



ICAO

INTERNATIONAL CIVIL AVIATION ORGANIZATION

Twenty-Fifth Meeting of the AFI Planning and Implementation Regional Group (APIRG/25)

7 – 11 November 2022

Agenda Item 3: AFI Airspace Monitoring

RVSM DATA CHALLENGES

(Presented by ARMA)

SUMMARY	
This working paper presents the challenges ARMA has encountered with RVSM Monitoring. It includes potential solutions and agreements between RMAs regarding Non-Approved operators.	
Action by the Meeting is as paragraph 3	
<i>Strategic Objectives</i>	A, B, D and E

1 INTRODUCTION

1.1 Operators intending to conduct flights within the airspace where Reduced Vertical Separation Minimum (RVSM) is applied shall require an RVSM approval either from the State of Registry or the State of the Operator. The State of Registry or the State of the Operator, as appropriate, should verify that the height-keeping performance capability of approved aircraft meets the requirements specified in Annex 6, Parts I and II.

1.2 The principle activities of a Regional Monitoring Agency (RMA) are to verify aircraft/operator RVSM approval status, conduct aircraft height keeping performance monitoring, verify the operator's compliance with the long-term monitoring requirements and provide annual airspace safety assessments. The RMA monitors aircraft/operator compliance within the precepts of ICAO Annex 6, reporting non-compliance and any associated safety issues to the States which retain the responsibility for ensuring that appropriate remedial action is taken. To perform this function it is essential that the States provide practical support to the RMA, particularly with regards to coordinating RVSM approval data exchanges and providing operational incident reports for inclusion in the annual safety assessments.

2. DISCUSSION

- 2.1. To ensure an effective service and to minimise workload for both the RMA and individual authorities, States should ensure that the list of RVSM approvals for which it is responsible is kept up to date and communicated regularly to the RMA. This is important as the AFI RMA (ARMA) collects and manages more than 3 types of data (RVSM/PBCS Approvals, Withdrawal, Height Monitoring Data, and Collision Risk Assessment (CRA) Data etc) from 48 States/27 FIRs. States should also ensure that they have introduced procedures for receiving reports of possible non-approved aircraft from the RMA and conducting follow up investigations to verify the true status of the aircraft reported. In addition to transmitting new approvals to the RMA it is equally important that the RMA is informed when approvals are withdrawn or when aircraft are de- or re-registered. It has been demonstrated that the most effective mechanism is for each State to maintain a single centralised database of RVSM approvals which should be communicated to the RMA on a regular basis.
- 2.2. In November 2021 the ARMA had a meeting with the EUR RMA regarding the high number of non-approved airframes listed in the European Bulletin which had also been in the bulletin for over 6 months, Registrations that had been requested from their respective States and which were reported in numerous working papers which the ARMA had presented in meetings held in the AFI Region through the ESAF and WACAF Offices. The ARMA was made aware of some discrepancies in the database regarding RVSM Approvals and the lack of communication to States when the CRA Data would be deemed invalid for processing in the calculation of the Target Level of Safety (TLS). This led ARMA to submit a request in the last quarter of 2021 through the Airspace and Aerodrome Operations Sub-Group (AAO SG) Meeting for an ARMA Website to be developed which would be the solution in increasing communication, ease access to data and information to States and a reliable storage of data, since data would often get lost in the server.
- 2.3. The EUR RMA provides annual updates to the European Region Aviation System Planning Group (EASPG) related to aircraft, which have been listed on the EUR RMA Bulletin for more than 6 months. At EASPG/03 in December 2021, the EUR RMA reported that the number of aircraft originating from Africa, listed on the bulletin was disproportionately high compared to aircraft from other regions, despite the close cooperation of ARMA to try and ensure that appropriate action was taken. The EASPG agreed to a proposal for the Regional Director of the ICAO EUR/NAT bureau to send an inter-office memorandum to both the ICAO regional bureaus in Africa, requesting urgent action with the States from which these aircraft operated from, and to encourage better cooperation and coordination with the ARMA from States and Operators.
- 2.4. It was possible for the EUR RMA to remove a number of the aircraft originating from Africa, which were listed on the bulletin, following positive responses submitted from the States concerned, via the ICAO Western and Central African Office (WACAF) and the ICAO Eastern and South African Office (ESAF) bureaus to the ICAO EUR/NAT bureau. However, it appears that some difficulties in inter regional communication may still exist as some of the updates had not been forwarded to ARMA. It was also reported that additional enforcement action was being taken against certain operators, although in some cases flight plans in EUR RVSM airspace were still being received after the reports from WACAF and ESAF had been received. Additional coordination with ARMA will be undertaken to try and resolve any remaining issues. A further update will be provided to EASPG/04 in November 2022

