [*insert approval criteria*].

3.5.2 Controller Competence in RVSM Operations

The change to RVSM does not require changes to the controller's ATC license (or certificate of competence). However the ATS provider does accept the responsibility to ensure that controllers are capable of RVSM operations. To discharge this responsibility the manager of that ACC approves the RVSM training program for each ACC. Approval of the program represents a commitment from each ACC to ensure that all appropriate staff receives RVSM training and that this training makes full use of the approved training material.

3.6 RVSM Training Quality Assurance

It is important to ensure that the ATS training in RVSM operations is effective and understood by controllers. There are several elements that provide confidence in this effectiveness.

3.6.1 Use of the AFI Material as Guidance

The AFI material has been developed by Air Traffic Navigation Services (ATNS) in South Africa and has been subject to extensive review within the RVSM Program. This material forms the core of the training material developed for the State RVSM training program.

3.6.2 ATC Instructors

The responsibility for the development and delivery of the training rests with [*insert Name(s) and roles*]. They are experienced training instructors and are licensed as On-the-Job Training (OJT) Instructors. [*Further evidence of their experience may be usefully provided here*]. They are familiar with RVSM procedures. [*Insert Name(s)*] has attended the AFI Training Course on the RVSM Training material [*insert dates*]. They in turn will ensure that all the other designated instructors become familiar with, and understand, the material.

3.6.3 Training Material Review

Operational and management staff at each ACC will review the material prior to first use. The review comments will be documented and the material will be amended as appropriate.

3.6.4 Timely Training Program

The ATS provider recognizes its responsibility for the competence of controllers in operating within the AFI RVSM region. It will therefore ensure that:

- The training program allows controllers sufficient time from their operational duties to attend one of the courses,
- That accurate course attendance records are kept (including time spent on training simulators), and
- Controllers are encouraged to seek clarification, and further training if necessary, on those aspects they did not fully understand.

3.6.5 Interactive Training Program

Specific interaction will be encouraged through a course feedback questionnaire. The questionnaire will seek attendee views on the quality and ease of understanding of the course. This will be fed back to the instructors and course developers and used to further refine the course. Secondly the material will be presented in an interactive manner and interaction with attendees will be encouraged. Areas of difficulty in assimilating/understanding the material will be sought from attendees and will be addressed on an individual or group basis through further explanation and training if necessary.

3.6.6 Refresher Training

RVSM training may, through operational and staffing constraints, be provided to a controller more than 6 months in advance of RVSM. In such circumstances in the weeks prior to implementation, refresher training will be provided, so that what was learnt on the course is refreshed in the mind. [Provide d*etails of the provisions at each ACC for such refresher and follow-up training*].

3.7 ATS Training Risk Management

A key part of the management of safety is that the safety risks associated with poor or inadequate training are identified and, as appropriate, shown to be acceptably low. Within the AFI RVSM program there is commitment to perform a Functional Hazard Assessment (FHA) (which identifies hazards and assesses the risk associated with such hazards). The results of the FHA are currently not available to the States. When made available, *[Name of State]* will review the hazards and risks that will have been identified by the FHA. The purpose of the review is to identify those aspects where the local circumstances are different from those assumed within the AFI FHA. Any additional activities, required as a result of this review, will be listed as actions in future updates to this safety plan.

4 ATS EQUIPMENT

4.1 Introduction

This section addresses those changes to ATS equipment required for RVSM Operations and describes the program of activities that has been established to make the required changes to ATS equipment. Additionally further details are provided to show that these changes will be completed successfully and will underpin the safe implementation of RVSM.

4.2 Safety Requirement

The safety requirement is to show that the changes to the ATS equipment have been made successfully and approved for operational use.

4.3 Standards Applied

ICAO Technical Document 7030/4 (*Include as Appendix E*) provides the standards for procedures. ARPO has developed an AFI ATC manual that is consistent with ICAO Document 7030/4 and provides further information. (*Include as Appendix F)*. This latter document provides the basis for the changes to ATS equipment that are required for the AFI RVSM Region.

