International Civil Aviation Organization

Fourth Meeting of the Bay of Bengal Traffic Flow Review Group (BOBTFRG/5)

6 – 8 December 2023

Agenda Item 2: Review of the Current and Planned CNS/ATM Capabilities and Identifying Associate Reduce Horizontal Separation.

PROPOSAL TO IMPLEMENT 30 NM LONGITUDINAL SEPARATION ON ROUTES P574, N563, M300, and P570

(Presented by Indonesia)

SUMMARY

This paper presents Indonesia readiness to implement 30 NM Longitudinal Separation between aircraft with RNP4 capability, under CPDLC, VHF, ADS-B, SSR coverage area on ATS routes P574, N563, M300, and P570 segment in Jakarta ACC.

1. INTRODUCTION

1.1 The Second Meeting of the South Asia, Indian Ocean, and Southeast Asia ATM Coordination Group (SAIOSEACG/2) Bangkok, Thailand, 20 – 24 March 2023 establish The Bay of Bengal Route Network Small Working Group and introduce the draft trial implementation plan for the PBCS over the Bay of Bengal area including the phased detailed action plans, considering below:

a) Phase 1– 50 NM longitudinal separation to be applied based on the current capability RNAV 10 (RNP 10) available as soon as possible;
b) Phase 2 – to start transitional period: trial implementation of 30 NM longitudinal / 23 NM lateral separation with harmonized ADS-C/CPDLC equipage mandate for RNP 4 or RNP 2, RCP 240, RSP 180 requirements;
c) Phase 3 – permanent implementation of 30 NM longitudinal / 23 NM lateral separation not later than 1 March 2026, subject to post-op evaluation on Phase 2 and ANSP's readiness to give flexibility or earlier implementation.

1.2 As the SWG has prioritized implementing the most efficient separation standards according to capabilities before congestion in the region grows further, and two group meetings have been held and participated by group members including Bangladesh, India, Indonesia, Malaysia, Myanmar, Pakistan, Thailand, Singapore, Sri Lanka, Thailand, USA, IATA, and ICAO.

1.3 ATS routes P574, N563, M300, and P570 segments in Jakarta FIR are fully covered by surveillance and VHF A/G and ready for implement 30 NM Longitudinal Separation.

2. DISCUSSION

2.1 RNP 4

2.1.1 Communications and ATS surveillance requirements

a) VHF Direct Controller-Pilot Communication (voice) or CPDLC communications is required, plus ADS-C surveillance, utilizing waypoint/periodic reporting and lateral deviation event contracts. These requirements are normally determined in the implementation process taking into account any local and regional characteristics.

b) The requirements for longitudinal separation, communications and ATS surveillance distance based longitudinal separation utilizing RNP 4 are specified in PANS-ATM. Note.— An existing application of 30 NM lateral and 30 NM longitudinal separation minimum requires a communications capability of DCPC or CPDLC and an ATS surveillance capability by an ADS system in which an event contract must be set that includes a lateral deviation event report whenever a deviation from track centre line greater than 9.3 km (5 NM) occurs.

(Ref: Doc 9613, Volume II, Part C. Implementing RNP Operations, Chapter 1. Implementing RNAV 5, 2.2.3.2 - 2.2.3.4.2)

2.1.2 Routing spacing and separation minima

a) According to ICAO PANS-ATM and PANS-OPS, the following method can be used to calculate the route spacing of RNP4:

½ W = XTT *1.5 + BV=4.0*1.5+2.0=8 NM. Route spacing for RNP4 parallel routes could be 16 NM. State should undertake the necessary safety assessments outlined in PANS-ATM (Doc 4444).

b) The separation minima are described in Section 5.4 of the PANS-ATM (Doc 4444): for a minimum spacing between tracks of 55.5 km (30 NM) a navigational performance of RNP 4 shall be prescribed. RNP 4 may be used to support the application of separation standards/route spacing less than 30 NM in continental airspace provided a State has undertaken the necessary safety assessments outlined in PANS-ATM (Doc 4444). However, the communications and ATS surveillance parameters that support the application of the new separation standards will be different from those for a 30 NM standard.

2.2 Communication Capabilities over Bandar Aceh

2.2.1 Jakarta ACC Upper Banda Aceh is the sector providing air traffic services on P574, N563, M300, and P570. Jakarta Upper Banda Aceh has a primary frequency on 128.3 MHz and a secondary on 132.2 MHz with coverage up to 300 NM.

