



**INTERNATIONAL CIVIL AVIATION ORGANIZATION
WESTERN AND CENTRAL AFRICAN OFFICE**

**FOURTEENTH APIRG ATM/AIM/SAR/SG/14 MEETING
(Dakar Senegal, 11 - 14 May 2015)**

Agenda Item 3: ARMA REPORT

(Presented by ARMA)

SUMMARY: The Working Paper Presents the ARMA Report Containing an Overview of the Responsibilities, Results and Comments Associated with the ARMA Five Key Performance Areas.

Ref: ARMA records

ICAO Strategic Objectives A & B

Conclusion is documented in paragraph 3.

1. Introduction

1.1 This working paper is intended to present the meeting with an overview of the ARMA work associated with the five Key Performance Areas and thus the state of RVSM system monitoring in the AFI region.

1.2 The meeting should recall the Commitment that AFI States have made towards ensuring that the RVSM system is safely managed for the benefit of the Aviation Community as a whole.

2. DISCUSSION

2.1 The ARMA is guided specifically by the AFI RMA Manual and ICAO Doc 9574 which contains the following five primary functions that are expected to be carried out by the ARMA:

- Maintain a data base of AFI RVSM approvals
- Monitor aircraft height-keeping performance and the occurrence of large height deviations and report results appropriately
- Conduct Safety Assessments and report results appropriately
- Monitor operator compliance with State approval requirements
- Initiate necessary remedial actions if RVSM requirements are not met

Primary Functions (x5)

2.2 Maintain a Data Base of RVSM Approvals (1)

2.2.1 ARMA maintains an RVSM Operational Approvals Data Base with all AFI State

RVSM Operational Approvals to facilitate the safe and efficient flight of RVSM Operationally Approved aircraft. The ARMA webpage containing the AFI RVSM Approvals can be viewed by using the following address: www.atns.co.za/afi-rvsm. The States listed in Table 1 below have been included in the dataset as the data was of the minimum standard required by ICAO for distribution. It is recommended that all States/CAA's, Aircraft Operators and ANSP consult the table on a regular basis to ensure that the data is correct. All amendments should be forwarded to ARMA without hesitation.

Algeria (All)	Djibouti (Unsure)	Mali (All)	Seychelles (All)
Angola (All)	Eritrea (All)	Mauritius (All)	Senegal (All)
Botswana (All)	Ethiopia (All)	Mozambique (All)	Sudan (All)
Burkina Faso(All)	Gabon (All)	Namibia (All)	Swaziland (All)
Cameroon (All)	Gambia (All)	Niger (All)	Togo (All)
Cabo Verde (All)	Ghana (All)	Nigeria (All)	Uganda (All)
Chad (All)	Kenya (All)	Reunion (All)	Zambia (All)
Congo (All)	Libya (Unsure)	RSA (All)	Zimbabwe (All)
Côte d,Ivoire (All)	Madagascar (All)	Rwanda (All)	
DRC (Limited)	Malawi (All)	Sao Tome (Unsure)	

Table 1

2.2.2 A total of 916 AFI RVSM Operational Approvals were recorded in the latest dataset at the end of April 2015. This is an increase of approximately 66 aircraft measured from the September 2013 SG13. These figures exclude the RVSM fleets from Morocco, Tunisia and Egypt that have sizeable fleets. The management of State RVSM Operations Approvals by CAA's is improved however still needs attention as not all States are complying with the requirements resulting in possible deficiencies.

2.3 Monitor Aircraft Height-Keeping Performance and the Occurrence of Large Height Deviations (2)

2.3.1 Monitoring Height Keeping Performance

2.3.2 The ARMA Height Monitoring Program is now well established and AFI CAA's must ensure that they cooperate with ARMA to maintain the height monitoring targets for each operator's fleet. Solutions to encourage CAA's and aircraft operators to comply with this requirement will need to be sought as there are still deficient States. Annex 6 is very clear on the standard that CAA's shall apply.

2.3.3 Resulting from the AFI Height Monitoring Program measurements obtained, (ASE), are being used for processing AFI CRA. The GMU method is returning good results with a total of 500 aircraft having been monitored. Currently the AFI Monitoring burden is 575 aircraft of which 224 still require monitoring (38%) as opposed to the 48% at SG13. HMU, ADS-B and AGHME results have been effectively used to supplement the program and count towards the monitoring targets for AFI

2.3.4 To date the Height Monitoring program has monitored aircraft across AFI providing a good cross section of ASE results.