4.4 Planned ATS Equipment Changes

[*Name of State*] has developed a program for changes to ATS equipment to support the implementation of RVSM. The details of the program are found in [*insert reference to the National RVSM Plan*]. This detailed program shows that it is the intent to complete the ATS equipment changes well before the implementation of RVSM on 25 Jan 2005. [*Dates to be inserted and tight timescales requires each the State to summarize the contingency plans that have been developed to mitigate the risk of slippage in the dates*].

In [*Name of State*] changes are required to the Flight Date Processing (FDP), Radar Data Processing (RDP), Display, flightstrip and On-Line Data Interchange (OLDI) systems. Software Modifications are required to all these systems to ensure that they are compatible with the ATC Manual for RVSM.

The State ATS Provider [*insert Name of ATS Provider*] is in contract with an external supplier who will make the necessary changes to the above systems. The contractor will make the changes to the systems, and test them. Following on from the successful conclusion of these tests, the ATS provider will accept the changed software and apply to the [*State CAA*] for approval to operate with the changed software.

4.5 Approval of Activities

There are two aspects of these ATS equipment changes for which *[Name of State]* has established an approval process.

4.5.1 Modified ATS Equipment

With the exception of minor updates to software, all changes require approval from the [*State CAA*] prior to their installation at ACCs. The responsible officer is [*insert title and name*]. He will approve the changes to ATS equipment prior to installation. His approval is based on [*insert approval criteria*].

4.5.2 Modified ATS Equipment for Operational Use at ACCs.

The changes to ATS equipment need to be installed satisfactorily at each ACC. The acceptance of the installed changes is required at each ACC by the [*State CAA*]. The responsible officer is [*insert title and name*] He will approve the equipment at each ACC prior to operational use. His approval is based on [*insert approval criteria or responsible officer's terms of reference, where available and appropriate*].

4.6 Quality Assurance of ATS Equipment Changes

It is important to ensure that the changes are successful, in that they fully implement the agreed requirements; and are fully compatible with the systems and practises at each ACC. There are several elements that provide confidence in the successful change to the ATS equipment:

4.6.1 Functional Requirements

Functional Requirements for the change have been established [*reference to be supplied by State*] and the delivered changes will be judged against these requirements. These functional requirements were an integral part of the specification agreed with the contractor.

4.6.2 Software Development

Contractors have development processes for software modifications needed for RVSM operations. These are internal contractor procedures and have been established for some time [*supply ref to these procedures*].

4.6.3 Developed Software

Developed software will go through a series of tests and user trials prior to acceptance. Each of the identified functional requirements will be formally tested against agreed acceptance criteria [*ref on acceptance criteria to be supplied here*].

4.6.4 The Human Machine Interface

Controllers, as part of the RVSM training, will evaluate the Human-Machine Interface (HMI). Feedback will be sought from those attending courses on the usability and clarity of the HMI.

4.7 Risk Management of ATS Equipment Changes

A key part of the management of safety is that the safety risks associated with poor or inadequate ATS equipment are identified and, as appropriate, shown to be acceptably low. Within the AFI RVSM program there is commitment to perform a Functional Hazard Assessment (FHA) (which identifies hazards and assesses the risk associated with such hazards). The results of the FHA are currently not available to the States. When made available, *[Name of State]* will review the hazards and risks that will have been identified by the FHA. The purpose of the review is to identify those aspects where the local circumstances are different from those assumed within the AFI FHA. Any additional activities, required as a result of this review, will be listed as actions in future updates to this safety plan.

5 ATS PROCEDURES

5.1 Introduction

This section identifies changes required to ATS Procedures for implementation of RVSM in the AFI region and to implement new ATS procedures within each ACC. Additionally further details are provided to show how these activities underpin the safe implementation of RVSM.

5.2 Safety Requirement

The safety requirement is to show that the changes to the ATS procedures have been approved for use. Assurance is required to show that the new procedures are appropriate; do not cause excessive controller and aircrew workloads; and have been co-ordinated with other organisations.

