ICAO

INTERNATIONAL CIVIL AVIATION ORGANIZATION

**EIGHTH MEETING OF THE STEERING COMMITTEE OF THE REGIONAL AVIATION SAFETY GROUP FOR AFRICA-INDIAN OCEAN (RASC/8).**

**From 29 to 30 August 2022.**

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**Agenda Item 6: Proposed strategy to address RVSM-related challenges (operation and aircraft approval) in the AFI Region**

# CHALLENGES NOTED IN 2020

*(Presented by the Secretariat)*


| SUMMARY |
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| This paper provides information on the safety performance of the regional Reduced Vertical Separation Minimum (RVSM) airspace. |
| **REFERENCE(S):**<br>- RASG-AFI reports.<br>- Annexes 6 and 11.<br>- AIAG and ARMA reports.<br>- TAG UCR Database.<br>- ICAO Docs 9930, 9937, 9574 and 4444 (PANS-ATM). |
| **Related ICAO Strategic Objective(s):**<br>A- Aviation Safety<br>B- Air Navigation Capacity and Efficiency |


## 1. INTRODUCTION:

1.1. The AFI Regional Monitoring Agency (ARMA) functions are to:

i. Establish and maintain a database of Reduced Vertical Separation Minimum (RVSM) approvals (This information is of vital importance if the height-keeping performance data collected by the height monitoring systems is to be effectively utilized in the risk assessment.);

ii. Monitor aircraft height-keeping performance and the occurrence of Large Height Deviations (LHD), and report results appropriately;

iii. Conduct safety and readiness assessments and report results appropriately;
iv. Monitor operator compliance with State approval requirements after RVSM implementation;
v. Initiate necessary remedial actions if RVSM requirements are not met.

1.2. ARMA supports the satisfactory implementation of the agreed safety goal, or Target Level of Safety (TLS) and continued use of the Reduced Vertical Separation Minimum (RVSM) within AFI airspace. AFI States are requested to appoint National Programme Manager (NPM) who act as State Focal Points thereby allowing ARMA to have an accurate record of point of contact for any queries that might arise.

1.3. For the analysis of the collision risk for AFI RVSM CRA15, the estimate of the technical vertical collision risk met the technical vertical TLS of 2.5 ×10-9 fatal accidents per flight hour, but the estimate of the total vertical collision risk did not meet the total vertical TLS of 5 × 10-9 fatal accidents per flight hour.

1.4. The CRA 15 2020 estimate of the technical vertical collision risk was 1.28 × 10-10 fatal accidents per flight hour, i.e. approximately a factor of 19 below the technical vertical TLS. For 23 of the 27 FIRs (85%), data have been submitted. Only Addis Ababa, Asmara, Dar es Salaam and Lilongwe no data has been received. In total 219.5 months of the 324 (67.7%) have been received and processed. This is the largest percentage for all post-implementation CRAs. If the data that could not be processed was included too, then this percentage would become 72.7%.

1.5 The AFI Tactical Action group fourteenth meeting (TAG/14) noted some new trends that pushed the CRA higher than previous year, these included the use of FL420 and higher closure risks in two FIRs.

## 2. DISCUSSION:

2.1. Although there is a marked improvement in the submission of the RVSM data to ARMA by the AFI states, there is room for improvement. ARMA faces a number of challenges in the region in obtaining data that would improve the safety levels if addressed.

2.2. Annex 6 to the Chicago Convention requires States to take appropriate action if an aircraft for which it exercises operational authority is found to be operating in RVSM airspace without approval. To assist States to fulfill this obligation, ARMA is publishing a bulletin which includes all aircraft which are confirmed as operating in RVSM airspace without approval. In addition to confirmed non-approved aircraft, the bulletin lists aircraft, which have been monitored in RVSM airspace, but have not been reported as approved by the State or Region exercising operational authority, despite reasonable efforts on the part of the RMA to confirm the status with the appropriate State authority.

2.3. Many aircraft operating in a region approved for RVSM operations will have their approvals registered with another RMA. While it is currently an ICAO requirement for regions to establish an RVSM approvals database, it is envisaged that there is considerable scope for

database sharing. When ARMA observe or is informed of aircrafts operating in RVSM airspace without the necessary approval, it sends a request to the State of register for necessary action to be taken by the State. In the case of State aircraft, States are requested to liaise with their civil and military authorities to ensure that, where applicable, RVSM approval data for State aircraft is regularly passed to ARMA. However, many AFI States do not respond to any communication from ARMA nor do they advise of the RVSM status of the State aircraft.

2.4. To avoid State aircraft being incorrectly included in any publication of RVSM non-approved aircraft, States are encouraged to:
- ensure a closer cooperation between civilian and military authorities so that all RVSM operational requirements for State aircraft be clearly understood and properly implemented;
- Agree on a process with their civil and military authorities to handle reports of RVSM non-approved State aircraft operating within RVSM airspace.

2.5. The Collision Risk Assessment (CRA) conducted by ARMA is carried out on available RVSM Traffic Data from the concerned Flight Information Regions (FIRs). The technical and total vertical CRAs are based on the data and information available concerning AFI RVSM operations during the year. The queries forwarded to the NPMs are inclusive of all RVSM System safety related matters such as Aircraft RVSM Ops approvals, Height monitoring as well as traffic data samples from AFI FIRs, so it is vital that NPMs respond to any communication from the RMA.

2.6. To encourage enforcement of the requirements, several actions should be taken with States, which exercise operational authority for any aircraft listed on the RMA Bulletins for a set period usually 6 Months. For States not responding or not taking appropriate action, present the information to APIRG to consider inclusion in the Air Navigation deficiency lists, as appropriate.

2.6 The implementation and use of the ICAO Strategic Lateral Offset Procedure (SLOP) within AFI is still being encouraged, where applicable, to counteract the adverse effect of very accurate GNSS navigation on vertical collision risk. Four FIRs that are required to implement SLOP remains in the AFI region. The safety benefits of the SLOP is only realized fully if all concerned FIRs implement SLOP, as long as there are states that have not implemented SLOP it will still not be used to calculate the CRA in AFI Region.

2.7 A new emerging trend was recorded in the past year, FL420 allocation to aircraft flying above the RVSM airspace. This practice contributes a risk as there is loss of separation with aircraft flying at FL410, which is in the RVSM airspace. There is need to provide more RVSM promotion to ATC and Pilots.

## 3. ACTION BY THE MEETING:

3.1. The meeting is invited to:
a. Note the information presented in the paper.
b. Encourage States to ensure that RVSM approval data for State aircraft is regularly passed to the relevant RMA;

c. agree on a process for handling reports of RVSM non-approved State aircraft detected operating within RVSM airspace; and
d. Encourage States where applicable, to forward RVSM approval confirmation to the requesting RMA within the notified timeframe.
e. Encourage the remaining FIRs to implement SLOP to realize 100% implementation in the region and the benefits that come with it.
f. Encourage the promotion of RVSM and especially the risk of allocating FL420.

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