



ICAO

INTERNATIONAL CIVIL AVIATION ORGANIZATION

Twenty Third Meeting of the Africa-Indian Ocean Planning and Implementation Regional Group (APIRG/23)

(Virtual, 24 - 26 November 2020)

Agenda Item 3: RVSM Airspace Safety

3.1 Work done by ARMA in ensuring continued safe use of RVSM Airspace in the AFI Region

(Presented by ARMA)

SUMMARY	
This working paper presents overall work done by ARMA in ensuring continued safe use of RVSM Airspace in the AFI Region.	
Action by the Meeting are in Point 3 of this paper	
Strategic Objectives	A – Aviation Safety B – Air Navigation Capacity and Efficiency. D – Economic Development E – Environmental Protection
Reference	ICAO Doc 9930 AFI RVSM CRA Reports

1. INTRODUCTION

1.1 A number of efforts and initiatives have been made by both ICAO Regional Offices and ARMA in encouraging full RVSM participation and compliance by AFI States. The deficiencies have been reported at various meetings with several conclusions and decisions made. However, not much has changed to improve compliance levels according to ICAO Doc 9930 regarding RVSM compliance.

2. DISCUSSION

2.1. The Total Risk for 2018 has not improved as seen in the table below and intervention needs to be taken.

AFI Airspace – estimated annual flying hours = 483 110.88 hours (note: estimated hours based on Dec 2018 traffic sample data)			
Source of Risk	Risk Estimation	TLS	Remarks
CRA 12 Total Risk (PREVIOUS CRA)	58.6×10^{-9}	5.0×10^{-9}	Above TLS

Technical Risk	2.4×10^{-11}	2.5×10^{-9}	Below Technical TLS
Operational Risk	70.2×10^{-9}	-	-
Total Risk	75.4×10^{-9}	5.0×10^{-9}	Above TLS

CRA	N_{az}^{total}	TOTAL VERTICAL TLS EXCEEDED BY A FACTOR OF
CRA 13 2018	75.4×10^{-9}	15.0
CRA 12 2017	58.6×10^{-9}	11.7
CRA 11 2016	36.4×10^{-9}	7.3
CRA 10 2015	141.2×10^{-9}	28.2
CRA 9 2014	63.7×10^{-9}	12.7
CRA 8 2013	31.4×10^{-9}	6.3
CRA 7 2012	8.0×10^{-9}	1.6
CRA 6 2011	23.2×10^{-9}	4.7
CRA 5 2010	33.0×10^{-9}	6.6
POSC CRA (2008-2009)	31.2×10^{-9}	6.2

2.2. States that had outstanding data (as indicated in table below) have not submitted data after a deadline of 1 October 2020 and have not communicated with ARMA are Addis Ababa, Asmara, Luanda, and Lilongwe. Dar es Salaam did contact ARMA and requested assistance with extracting the data from the Topsky system and the ARMA team is engaging with the State of Tanzania to try and resolve this problem:

- a) All 48 AFI States are requested to comply to the recommendations of ICAO Doc 9930;
- b) All 27 FIRs are urged to submit RVSM Safety Assessment data as required at monthly intervals in order for the various safety assessment tasks to be under taken and completed as per ICAO provisions;
- c) States should ensure height monitoring is conducted regularly on going, as Altimetry System Error is a catastrophic invisible risk that can be prevented by ensuring operators comply to regular height monitoring as per ICAO Annex 6 FOR Long Term Monitoring Requirements;
- d) States to nominate focal points for RVSM and update ARMA using an F1 form by 31 December 2020. Each of the 48 AFI States must have a focal point for RVSM irrespective of whether that manages its own upper airspace or not;
- e) ARMA conducted an RVSM workshop for State NPMs on the 11 November 2020 in an effort to ensure full compliance of the recommendation from ICAO Doc 9930; and
- f) AFI SLOP implementation at 70% as of 17 November 2020. All AFI States are to implement SLOP by end of February 2021 for the safety discount to be added to the

next Collision Risk Assessment. Guidance of SLOP implementation in Surveillance and Random Routing Areas to be published on Circular 354.

FIR	Implemented SLOP (Yes/No)
Accra	Yes
Addis Ababa	No
Antananarivo	Yes
Asmara	No
Beira	Yes
Brazzaville	Yes
Cape Town	No
Dakar Terrestrial	Yes
Dar Es Salaam	Yes
Entebbe	Yes
Gaborone	Pending
Harare	Yes
Johannesburg	Yes
Johannesburg Oceanic	Yes
Kano	Yes
Kinshasa	Yes
Lilongwe	No
Luanda	Yes
Lusaka	Pending
Mauritius	Yes
Mogadishu	Yes
Nairobi	No
N'djamena	Yes
Niamey	Yes
Roberts	Yes
Seychelles	Yes
Windhoek	No
Total Not Implemented No Response or Evidence	6
Total Implemented	19
Pending Implementation Awaiting Evidence	2
Total FIR's	27

2.3. The higher the usage of SLOP the greater the resulting collision risk reduction. But even a small uptake of SLOP, has a significant effect. For example, a single offsetting aircraft flying the North Atlantic in a direction opposite to the main traffic flow may be passing a considerable number of opposite direction aircraft. This single aircraft applying SLOP provides a reduced risk, not only for itself, but also for all the other encountered aircraft, even though they were not participating in any form of offset.

2.4. The vertical collision risk results can be reduced by SLOP implementation and application. With SLOP, the collision risk can be reduced to an estimate of up to 30%. The safety benefit increases slightly with the remaining vertical deviation times limited to 5 minutes before

being intervened. When SLOP is considered, the vertical collision risk estimate falls to below the Target Level of Service (TLS) of 5×10^{-9} fatal accidents per flight hour.

3. ACTION BY THE MEETING

3.1 The meeting is invited to note the information in the paper and request:

- a) ICAO to assist in urging all 27 FIRs submit 2020 RVSM Data to ARMA;
- b) FIRs that have not already done so to implement Strategic Lateral Offset Procedure (SLOP) by 01 March 2021; and
- c) AFI States that have not already done so to nominate national RVSM focal point to represent their State.

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