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Agenda Item 2: Updates from States and IATA on ADS-C/CPDLC and PBCS Implementation Status

MALAYSIA'S INITIATIVE TO IMPROVE AIR TRAFFIC SERVICES IN THE BAY OF BENGAL AREA

(Presented by Malaysia)

SUMMARY

This paper presents Malaysia's initiative to improve Air Traffic Services in the Bay of Bengal area. This paper will detail Malaysia's capabilities and plan to enhance air traffic management in response to the growth of air traffic movement.

1. INTRODUCTION

1.1 Malaysia has experienced significant growth in air traffic movement, particularly in Kuala Lumpur FIR in the early 2000s.

1.2 Although the COVID-19 pandemic causes a significant impact on the number of flights globally, the recovery post-pandemic shows a substantial increase in flight movements. Malaysia is exploring and committed in implementing PBCS separation in remote airspace to facilitate better flight level allocations.

2. DISCUSSION

Overview

2.1 Conventionally, the longitudinal separation standard used in remote airspace is 15 minutes and 10 minutes by implementing Mach Number Technique (MNT). Although this is the safest separation standard, it lacks the capacity and efficiency such as to achieve optimum flight levels.

2.2 In 2014, Malaysia and India successfully implemented 50 NM separation for aircraft equipped with ADS-C/CPDLC in the Bay of Bengal area. This initiative provides better efficiency and airspace capacity to airspace users. The airspace users enjoy the benefit of optimum flight level allocation and simultaneously reduce the waiting time on the ground.

PBCS Capability and readiness

2.3 The Performance Based Communication and Surveillance (PBCS) framework supports the safe implementation of air traffic management initiatives that reduce aircraft spacing and enhance communication capabilities.

2.4 Following APANPIRG/27 meeting in 2016, which adopted the recommendation to states to use 30 NM or 50 NM longitudinal separation minima and 23 NM lateral separation minima, Malaysia has been striving to improve our PBCS capability in line with the new Kuala Lumpur CNS/ATM complex project that was completed in 2019. The project aims to support the significant growth in traffic movement without compromising safety, including enhancing airspace utilisation.

2.5 Malaysia's automation system complies with the PBCS requirement for communication capability defined by an RCP standard and surveillance capability defined by an RSP standard.

2.6 As of August 2022, performance was measured against RCP240 performance criteria of 180 and 210 seconds for 95% and 99.9% criterion, respectively. Meanwhile, performance against RSP180 performance criteria of 90 and 180 seconds for 95% and 99.9% criteria, respectively.

2.7 Table 1 summarises the overall CPDLC Actual Communications Performance (ACP) for messages sent within the LUMPUR FIR.

LUMPUR FIR CPDLC ACP				
Messages		% < 180 sec (Target 95%)	% < 210 sec (Target 99.9%)	Remarks
All	10809	99.16%	99.40%	
HF	51	90.51%	90.89%	
SAT	5436	99.21%	99.50%	
VHF	5322	99.21%	99.39%	

Table 1

2.8 Table 2 summarises RSP180 ADS-C Downlink Latency for messages sent within the WMFC FIR.

LUMPUR FIR ADS-C Downlink Latency				
Messages		% <90 sec (Target 95%)	% < 180 sec (Target 99.9%)	Remarks
All	44743	99.08%	99.80%	
HF	1	0.00%	100.00%	
SAT	30763	98.82%	99.73%	
VHF	13979	99.66%	99.94%	

Table 2

Future Plan

2.9 Following the advancement of the system and the increase in the traffic movement in KL FIR, Malaysia plans to fully utilise the usage of PBCS separation in the Bay of Bengal area.

2.10 Malaysia aims to implement 50 NM PBCS separation in the Bay of Bengal immediately and further proceed with longitudinal separation minimum (longSM) of 30 NM/ 23 NM/5 minutes as well as lateral separation (latSM) of 23 NM. This would significantly increase the airspace capacity and efficiency thus ultimately improving air traffic management in the remote airspace. Thorough arrangement and evaluation such as stakeholders' engagement, safety risk assessment, development of local procedure, flight planning matter and training simulation, are required before this could be materialised.

CONCLUSION

2.11 In line with Malaysia's SAP (State action plan) where level optimisation would directly contribute to fuel optimisation and CO2 emissions reduction, Malaysia aims to facilitate better level optimisation of the traffic movements over the Bay of Bengal area by using PBCS separation.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) encourage and support the implement of PBCS separation;
- b) note the information contained in this paper; and
- c) discuss any relevant matters as appropriate.

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