



*International Civil Aviation Organization*

**Fourth Meeting of the South Asia/Indian Ocean ATM Coordination Group (SAIOACG/4) and Twenty-First Meeting of the South-East Asia ATM Coordination Group (SEACG/21)**

Hong Kong, China, 24 – 28 February 2014

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**Agenda Item 5: ATS Route Development**

**CAPACITY ENHANCEMENTS IN SAIOACG AIRSPACE**

(Presented by Thailand)

**SUMMARY**

The purpose of this paper is to present proposal for capacity enhancements in SAIOACG airspace through PBN Harmonization, Route Structure Enhancements and review/removal of Flight Level Allocation Scheme (FLAS).

**1. INTRODUCTION**

1.1 The meeting would recall that the APANPIRG/24 meeting in June 2013 approved ICAO Asia/Pacific Seamless ATM Plan as an engine to drive the Asia-Pacific region towards Seamless ATM Operations through implementation of ICAO Aviation System Block Upgrade (ASBU) concept along with other relevant concepts.

1.2 The Asia-Pacific Seamless ATM Plan envisages Performance Improvement Plan in the form of Preferred Aerodrome/Airspace and Route Specifications (PARS) along with Preferred ATM Service Level (PASL) with implementation time planned in November 2015 and November 2018.

1.3 Meanwhile, Asia-Pacific region continue to experience rapid air traffic growth. In particular, Thailand has been experiencing 10-16 percent per annum growth in airborne air traffic movement between 2010 – 2013, with average daily airborne movement growing from 1,280 flights/day in 2010 to 1,900 flights/day in 2013 and peak movements over 2,000 flights/day.

**2. DISCUSSIONS**

2.1 In order to support such rapid growth, capacity development in accordance to the Asia-Pacific Seamless ATM Plan would be required based on the following actions:

- a) En Route PBN Harmonization;
- b) Route Structure Review; and
- c) Review or removal of Flight Level Allocation Scheme (FLAS).

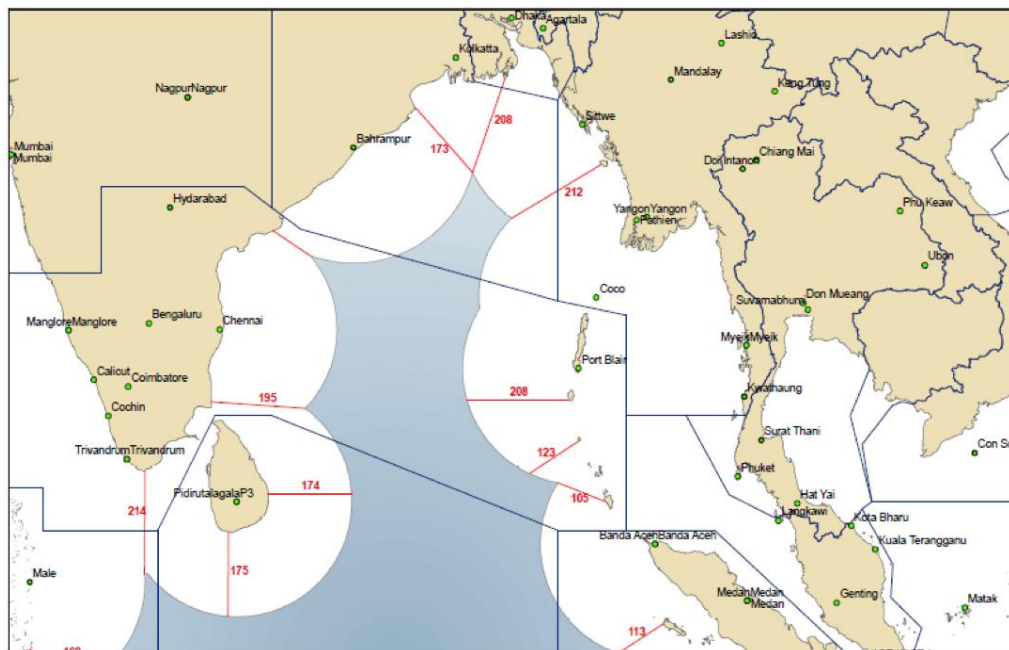
En Route PBN Harmonization

2.3 Expectations from the Asia-Pacific Seamless ATM Plan in respect to PBN designation of route structure can be summarized in Table 1. (para 7.9 and para 7.22)

Airspace Category	Phase I (November 2015)	Phase II (November 2018)
Category R airspace: <i>not covered</i> by direct communications and/or surveillance	RNP 4 (30 NM), RNAV/RNP 10 (50NM) (or RNP 2 oceanic)	RNP 2
Category S airspace: covered by direct communications and surveillance	RNAV 2 or RNP 2 (or RNAV 5)	

**Table 1:** Summary of PARS Phase I (2015) and Phase II (2018)

2.4 In addition to PARS expectations, the Asia-Pacific Seamless ATM Plan also provides estimated communications and surveillance outage in SAIOACG airspace in **Figure 1**.



