International Civil Aviation Organization

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

APAC CONSOLIDATED LTHM COMPLIANCE STATUS

(Presented by MAAR)

SUMMARY

This paper presents a consolidated report of Long-Term Height Monitoring (LTHM) compliance status in the Asia Pacific (APAC) Region based on the assessments from five Asia Pacific RMAs - AAMA, CHINA RMA, JASMA, PARMO and MAAR. The remaining monitoring burden in the APAC region in 2022 totals **503 aircraft**, a **5%** decrease from 2021. Nine States - DPRK **(**China RMA**)**, Papua New Guinea (AAMA), Indonesia (AAMA), Pakistan (MAAR), Solomon Islands (AAMA), Nepal (MAAR), Mongolia **(**MAAR**)**, New Zealand **(**PARMO**)** and Bangladesh **(**MAAR**)** have remaining monitoring burden over 30% of the total number of aircraft required to be monitored.

1. INTRODUCTION

1.1 During the 7th Meeting of the Monitoring Agency Working Group (MAWG/7) in February 2020, APAC RMAs agreed to present a consolidated report of LTHM compliance status to the next RASMAG meeting. Being responsible for the largest number of APAC States, MAAR has been volunteering consolidating the LTHM compliance report since RASMAG/25.

1.2 The APAC Consolidated LTHM compliance status is also summarized in a presentation format attached to this paper.

2. DISCUSSION

Consolidated Results

2.1 The following table presents the consolidated results of remaining monitoring burden from all APAC RMAs, based on RVSM approval data as of **30th June 2023**:

RMA	State	Monitoring Requirement	# Remaining Monitoring Burden	% Remaining Monitoring Burden
MAAR	Pakistan	37	23	62%
	Nepal	11	5	46%
	Mongolia	13	5	39%
	Bangladesh	12	4	33%
	The Philippines	79	21	27%

RMA	State	Monitoring Requirement	# Remaining Monitoring Burden	% Remaining Monitoring Burden
	India	466	117	25%
	Malaysia	84	17	20%
	Brunei Darussalam	12	2	17%
	Thailand	80	10	13%
	Sri Lanka	10	1	10%
	Cambodia	12	1	8%
	China (Hong Kong)	72	2	3%
	China (Taiwan)	68	1	2%
	Myanmar	6	0	0%
	Lao PDR	2	0	0%
	China (Macau)	7	0	0%
	Bhutan	5	0	0%
	Maldives	2	0	0%
	Singapore	84	0	0%
	Afghanistan	7	0	0%
	Viet Nam	75	0	0%
MAAR Total		**1144**	**209**	**18%**
China RMA	China	783	145	19%
	DPRK	4	4	100%
China RMA Total		**787**	**149**	**19%**
AAMA	Papua New Guinea	13	9	69%
	Indonesia	90	57	63%
	Solomon Islands	2	1	50%
	Australia	322	58	18%
	Vanuatu	1	0	0%
AAMA Total		**428**	**125**	**29%**
PARMO	New Zealand	28	10	36%
	Republic of Korea	90	7	8%
	Cook Islands	1	0	0%
	Fiji	8	0	0%
PARMO Total		**127**	**17**	**13%**
JASMA	Japan	187	3	2%
JASMA Total		**187**	**3**	**2%**
APAC Grand Total		**2,673**	**503**	**19%**

Table 1: Summary of Remaining Monitoring Burden by States and RMAs as of 30 June 2023

2.2 Please note that these assessments are only based on the 2-year requirement and not taking into account the 1,000 flight-hour criteria, which might become more significant during the traffic recovery period, when aircraft are just starting to be put into more frequent operations.

2.3 The remaining monitoring burden in the APAC region in 2022 totals 503 aircraft, indicating a 5% decrease compared to the previous year **(**RASMAG/27**)**. The distribution percentages are as follows: MAAR accounts for 42%, China RMA for 29%, AAMA for 25%, PARMO for 3%, and JASMA for 1%, based on approval data as of the 30th of June, 2023.

2.4 MAAR fully resumed EGMU services in September 2022 after suspending them during the COVID-19 pandemic. So far, MAAR has serviced a total of 36 aircraft.

2.5 Pakistan has decreased their monitoring burden by 11% from 2021, but still has a high percentage of remaining monitoring burden at 62%. As of July 2023, MAAR has conducted EGMU for three Pakistani operators with five other operators in the queue to receive the service in August and September 2023.