5.3 Standards Applied

ICAO Document 7030/4 provides the standards. AFI has developed an ATC manual that is consistent with ICAO Document 7030/4 and provides further amplification of its implementation in the AFI region.

5.4 ATS RVSM Procedures

A program of activities has been established to develop and co-ordinate the changes to the ATS procedures. The details of the program are found in [*Name of State*] National RVSM Plan. The program subdivides into the following main activities:

5.4.1 State Aircraft Authorities Co-ordination

State aircraft in [*Name of State*] have no restriction on operating between flight levels FL290 and FL410 and do not require special procedures or co-ordination. State aircraft will operate within a policy of the flexible use of airspace and in co-operation with the Civil Authorities. The implementation of RVSM potentially imposes additional requirements on both State and Civil Authorities. A co-ordinating committee [*insert Name*] has been formed with these State-aircraft Authorities to ensure that satisfactory procedures are developed and that the high standards of co-operation and co-ordination continue following the Implementation of RVSM.

5.4.2 Adjacent ACC Co-ordination

The changes to procedures required for RVSM at an ACC will need to be co-ordinated with adjacent ACCs. New (or amended) letters of agreement (LoAs) are required. The Head of the ATS Provider is responsible for making the necessary agreements.

5.4.3 ATSU Operations Manual Changes

Each ACC will need to change its ATSU Operations Manual to include the changes as a result of RVSM. This is the responsibility of ACC management. The changes will include these appropriate changes due to the new LoAs, and any new agreements with the State Authorities concerning the use of RVSM airspace by State aircraft.

National Program activities recognise the links between the changes to airspace, which must precede the changes to procedures, and the development of RVSM ATC training which can only be fully completed when the new procedures are available.

5.5 Approval of ATS Procedures Changes

There are two aspects of these changes to procedure activities for which *[Name of State]* has established an approval process.

5.5.1 ATSU Operations Manual Approval

Any change to an ACC Operations Manual is subject to strict control. All changes must be approved prior to use. The responsible officer is [*insert title and name of current jobholder*]. He will approve the changes to the manual for use. His approval is based on [*insert approval criteria*].

5.5.2 ACC Amended Agreements (LoAs)

Changes to LoAs are approved (signed) by ACC managers of both centers. For ACCs within [*Name of State*] approval is based on [*insert approval criteria*].

In addition within [*Name of State*] it is policy for to require additional, more senior signatures where the Adjacent or subjacent ACC is in another State. In [*Name of State*] the Director General/CEO of the CAA signs. His approval is based on [*insert approval criteria or responsible officer's terms of reference, where appropriate*].

5.6 ATS Procedures Changes Quality Assurance

It is important to ensure that the changes to ATS procedures are appropriate and have been conducted in a professional manner. There are several elements that provide confidence in this.

5.6.1 ICAO and AFI Material

ICAO Documents 7030/4, 9574 and the AFI ATC Manual for RVSM have been subject to extensive review and development and provide a definitive basis for these changes.

5.6.2 Operational Staff Review

Operational staff at each ATSU will review the ATSU Operations Manuals. The review comments will be documented and where appropriate the manual will be modified.

5.6.3 LoA Control Process

All LoAs within *[Name of State]* are subject to extensive review. Within [*Name of State*] this includes the Airspace policy staff, and ACC operational staff.

5.6.4 Procedure and Airspace Design Change Simulation

[Name of State] has a computer based simulation capability. The changes to airspace design and use of RVSM procedures will be subject to simulation. The simulation validates the use of the new RVSM procedures and changes to airspace policy. [Insert s*imulation dates, constraints and objectives*].

5.7 ATS Procedure Risk Management

A key part of the management of safety is that the safety risks associated with poor or inadequate ATC procedures are identified and as appropriate shown to be acceptably low. Within the AFI RVSM Program there is commitment to perform a Functional Hazard Assessment (FHA) (which identifies hazards and assesses the risk associated with such hazards. The results of the FHA are currently not available to the States. When made available, *[Name of State]* will review the hazards and risks that will have been identified by the FHA. The purpose of the review is to identify those aspects where the local circumstances are different from those assumed within the AFI FHA. Any additional activities, required as a result of this review, will be listed as actions in future updates to this safety plan.