2.3.5 All State RVSM operationally approved aircraft/operators eligible for monitoring are continuously monitored for height monitoring compliance in order to achieve their height monitoring targets. ARMA is aware that there is apathy regarding the standard contained in Annex 6 which will need to be improved on. CAA's and operators are requested to co-operate so as to avoid any inconvenience to operations that may arise. CAA's have in certain circumstances withdrawn aircraft RVSM approvals where no attempt has been made to undergo the required height monitoring flights. This has been the last resort after numerous requests to comply. Deficiencies in height Monitoring have big safety implications for the operator and the ANSP. Numerous protocols have been opened where aircraft have demonstrated an unacceptably high ASE. Most have been resolved or are in the process of being resolved.

2.3.6 Operational Errors Leading to Large Height Deviations

2.3.7 Operational Errors leading to Large Height Deviations are still under evaluation in the current CRA process however during the previous assessment it was established that there were 23 reported LHD's which has now increased to 29. The root cause of LHD's has been dominated by human error.

2.4 Conduct Safety Assessments (3)

2.4.1 Safety Assessments are continuously in progress to satisfy the Safety Policy. The data for the 2015 safety assessment is currently being collected and appears to be exceeding expectations. In order to make these assessments successful States/ACC's must prepare and submit the required quality data to ARMA. This data as previously discussed is used by ARMA for two purposes and should also be retained by States for their own records. The collection and submission of safety assessment data for RVSM must enjoy a high priority as the failure to submit data will inevitably lead to the monitoring of RVSM operations failing. States are urged to investigate all means of obtaining this data. The 2013 data returns totaled 45% with the 2014 returns recorded as 50%.

2.4.2 A high level overview of CRA 8 will be presented to APIRG 20.

2.5 Monitor Operator Compliance with State Approval Requirements (4)

2.5.1 This function is continuously in progress as ARMA uses the monthly safety assessment returns to verify that aircraft captured in the RVSM band are actually State RVSM approved aircraft and operators lodged with the ARMA. Numerous queries continue to be received from neighbouring RMA's to address the presence of certain aircraft in published RVSM airspace of which the reporting RMA had no records. The operation of State aircraft is a problem and will require ongoing attention for some time yet. Since our last meeting we have recorded approximately 67 aircraft that have been found lacking in the RVSM approvals aspect as opposed to the last period which recorded 97. ARMA considers this as very conservative as we are aware of daily schedules by unapproved operators. As a result of the deficiency mentioned in RVSM State approvals will now be recorded on the deficiency list.

2.6 Initiate Remedial Actions if RVSM Requirements are not Met (5)

2.6.1 Remedial actions have been negotiated with various CAA's to find solutions for large height deviations and non RVSM approved aircraft. This is also true for aircraft demonstrating large ASE measurements. The ARMA considers this item as a continuous task and will be reported on as required. All the afore mentioned are processed via the TAG.

2.7 Monthly FIR Traffic and Associated Returns to ARMA

2.7.1 The annual return for 2014 has slightly increased to 50%. Safety assessment data cannot be over emphasized. If the region is unaware of the weak RVSM areas it is impossible to provide solutions.

3. AFI RVSM NPM's

3.1 The contact point for RVSM matters in each State is critical to the success of addressing all RVSM matters relating to that State however there are still deficient States which will be recorded on the deficiency list. All States are requested to keep their contact points current.

4. COORDINATION FAILURES

4.1 During the course of 2013 and 2014 it became evident that one of the RVSM system risks which needed to be addressed is that of coordination failures. Coordination failures are reached a point that could no longer be treated as an isolated occurrence. Aircraft are operating at incorrect levels and estimates for reporting points are not accurate. In some cases estimates are not passed at all and aircraft operate without being coordinated. This situation is under continuous discussion during TAG meetings and is receiving attention. ACC's are urged to continue reporting these events so that the hotspots can be identified and remedial action proposed and implemented.

5. LOSS OF SEPARATION AT ATS ROUTE CROSSING POINTS

5.1 As analyzed by both the AIAG and the RVSM Collision Risk Assessments the loss of separation at ATS route crossing points is a system risk that will need to be addressed towards eliminating the risk of loss of separation. A proposal will be discussed during the overview of CRA 8 during the meeting.

6 CONCLUSION

6.1 AFI RVSM is progressing however the Aviation Community will need to take note of the weaknesses and become more focused as the risk is increasing from an operational perspective. Time and effort needs to be applied to, RVSM safety assessment data returns, RVSM operations approvals, height monitoring, loss of separation at crossing points and coordination failures.

6.2 Air Navigation Service Providers, aircraft operators and CAA,s should remain

RVSM vigilant at all times in order to enhance RVSM safety in Africa.

END