2.6 Mongolia and Nepal have remaining monitoring burdens of 39% and 46%, respectively. The high percentage is due to the small overall number of aircraft in both States. However, operators from both States have approached MAAR for the HKPM service. Nevertheless, the confirmation of the HKPM date from a Nepal operator is still pending.

2.7 Bangladesh has a monitoring burden of 33%, an 8% increase from RASMAG/27. This is because Bangladesh has applied the 1,000 flight hour criteria to manage and assess the monitoring requirements during the traffic recovery period.

2.8 The remaining monitoring burden of India has decreased by 21% despite the fact that India has more aircraft registered in MAAR database this year.

2.9 China RMA has upgraded their ADS-B system; but, these changes have not been applied to HKPM. As a consequence, there is still a high number of remaining monitoring burden. After the application of the upgraded system, the monitoring burden of China RMA is expected to significantly decrease.

APANPIRG List of Deficiencies Consideration

2.10 RASMAG/23 agreed that States that fail to meet monitoring requirements with the remaining burden of 30% or more of the total number of aircraft required to be monitored can be proposed to be on the APANPIRG List of Deficiencies in the State Responsibility to comply with the Annex 6 Height-Keeping Monitoring Requirement Annex 6 Part I Section 7.2.9 (12th Ed.) and Part II Section 2.5.2.10 (11th Ed.) for Non-compliance with LTHM requirement (remaining monitoring burden more than 30%). The following table summarizes the States that have remaining monitoring burden over 30% in 2022, compared with their status in 2021.

State	2021	2022
DPRK (China RMA)	**100%**	**100%**
Papua New Guinea (AAMA)	**46%**	**69%**
Indonesia (AAMA)	**52%**	**63%**
Pakistan (MAAR)	**73%**	**62%**
Solomon Islands (AAMA)	**50%**	**50%**
Nepal (MAAR)	**45%**	**46%**
Mongolia (MAAR)	29%	**39%**
New Zealand (PARMO)	8%	**36%**
Bangladesh (MAAR)	25%	**33%**

Table 2: List of States having monitoring burden 30% or more as of 30 June 2023

2.11 As notified in the previous meeting (RASMAG/27) that, with most travel restrictions have been lifted in 2022, the consideration for States to be proposed to be included in the APANPIRG Deficiencies List will continue in RASMAG/28. Therefore, DPRK (China RMA), Papua New Guinea (AAMA), Indonesia (AAMA), Pakistan (MAAR), Solomon Islands (AAMA), Nepal (MAAR), Mongolia (MAAR), New Zealand (PARMO) and Bangladesh (MAAR) can be considered candidates for the Deficiency List inclusion if their percentages remain 30% or more before the next APANPIRG.

Recommendations for States and Operators

2.12 During the traffic recovery period, there might be some aircraft that have accumulated flight hours that do not surpass 1,000 flight hours. If any State CAAs are tracking and applying the 1,000 flight-hour criteria on their registered aircraft, they are encouraged to provide their RMA with a list of such aircraft so that the RMA can subtract them from the remaining monitoring burden calculation, which will decrease the overall percentage.

2.13 APAC States are encouraged to inform their RMAs about any changes **(**such as transferred or de-registered aircraft**)** in a timely manner, as this will affect the number of aircraft required to be height-monitored.

2.14 APAC States should encourage aircraft operators to retrofit ADS-B-Out capability where feasible, as it would provide a more efficient and more cost-effective solution for height monitoring in the long run**.**

2.15 The operators that have ADS-B-Out equipped aircraft but still have not fulfilled their monitoring requirements should consult the respective RMAs for other feasible arrangements**.**

2.16 APAC States are encouraged to actively engage in sharing their ADS-B data with their designated RMA as another means to alleviate the monitoring burden**.**

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) endorse the proposal in 2.11;

b) note the information contained in this paper; especially the recommendations in 2.12 - 2.16 and

c) discuss any relevant matters as appropriate.