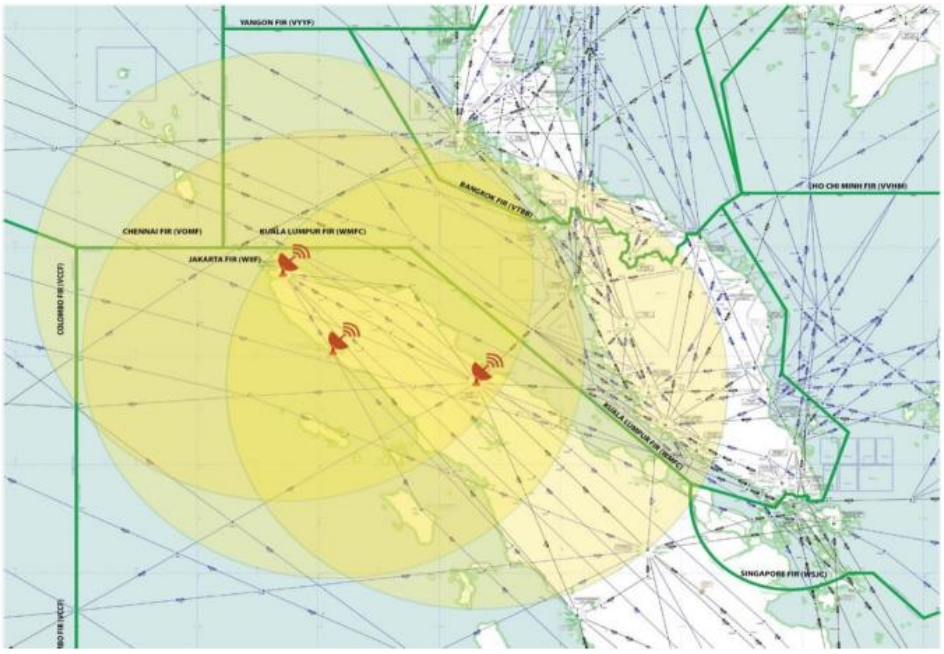

Figure 1. VHF – ER at Banda Aceh, Meulaboh & Medan

2.3 Surveillance Capabilities over Bandar Aceh

2.3.1 Jakarta ACC Upper Banda Aceh is covered by MSSR mode S located in Banda Aceh on coordinate 053230.5N 0953025.3E with coverage up to 250 NM.

2.3.2 Jakarta upper Banda Aceh also covered by ADS B. ADS-B Ground Station within Jakarta FIR located in Aceh with coverage up to 250 NM on coordinate 053229.5N 0953002.6E.

