



ICAO

International Civil Aviation Organization
South American Office

INFORMATION PAPER

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**CAR/SAM Planning and Implementation Regional Group (GREPECAS) Twenty Third Scrutiny
Working Group Meeting
(GTE/23)**

Lima, Peru, 11 to 15 September 2023

Agenda Item 5: Other Business

NAARMO LONG TERM HEIGHT MONITORING BURDEN (LTHMB)

(Presented by NAARMO)

| EXECUTIVE 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 31 July 2023 , were used to assess the monitoring burden. | |
| <i>Strategic Objectives:</i> | <ul style="list-style-type: none">• Safety |
| <i>References:</i> | <ul style="list-style-type: none">• <i>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</i>, International Civil Aviation Organization, First Edition – 2010 |

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 North American airspace as well as New York West portions of the NAARMO-

delegated oceanic 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 Burden (LTHMB) 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 **31 JUL 2023**

2 Discussion

2.1 The NAARMO approvals database as of **31 JUL 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 **31 JUL 2023** was **23,365**, with a resultant monitoring burden of **13,613** and a total of **568** aircraft not successfully monitored within the past two years (or 1,000 flight hours, whichever interval was longer).

2.3 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 31 JUL 2023.

| State | Total # of Approved Airframes | Resultant Monitoring Burden (# Airframes) | Total # of Fleet Aircraft Not Monitored | Total # Burden of Airframes Not Monitored within two years as of 31 JUL 2023 |
|--------------|-------------------------------|-------------------------------------------|-----------------------------------------|------------------------------------------------------------------------------|
| Canada | 1665 | 913 | 268 | 106 |
| Mexico | 472 | 229 | 41 | 17 |
| US | 21228 | 12471 | 676 | 445 |
| Total | 23365 | 13613 | 985 | 568 |

Table 1 – Summary of Long-Term Height Monitoring Burden

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 **31 JUL 2023**.

| State | | Total # of Approved Airframes | Resultant Monitoring Burden (# Airframes) | Total # of Fleet Aircraft Not Monitored | Total # of Burden Airframes Not Monitored within two years as of 31 JUL 2023 |
|--------------|---------------------|-------------------------------|-------------------------------------------|-----------------------------------------|------------------------------------------------------------------------------|
| Canada | IGA | 564 | 502 | 92 | 74 |
| | Commercial | 1101 | 411 | 176 | 32 |
| | Canada Total | 1665 | 913 | 268 | 106 |
| Mexico | IGA | 9 | 9 | 0 | 0 |
| | Commercial | 463 | 220 | 41 | 17 |
| | Mexico Total | 472 | 229 | 41 | 17 |
| US | IGA | 13545 | 11613 | 467 | 430 |
| | Commercial | 7683 | 858 | 209 | 15 |
| | US Total | 21228 | 12471 | 676 | 445 |
| Total | | 23365 | 13613 | 985 | 568 |

Table 2 – Itemized Long-Term Height Monitoring Burden

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.