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2022 Asia Pacific
Consolidated Long-Term Height Monitoring Compliance Status Report

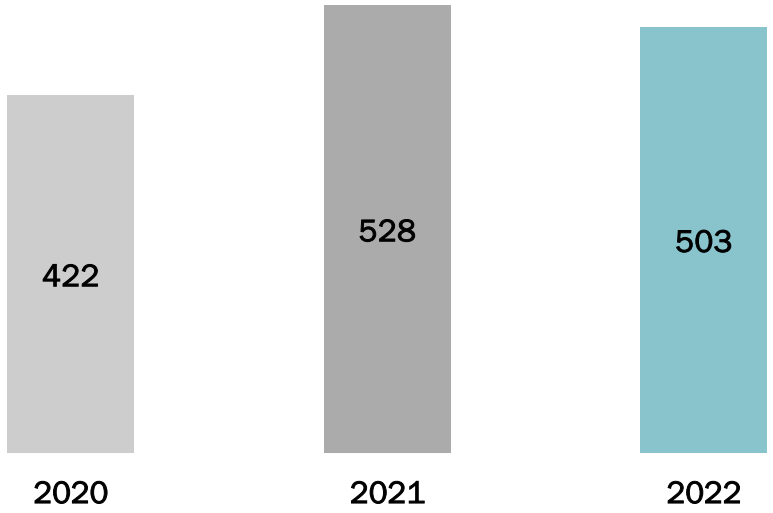
Asia Pacific EMAs/RMAs

Prepared by MAAR for RASMAG/28

Objective

To provide an overview of LTHM compliance status for the Asia Pacific region in terms of the remaining monitoring burden of States under each Asia Pacific RMA based on RVSM approval data as of **the 30th of June, 2023**

No. of Aircraft Remaining to be Monitored 2020-2022

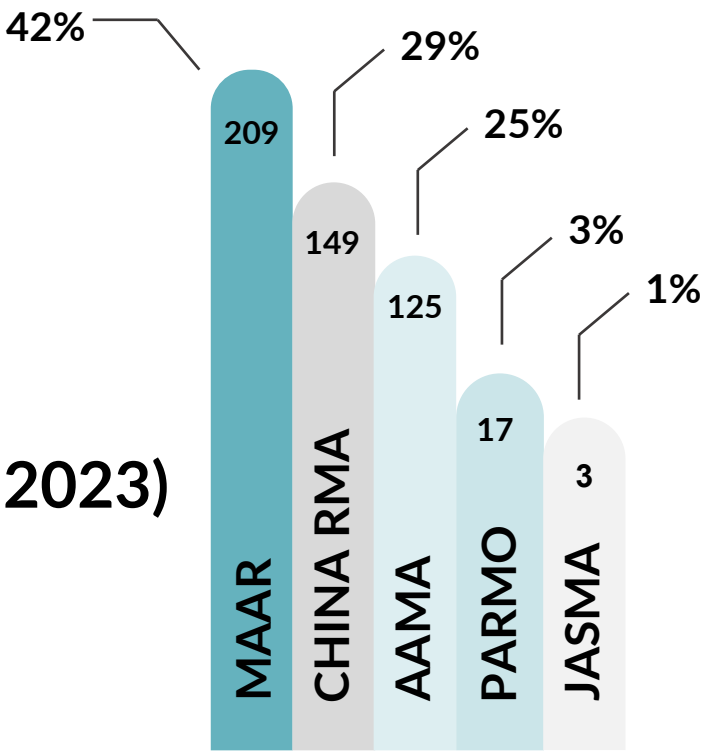


In 2022, the total number of aircraft remaining to be monitored in APAC decreased from 2021 by

5%

% = A/C remaining to be monitored / A/C required to be monitored

2022
(Up to June 2023)



% = # Aircraft remaining to be monitored /
# Aircraft required to be monitored

Total 503 aircraft

# of Aircraft remaining to be monitored

MAAR

209 aircraft remaining to be monitored

- Accounts for 42% of all aircraft remaining to be monitored in APAC
- MAAR fully resumed EGMU services in September 2022 after suspending them during the COVID-19 pandemic. So far, MAAR has serviced a total of 36 aircraft, including 21 from India, 7 from the Philippines, 2 from Thailand, 3 from Pakistan, 1 from Mongolia, 1 from the Maldives, and 1 from Indonesia.
- Pakistan has decreased their monitoring burden by 11% from 2021, but still has a high percentage of remaining monitoring burden at 62%. As of July 2023, MAAR has conducted EGMU for three Pakistani operators with five other operators in the queue to receive the service in August and September 2023.

MAAR – cont.

