International Civil Aviation Organization

The Seventh Virtual Meeting of the Bay of Bengal Traffic Flow Review Group (BOBTFRG/7)

9 – 11 December 2025

Agenda Item 4: Discussion on PBN Routes Development and FLAS/FLOS Optimisation

TRIAL IMPLEMENTATION OF PBCS 30 NM LONGITUDINAL SEPARATION IN THE BAY OF BENGAL AREA (KL FIR)

(Presented by Malaysia)

SUMMARY

This paper provides information on the trial implementation of Performance-Based Communication and Surveillance (PBCS) 30 NM longitudinal separation in the Bay of Bengal portion of the Kuala Lumpur Flight Information Region (KL FIR). The initiative aims to enhance airspace efficiency, optimize route utilization, and harmonize separation minima across the Bay of Bengal region through the application of globally recognized PBCS standards.

1. INTRODUCTION

1.1 The trial implementation of PBCS 30 NM longitudinal separation in the Bay of Bengal marks a significant milestone in Malaysia's ongoing efforts to enhance efficiency and capacity over the Bay of Bengal air traffic management (ATM) operations in alignment with ICAO Annex 11, Doc 4444 (PANS-ATM), and Doc 9869 (PBCS Manual).

1.2 This trial represents a collaborative effort under the Bay of Bengal Traffic Flow Review Group (BOBTFRG) to progressively transition from 50 NM to 30 NM separation minima for eligible aircraft, thereby enhancing operational efficiency and environmental performance while maintaining the required communication and surveillance performance levels.

2.1 DISCUSSION

2.1 Scope of Implementation

2.1.1 The Civil Aviation Authority of Malaysia (CAAM) published AIP Supplement 35/25 effective 0000 UTC on 7 August 2025, announcing the trial implementation of PBCS 30 NM longitudinal separation between waypoints GUNIP and IGOGU on ATS Route N571 within the

Bay of Bengal area of KL FIR, between flight levels FL280 and FL410. The trial will remain in effect until 2359 UTC on 6 August 2026 and will be monitored continuously to assess communication, surveillance, and navigation performance against ICAO PBCS requirements.

2.2 Eligibility Criteria

2.2.1 The 30 NM longitudinal separation minima shall only be applied between aircraft meeting all of the following criteria:

i. Approved for and capable of RNP 2 or RNP 4 navigation;
ii. Approved for and capable of ADS-C and CPDLC operations;
iii. Certified to RCP 240 and RSP 180 standards per ICAO Doc 9869; and
iv. Operating under no-closing-speed conditions.

Aircraft not meeting the above criteria shall continue to be subject to the 50 NM longitudinal separation minima.

2.3 Operational Benefits

2.3.1 The implementation of PBCS 30 NM longitudinal separation is expected to deliver the following benefit:

i. Enhanced airspace efficiency and capacity within the Bay of Bengal corridor;
ii. Optimized flight profiles resulting in fuel savings and reduced carbon emissions; and
iii. Improved alignment with neighboring States implementing similar PBCS separation standards.

2.4. Coordination and Monitoring

2.4.1 CAAM has established coordination mechanisms with adjacent FIRs to ensure consistent application of PBCS separation and effective transfer of control arrangements. Performance monitoring will be conducted jointly by CAAM's Air Navigation Services Division and airspace users to evaluate data link availability, latency, and integrity.

2.5 Operational Coordination and Suspension Procedures (as per SOP)

2.5.1 A dedicated Standard Operating Procedure (SOP) between the Airports Authority of India (AAI) and the Civil Aviation Authority of Malaysia (CAAM) governs the application, suspension, and resumption of the 30 NM PBCS-based longitudinal separation on ATS Route N571 between Chennai FIR and Kuala Lumpur FIR. In the event it becomes necessary to suspend the 30 NM longitudinal PBCS separation, the respective ATS unit shall revert to at least 50 NM distance-based separation or time-based longitudinal separation using the Mach Number Technique (MNT). The ATS unit suspending operations shall notify the adjacent ATS

unit via voice coordination. In the event of a prolonged suspension, an appropriate Notice to Airmen (NOTAM) shall be issued.. Resumption of PBCS-based separation shall also be coordinated accordingly. The SOP remains valid for 12 months from 1 September 2025, after which both authorities will jointly review the outcome for continued implementation.