RVSM Region	Total Aircraft	Civilian	State	Total as a percentage of RVSM Approvals in Region
AAMA	2	2	0	0.16%
ARMA	22	16	6	2%
CARSAMMA	13	10	3	0.5%
EUR	28	21	7	0.3%
RMA EURASIA	12	4	8	0.9%
MAAR	12	0	12	0.4%
MID RMA	9	7	2	0.5%
NAARMO	53	53	0	0.2%
Total	151	113	38	

Table 1: Non-RVSM Approved aircraft listed in the EUR RMA Bulletin

2.5 The Flight Plan RVSM Approval Verification Process (FPRAVP) was first trialled in 2020, following close coordination between the EUR RMA, Germany and the Integrated Initial Flight Plan Processing System (IFPS) technical team. Unfortunately, the IFPS includes a relatively old interface technology and it was necessary to implement the restriction list using laborious and basic logic structures. This resulted in an early logic error and a failure, which resulted in some aircraft not being listed, on either the EUR RMA Bulletin or within the embedded restriction list comprising the FPRAVP, having their flight plans rejected. The FPRAVP trial was halted and an investigation identified a number of human failures associated with the manual manipulation of the data. Following the implementation of a number of recommendations, the FPRAVP was resumed in May 2021, and officially endorsed as a permanent scheme later that year.

2.6 ARMA Website

2.6.1 APIRG/24 Draft Decision 24/11 Establishment of an ARMA Publication website: That;

In order to improve access to ARMA information, ICAO establish a webpage link with the ARMA website to enable Stakeholders to have easy access to the RVSM and PCBS information.

2.6.2 ARMA has developed a website that will have States submit their data on the site. States can visit www.arma.agency for RVSM and PBCS Information, as well as accessing forms to submit Data.

2.7 There is no exemption for State aircraft to operate as General Air Traffic (GAT) within RVSM airspace with a 1000 FT vertical separation minimum without an RVSM approval. The absence of such approval does not mean that State aircraft cannot access RVSM-designated airspace, but it does require a separation of 2000 FT to be observed and a separate flight plan to be filed.

2.8 One of the greatest risks to safety within RVSM airspace is the operation of an aircraft declared as RVSM-approved when in reality the aircraft does not meet the technical performance criteria as defined in the Minimum Aviation System Performance Standards (MASPS). The RMA has

noted with concern that a very significant number of aircraft operating as RVSM-approved without a known technical compliance method are military aircraft, often airframe derivatives (e.g. fuselage modifications or add-ons) whose height-keeping performance characteristics are not proven to be similar to the original design. The importance for airworthiness authorities of understanding the process for approving an aircraft type or derivative cannot be overstated.

2.9 Aircraft not listed in the database of approvals is considered non-approved and reported to the appropriate State authority. ICAO Annex 6 requires State authorities responsible for the issuing of RVSM approvals to establish provisions and procedures to ensure that appropriate action is taken in respect of operators and aircraft operating in RVSM airspace without a valid RVSM approval.

2.9.1 RVSM-Approved State Aircraft: Operators of RVSM-approved aircraft must list a ‘W’ in item 10 of the ICAO flight plan, irrespective of the requested flight plan. Operators submitting repetitive flight plans must include a “W” in item 10 of the flight plan irrespective of the requested flight level.

2.9.2 Non-RVSM Approved State Aircraft: Operators of non-RVSM approved aircraft wishing to operate in RVSM airspace must submit an “M” in item 8 of the ICAO flight plan, and in addition “STS/NONRVSM” in item 18. No “W” needs to be submitted. These aircraft will be provided with 2000FT vertical separation.

3. ACTION BY THE MEETING

1.1 The meeting is invited to:

- a) Note the information contained in the WP;
- b) Consider adding a link of the ARMA’s website under the ESAF and WACAF ICAO Website www.arma.agency
- c) Encourage States to check the list of Non-RVSM Approved aircraft and action accordingly.
- d) Encourage States to interact with the website to submit data to ARMA.
- e) Urge States to ensure State airframes are issued with valid RVSM Approvals and filed correctly according to their status.