6 AIRSPACE DESIGN

6.1 Introduction

This section addresses airspace design activities needed to ensure safe and effective RVSM operations. Additionally further details are provided to show how these airspace changes underpin the safe implementation of RVSM.

6.2 Safety Requirement

The safety requirement associated with the changes to airspace design is to show that the changes are appropriate and are consistent with the safe operation of RVSM in the AFI region.

6.3 Standards Applied

Whilst it is best practice to simulate such changes to show both the impact on traffic flows and controller workload, there are no applicable standards for evaluating proposed changes.

6.4 Planned Airspace Design Changes

A program for airspace design changes has been developed to support the implementation of RVSM. The details of the program are found in [*Name of State*] National RVSM Plan. There are several changes to the design of airspace that have been proposed to support the effective implementation of RVSM. These include:

(a) Changes to entry, reporting and exit points to minimise possible congestion at these points;
(b) Changes to **DFL**, if it is currently an RVSM level;
(c) A new flight level allocation scheme;
(d) Re-sectorisation of the upper airspace to allow the capacity in the upper airspace to increase to take advantage of the new RVSM levels;
(e) Some modifications to allow more direct routings.

Some of these changes need to be agreed with ACCs in adjoining states and are reflected in the LoA change process described in section 5.3 above.

6.5 Approval of Airspace Design Changes

There are two aspects of these airspace design activities for which *[Name of State]* accepts responsibility and has established an approval process.

6.5.1 Approval of the Changes

All airspace design issues are subject to strict change control and must be approved prior to first use. The responsible officer [*insert title and name of current jobholder*] will approve the changes. His approval is based on [*insert approval criteria*].

6.5.2 Changes Included in the LoAs as Necessary

This approval process is described above in section 5.5.

6.6 Airspace Design Quality Assurance

It is important to ensure that the changes to airspace design are effective. There are several elements that provide confidence in this effectiveness.

6.6.1 Use of Simulations

Simulations have been performed [*insert ref here*]. The studies show that the airspace design changes are effective within simulations of RVSM Operations. The simulation shows that controllers can safely handle RVSM operations.

6.6.2 Review Airspace Changes

The proposed airspace design changes receive extensive review by management staff within each of the ACCs. The review comments will be documented and where appropriate the manual will be modified.

6.7 Airspace Design Change Risk Management

A key part of the management of safety is that the safety risks associated with poor or inadequate changes to airspace design are identified and as appropriate shown to be acceptably low. Within the AFI RVSM program there is commitment to perform a Functional Hazard Assessment (FHA) (which identifies hazards and assesses the risk associated with such hazards). The results of the FHA are currently not available to the States. When made available, *[Name of State]* will review the hazards and risks that will have been identified by the FHA. The purpose of the review is to identify those aspects where the local circumstances are different from those assumed within the AFI FHA. Any additional activities, required as a result of this review, will be listed as actions in future updates to this safety plan.

7 RVSM SWITCHOVER

7.1 Introduction

Switchover is the operational process of managing the actual conversion of ATS from a 2000-ft separation (CVSM) environment to a 1000-ft (RVSM) environment. It covers the changes in the few hours before switchover on 25 Jan 2005 and the first few hours after the switchover. This switchover is the key operational aspect of the countdown to the implementation of RVSM. This section confirms that the operational impact of switchover to RVSM has been addressed and contingency plans exist. Details are provided to show how this changeover activity supports and underpins the safe implementation of RVSM.

7.2 Safety Requirement

The safety requirement is to show that the special procedures for the switchover to RVSM have been approved for use. Assurance should be provided to show that procedures and reversionary modes of operation are in place.