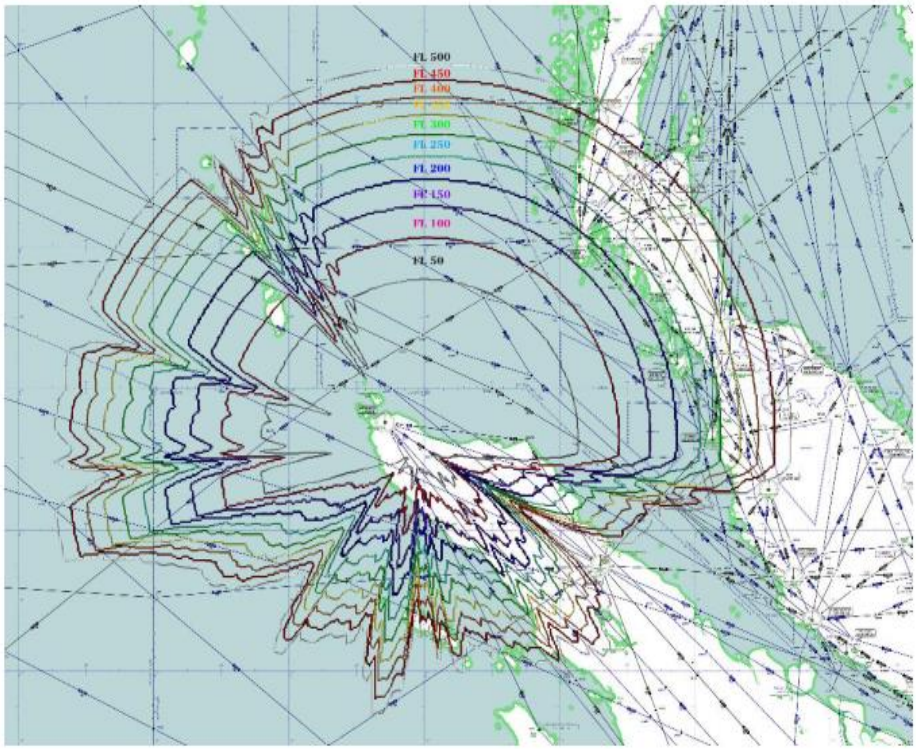

Figure 2. ADS-B GS in Banda Aceh

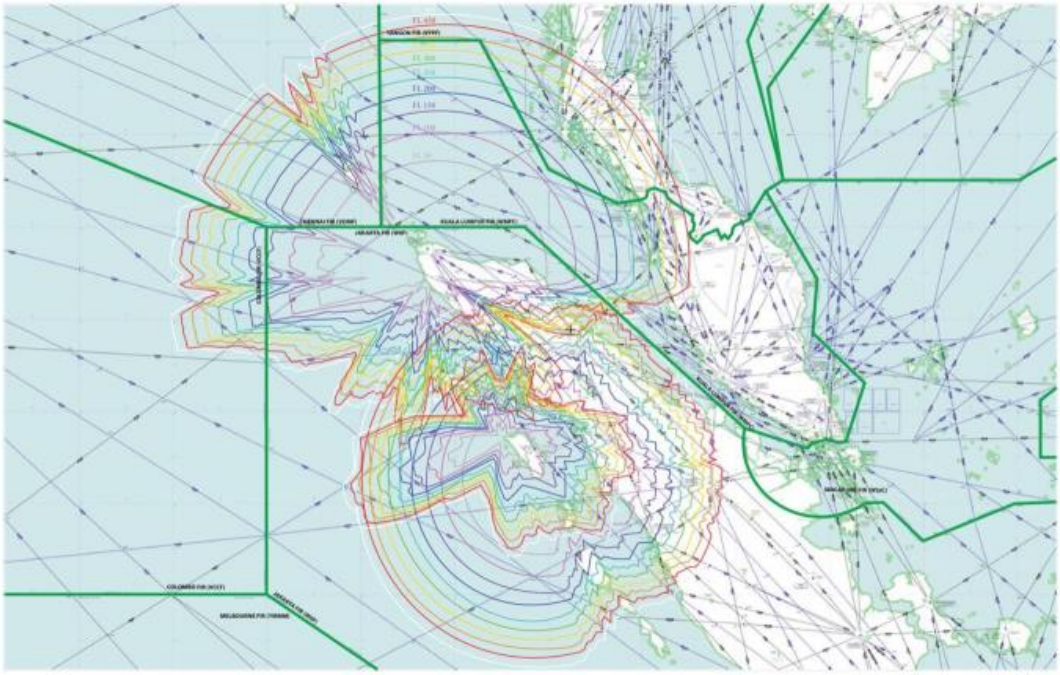

Figure 3. ADS-B Coverage Prediction di Bandar Aceh, Medan, Lasikin & Nias

2.4 With the understanding of the requirements of applying 30 NM longitudinal separation with RNP 4 specification.

STATE	FIR	FPL PROCESSING FOR PBCS	ADS-C /CPDLC	RCP 240	RSP 180	POST IMPLEMENTATION MONITORING	REMARK
BANGLADESH	DHAKA						ATM automation system not implemented yet
INDIA	CHENNAI	YES	AVAILABLE	YES	YES	YES	System testing required
	KOLKATA	NO	AVAILABLE	YES	YES	YES	
	MUMBAI	YES	AVAILABLE	YES	YES	NO	System testing required
INDONESIA	JAKARTA	NO	TRIAL	NO	NO	NO	Route P574,N563, M300,P570 is fully covered with The SSR/ADS-B, VHF, and system is being upgraded PDC 2025.
MALAYSIA	KUALA LUMPUR	NO	AVAILABLE	YES	YES	YES	monitoring only for ADS-C/CPDLC
MYANMAR	YANGON	NO	YES	NO	NO	NO	
SRILANKA	COLOMBO	NO	YES	TESTING	TESTING		System is being upgraded PDC by 2024.
THAILAND	BANGKOK	YES	NO	NO	NO	AVAILABLE	En-route airspace is fully covered with SSR. no plan to prescribe PDC.

Table 1. collected the ATM/CNS system readiness among the BOB member States. (SAIOSEACG/2 − WP /09)

2.5 Separation minimum applied on TCP based on letter agreement

ROUTE	FIR(R)/CNS	LONGITUDINAL SEPARATION MINIMA	TCP	FIR(S) /CNS	Remark
P574	KUALALUMPUR/ CPDC, VHF ADS-B	50NM (RNP10)	ANSAX	INDONESIA/SSR, ADS-B, VHF	1st Edition Amdt. 1, July 1st 2017
N563	CHENNAI/CPDLC, HF, ADS-B	50NM (RNP10)	MEMAK	INDONESIA/SSR, ADS-B, VHF	CHJ-004 September 15th 2022
M300	COLOMBO CPDLC, HF, ADS-C	50NM (RNP10)	TOPIN	INDONESIA/SSR, ADS-B, VHF	JKT-CMB03 June 15th 2022
P570	COLOMBO CPDLC, HF, ADS-C	50NM (RNP10)	NIXUL	INDONESIA/SSR, ADS-B, VHF	JKT-CMB03 June 15th 2022

Table 2 : separation minimum on TCP of ATS route P574, N563, M300, P570

Conclusion

2.6 route P574, N563, M300, P570 have implement the 50 NM and there are capability 30 NM reduced longitudinal separation to enhance the across the entire Bay of Bengal and Indian Ocean airspace.

2.7 The implementation Reduce horizontal separation can be applied as 30NM RNP 4 separation in remote airspace and 30NM Surveillance separation on surveillance airspace.

3. ACTION BY THE MEETING

3.1 The meeting is invite:

a) Note the planned implementation of the use of 30 NM longitudinal separation on the four routes P574. N563, M300, P570 ;
b) Consider the information presented in this paper as a means of accelerating RNP4 implementation in the Bay of Bengal and Indian Ocean area;
c) Urge the member states in the region to implement reduced longitudinal separation to provide for a seamless flow of traffic.