209 aircraft remaining to be monitored

- Mongolia and Nepal have remaining monitoring burdens of 39% and 46%, respectively. The high percentage is due to the small overall number of aircraft in both States. However, operators from both States have approached MAAR for the HKPM service. Nevertheless, the confirmation of the HKPM date from a Nepal operator is still pending.
- Bangladesh has a monitoring burden of 33%, an 8% increase from RASMAG/27. This is because Bangladesh has applied the 1,000 flight hour criteria to manage and assess the monitoring requirements during the traffic recovery period.
- The remaining monitoring burden of India has decreased by 21%, even though India has more aircraft registered in the MAAR database this year.

China RMA

149 aircraft remaining to be monitored

- Accounts for 29% of all aircraft remaining to be monitored in APAC
- DPRK still has remaining monitoring burden of 100% this year.
- China RMA has upgraded their ADS-B system; but, these changes have not been applied to HKPM. As a consequence, there is still a high number of remaining monitoring burden. After the application of the upgraded system, the monitoring burden of China RMA is expected to significantly decrease.

AAMA

125 aircraft remaining to be monitored

- Accounts for 25% of all aircraft remaining to be monitored in APAC
- Solomon Islands has remaining monitoring burden of 50%. The high percentage is due to the small overall number of aircraft.
- Papua New Guinea has remaining monitoring burden of 69%. (23% increase from RASMAG/27).
- Indonesia has 63% remaining monitoring burden (11% increase from RASMAG/27).

PARMO

17 aircraft remaining to be monitored

- Accounts for 3% of all aircraft remaining to be monitored in APAC
- New Zealand has remaining monitoring burden of 36%. (28% increase from RASMAG/27).

JASMA

3 aircraft remaining to be monitored

- Accounts for 1% of all aircraft remaining to be monitored in APAC

States with >30% remaining burden

Same as 2021

States	2021	2022
DPRK (China RMA)	100%	100%
Papua New Guinea (AAMA)	46%	69%
Indonesia (AAMA)	52%	63%
Pakistan (MAAR)	73%	62%
Solomon Islands (AAMA)	50%	50%
Nepal (MAAR)	45%	46%

States with >30% remaining burden

New Entries in 2022

States	2021	2022
Mongolia (MAAR)	29%	39%
New Zealand (PARMO)	8%	36%
Bangladesh (MAAR)	25%	33%

Deficiency List Proposal

- RASMAG/23 agreed that States with remaining burden ≥30% will be proposed to APANPIRG to be listed on the APANPIRG List of Deficiencies in the State Responsibility to comply with the Annex 6 Height-Keeping Monitoring Requirement Annex 6 Part I Section 7.2.9 (12th Ed.) and Part II Section 2.5.2.10 (11th Ed.) for Non-compliance with LTHM requirement (remaining monitoring burden more than 30%)
- As notified in the previous meeting (RASMAG/27) that, with most travel restrictions have been lifted in 2022, the consideration for States to be proposed to be included in the APANPIRG Deficiencies List will continue in RASMAG/28. Therefore, **DPRK (China RMA), Papua New Guinea (AAMA), Indonesia (AAMA), Pakistan (MAAR), Solomon Islands (AAMA), Nepal (MAAR), Mongolia (MAAR), New Zealand (PARMO)** and **Bangladesh (MAAR)** can be considered candidates for the Deficiency List inclusion if their percentages remain 30% or more before the next APANPIRG.

Recommendations for States and Operators

- During the traffic recovery period, there might be some aircraft that have accumulated flight hours that do not surpass 1,000 flight hours. If any State CAAs are tracking and applying the 1,000 flight-hour criteria on their registered aircraft, they are encouraged to provide their RMA with a list of such aircraft so that the RMA can subtract them from the remaining monitoring burden calculation, which will decrease the overall percentage.
- APAC States are encouraged to inform their RMAs about any changes (such as transferred or de-registered aircraft) in a timely manner, as this will affect the number of aircraft required to be height-monitored.

Recommendations for States and Operators

- APAC States should encourage aircraft operators to retrofit ADS-B-Out capability where feasible, as it would provide a more efficient and more cost-effective solution for height monitoring in the long run.
- The operators that have ADS-B-Out equipped aircraft but still have not fulfilled their monitoring requirements should consult the respective RMAs for other feasible arrangements.
- APAC States are encouraged to actively engage in sharing their ADS-B data with their designated RMA as another means to alleviate the monitoring burden.