



International Civil Aviation Organization  
Eastern and Southern African Office

**Thirteenth Meeting of the Air Traffic Management/Aeronautical  
Information Management/Search and Rescue Sub-Group  
(ATM/AIM/SAR SG/13)  
(Nairobi, Kenya, 16 - 19 September 2013)**

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**Agenda Item 5: RVSM Operations and Monitoring**

**ARMA REPORT**

*(Presented by ARMA)*

**SUMMARY**

The working paper presents the ARMA Report containing an overview of the responsibilities associated with the five key performance areas.

The meeting is invited to note the Conclusion at **paragraph 4**.

This information paper is related to Strategic Objectives: **A**

**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 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](http://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.

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

Table 1

2.2.2 A total of 850 AFI RVSM Operational Approvals were recorded in the latest dataset at the end of August 2013. This is an increase of approximately 183 aircraft measured from the June 2011 SG12. 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), have for the second CRA supplemented other ASE figures in the processing of AFI CRA. The GMU method is returning good results with a total of 382 aircraft having been monitored. Currently the AFI Monitoring burden is 538 aircraft of which 255 still require monitoring (48%). HMU 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 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 has big safety implications for the operator and the ANSP. Numerous protocols have been opened where aircraft have demonstrated a 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 CRA process which is currently in progress however during the previous assessment it was established that there were 54 reported LHD's which has now decreased to 34. A figure of 46 is currently under evaluation for the current assessment.

## **2.4 Conduct Safety Assessments (3)**

2.4.1 Safety Assessments are continuously in progress to satisfy the Safety Policy. The data for the 2013 safety assessment is currently being collected and appears to be exceeding all 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. To date the safety returns have been poor ranging from 35% to 45% in 2011 however the assessment for 2012 which is under development has reached 45%. The current safety assessment data for 2013 stands at a 70% return from AFI

2.4.2 The results of the current safety assessment will be presented to APIRG 19 and fully discussed in detail during SG13.

## **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 remains a problem and will require attention for some time yet. Since our last meeting we have recorded approximately 97 aircraft that have been found lacking in the RVSM approvals aspect as opposed to the last period which recorded 76. 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 2012 was a dismal 45% which is once again hampering the compiling of the various safety assessments. Safety assessment data cannot be over emphasized. If the region is unaware of the weak RVSM areas it is impossible to provide solutions. At this point it should be mentioned that the ASECNA FIR's, Botswana and South Africa have put in a great effort to provide safety data and it is believed that this is having a big effect relating to safety monitoring and for the 2012 safety assessment.

## **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.

## **4. COORDINATION FAILURES**

4.1 During the course of 2012 and 2013 it has become evident that one of the RVSM system risks which will need to be addressed is that of coordination failures. Coordination failures are reaching a point that they can 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.

## **4. CONCLUSION**

4.1 AFI RVSM is progressing well and the interaction between States and ARMA have improved. Time and effort needs to be applied to, safety assessment data returns, RVSM operations approvals, height monitoring and coordination failures.

4.2 Air Navigation Service Providers, aircraft operators and CAAs should remain RVSM vigilant at all times.

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