7.3 Applied Standards

[Name of State] will use the AFI RVSM countdown plan as the basis for its own countdown plan. (*Include as Appendix G*).

7.4 Planned Switchover

Activities need to be planned to enable the safe and effective switchover to RVSM. The details of these planning actives are found in [*insert ref*]. The plan assumes that the AFI countdown activities will identify the optimum way to handle the switch from CVSM to RVSM. *[Name of State]* planning activity focuses on the establishing information and special procedures for its ACCs and establishing suitable arrangements and staffing levels for the switchover period.

7.5 Approval of Switchover Plans

There is one aspect of this switchover for which *[Name of State]* accepts responsibility and has established an approval process.

7.5.1 Approval of Special Procedures Developed for each ACC

These special ATS procedures (to cover switchover) will require approval prior to use just like any other ATS procedure. The responsible officer is [*insert title and name of current jobholder*]. He will approve the material for use and the approval is based on [*insert approval criteria*].

7.6 Switchover Quality Assurance

It is important to ensure that the planning for switchover is effective. There are several elements that provide confidence in this effectiveness.

7.6.1 AFl Countdown Material

The AFI material on the countdown process is being developed and the switchover aspects are an identified key part of the countdown process. This AFI material has been subject to extensive review.

7.6.2 Review of Switchover Procedures

Operational and management staff at each ACC will review the material. The review comments will be documented and the material will be amended as appropriate.

7.7 Switchover Risk Management

A key part of safety management is that the safety risks associated with the switchover are identified and shown to be acceptably low. Within the AFI RVSM program there is commitment to perform a Functional Hazard Assessment (FHA) (which identifies hazards and assesses the risk associated with such hazards). The results of the FHA are currently not available to the States. When made available, *[Name of State]* will review the hazards and risks that will have been identified by the FHA. The purpose of the review is to identify those aspects where the local circumstances are different from those assumed within the AFI FHA. Any additional activities, required as a result of this review, will be listed as actions in future updates to this safety plan.

8 RVSM OPERATIONAL SAFETY MONITORING AND REVIEW

8.1 Introduction

This section identifies activities required for post-implementation monitoring of the safety performance of RVSM operations by *[Name of State]*.

8.2 Safety Requirement

The safety requirement is to provide appropriate monitoring of the operational safety performance of the ATS in the application of RVSM.

8.3 Applied Standards

There are no appropriate standards.

8.4 Monitoring Activities

The post-implementation monitoring arrangements are not yet determined. This determination is part of the establishment of post-implementation arrangements. In [*Name of State*] this will be considered as one aspect of the development of national countdown arrangements.

There are two key activities:

(a) ATS Performance Safety Monitoring

These arrangements will be a specific aspect of the normal monitoring of safety performance by the State.

(b) Operational Error Reporting

[Name of State] commits to providing operational error data reported by controllers in its ACCs. The State already supplies this information as part of its contribution to the AFI Pre-Implementation Safety Case. The data supplied is used, together with data from the other RVSM states, to assess the likely risk of collision in AFI RVSM region. In addition *[Name of State]* will assess this data provided by its own ACCs and act on the evidence as appropriate.

8.5 Approvals

The approval process for the establishment of such monitoring arrangements is not yet determined.

8.6 Quality Assurance

[Name of State] will develop monitoring arrangements that achieve the safety requirement to monitor operational performance. However, as the arrangements have not yet been determined, it is not possible to identify requirements at present as to the aspects of these arrangements that give confidence in the achievement of quality.

8.7 Risk Management

Monitoring arrangements will help manage operational risks and do not introduce additional risks.

Appendix E

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 20 January 2005	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

SUBJECT	ITEMS ASSESSED	TD	DC	NA	REMARKS	Ref. ICAO Regional/National Doc
	RVSM Implementation Program					
	Has the administration designated the National Program Manager for the RVSM implementation program?					Conclusion: 4/3 National RVSM Plan
	Has your administration designated an ATS Manger 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 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 20 January 2005?					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 20 January 2005? 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 you 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 20 January 2005? 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

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