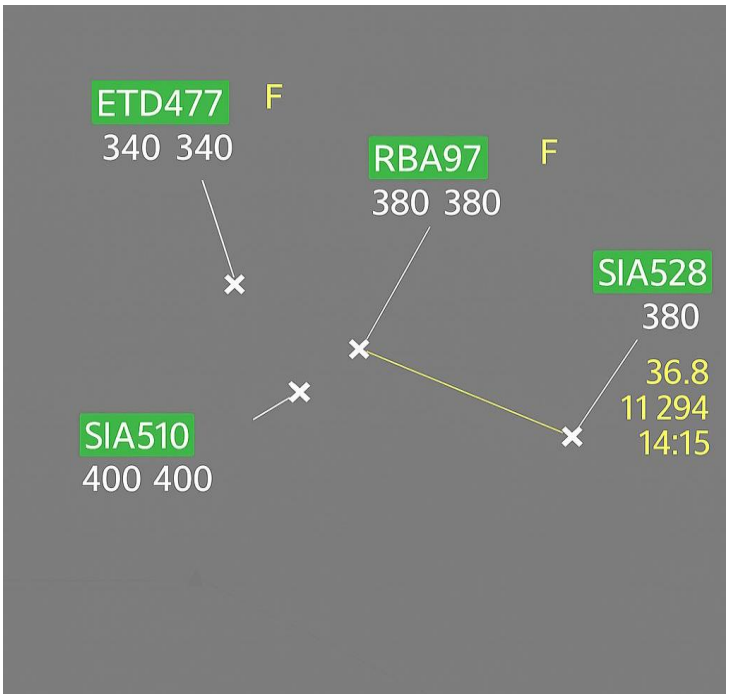
2.6 Initial Results Captured on 16 October 2025

2.6.1 This is one of the sample recorded on 16 October 2025 indicate successful application of PBCS 30 NM longitudinal separation during operational coordination between Kuala Lumpur ACC and Chennai OCC. Eligible aircraft pairs were handled efficiently with reduced separation minima, validating both the communication and surveillance performance standards. Where data link anomalies were detected, controllers reverted to conventional longitudinal separation with Mach Number Technique (MNT) to ensure safety and procedural compliance.

2.6.2 Result 1: Pair of RBA97 and SIA528

RBA97 FL380 A2007 B788 WBSB OMDB EST IGOGU : 1423 M0.85	SIA528 FL380 A0165 A35K WSSS VOMM EST IGOGU : 1428 M085

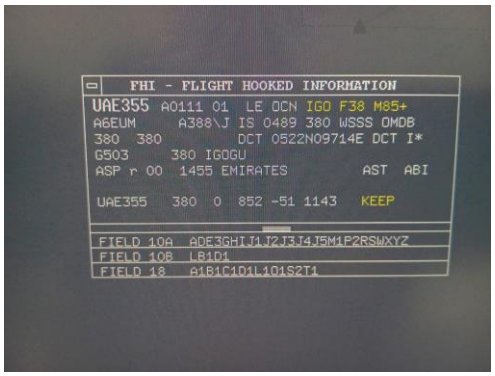
*distance 37nm apart (5 min)



2.6.3 Result 2: Pair of UAE355 and ETD499

UAE355 FL380 IGOGU1455	1. ETD499 FL380 2. IGOGU1503

*unfortunately, UAE355 CPDLC not working, revert to conventional. ACC Chennai accept 8 minutes with MNT apart between 2 aircrafts.



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FIELD 10A J1-J7
FIELD 10B LB1D1

2.7 Challenges

2.7.1 CAAM is currently encountering data link reliability issues. Discrepancies are noted where pilots report CPDLC as unavailable, contrary to the flight plan information. To address the associated risks, air traffic controllers have instituted immediate contingency measures. These include activating alternative separation methods or assigning different Flight Levels (FL) as required to ensure operational safety and integrity.

2.7.2 The application of 30 NM PBCS separation minima has also been limited by recent adverse weather conditions within the area. This has required air traffic controllers to revert to conventional separation minima utilizing 50 NM distance-based separation minima or Mach Number Technique (MNT) methods. Sudden weather deviations prior to transfer point IGOGU on ATS Route N571 have led to increased traffic complexity, particularly when all Flight Levels (FL) are occupied. This situation forces a reversion to conventional methods and has consequently reduced air traffic controllers' confidence in applying the on-ground separation minima.

2.8 Future Direction

2.7.1 Subject to the outcome of the trial phase and satisfactory system performance, Malaysia intends to transition to permanent implementation of PBCS 30 NM separation after August 2026, and to consider expanding coverage to additional oceanic routes within the KL FIR.

3. ACTION BY THE MEETING

The meeting is invited to:

(a) Note the information contained in this paper;

(b) Encourage States and airspace users to support performance monitoring activities and data sharing for regional PBCS harmonization; and

(c) Discuss any relevant matters as appropriate.