



International Civil Aviation Organization

ICAO Twenty-Eighth Meeting of the Regional Airspace Safety Monitoring Advisory Group (RASMAG/28)

Bangkok, Thailand, 21 – 24 August 2023

Agenda Item 5: Airspace Safety Monitoring Activities/Requirements in the Asia/Pacific Region

NAARMO RVSM LONG TERM HEIGHT MONITORING BURDEN

(Presented by NAARMO)

SUMMARY

This paper presents an assessment of the monitoring burden associated with the long-term height monitoring requirements for airframes for which the NAARMO is the responsible Regional Monitoring Agency (RMA). NAARMO approvals and global monitoring records as of 30 June 2023, were used to assess the monitoring burden.

1. INTRODUCTION

1.1 The North American Approvals Registry and Monitoring Organization (NAARMO), a service provided by the U.S. Federal Aviation Administration’s William J. Hughes Technical Center, has served since 2003 as the Regional Monitoring Agency (RMA) for the airspace covering the United States, Canada and Mexico.

1.2 As part of the duties of a Regional Monitoring Agency (RMA), outlined in ICAO Doc 9937 (Reference 1), the NAARMO performs regular checks of the operator compliance with State approval requirements within the Pacific and Northeast airspace. The purpose of these checks is to identify non-approved operators and aircraft using the RVSM airspace to ensure the safety of the airspace.

1.3 To meet the ICAO Annex 6 Long Term Height Monitoring (LTHM) requirements, NAARMO maintains a database of approvals and height monitoring history for aircraft registered within States under NAARMO responsibility (Canada, Mexico, and the United States.) This paper provides the NAARMO monitoring burden based on the approvals contained within the NAARMO approvals database and global monitoring data available as of 30 June 2023

2. DISCUSSION

2.1 The NAARMO approvals database as of **30 June 2023** was examined to determine the current NAARMO monitoring burden. First, the approvals for the countries under NAARMO responsibility were compiled. Then, each airframe having a current full approval was paired with the appropriate monitoring category by applying the most current version of the Minimum Monitoring Requirements (MMR) table (as of 6 April 2023). Any aircraft types missing from the current MMR table were assigned to Category 3.

2.2 The total of number of unique airframes identified as having a full RVSM approval from a state of registry under NAARMO responsibility as of **30 June 2023** was **27,816**, with a resultant monitoring burden of **15,990** and a total of **558** aircraft not successfully monitored within the past two years (or 1,000 flight hours, whichever interval was longer).

2.3 The total number of unique airframes identified as having a full RVSM approval from a state of registry under NAARMO responsibility as of 30 June 2023 was 27,816, with a resultant monitoring burden of 15,990 and a total of 558 aircraft not successfully monitored within the past two years (or 1,000 flight hours, whichever interval was longer). Table 1 provides a summation by State of Registry of airframes that require monitoring due to having no successful monitoring record within two years as of 30 June 2023.

State	Total # of Approved Airframes	Resultant Monitoring Burden (# Airframes)	Number of Fleet Aircraft not Monitored	Total # of Airframes Not Monitored within two years as of 30 June 2023
Canada	1654	908	263	104
Mexico	596	275	56	23
United States	25566	14807	683	431
Total	27816	15990	1002	558

Table 1: Summation of NAARMO Long Term Height Burden as of 30 Jun 2023

2.4 **Table 2** provides an itemized view by State of Registry of airframes that require monitoring due to having no successful monitoring record within two years as of **30 June 2023**.

State		Total # of Approved Airframes	Resultant Monitoring Burden (# Airframes)	Number of Fleet Aircraft not Monitored	Total # of Airframes Not Monitored within two years as of 30 June 2023
Canada	IGA	558	499	89	72
	Commercial	1096	409	174	32
	Canada Total	1654	908	263	104
Mexico	IGA	16	16	2	2
	Commercial	580	259	54	21
	Mexico Total	596	275	56	23
United States	IGA	17856	13965	457	416
	Commercial	7710	842	226	15
	US Total	25566	14807	683	431
Grand Total		27816	15990	1002	558

Table 2: NAARMO Long Term Height Burden as of 30 Jun 2023

2.5 Sampling of ASE by group allows the potential for specific airframes to remain unmonitored over long durations. IGA aircraft that take several years to complete 1000 flight hours also will have longer periods between monitoring.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper; and
- b) consider the potential impact of the estimated remaining burden.

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References

Doc 9937 - Operating Procedures and Practices for Regional Monitoring Agencies in Relation to the Use of a 300 m (1000 ft) Vertical Separation Minimum Between FL 290 and FL 410 Inclusive,
International Civil Aviation Organization, First Edition – 2010