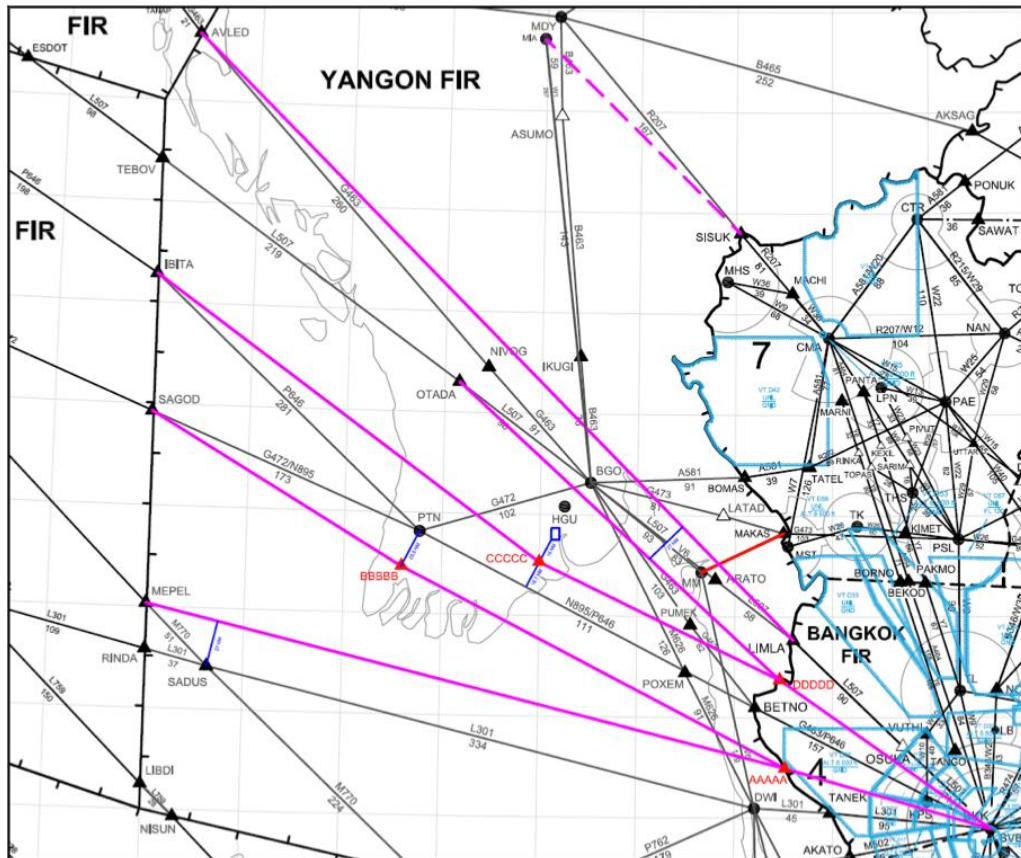
**Figure 1:** SAIOACG Airspace Communications & Surveillance Gaps

2.5 In tandem with approval of ICAO Asia-Pacific Seamless ATM Plan, informal ATM coordination groups such as Mekong ATM Coordination Group (MK-ATM/CG) and the Group of Five ANSPs Informal ATM Coordination Group (G5) supported the concept of En Route PBN Harmonization, while selecting RNAV 5 specification in surveillance airspace for November 2015 with transition to RNP 2 in November 2018.

2.6 Therefore, it is proposed that, in support of the Asia-Pacific Seamless ATM Plan, new route structure in SAIOACG & SEACG airspace should be designated, at the minimum, RNAV 5 in airspace covered by communications and surveillance (Category S airspace) and RNP 4 or RNAV/RNP 10 outside communications and/or surveillance coverage (Category R airspace), both with the aim to transition to RNP 2 in 2018.

### Route Structure Review

2.7 In spirit of En Route PBN Harmonization in accordance to the ICAO Asia-Pacific Seamless ATM Plan stated in para 2.5, Thailand has taken the initiative to develop and discuss route structure enhancements with SAIOACG neighbors as shown in **Figure 2** and **Figure 3**.



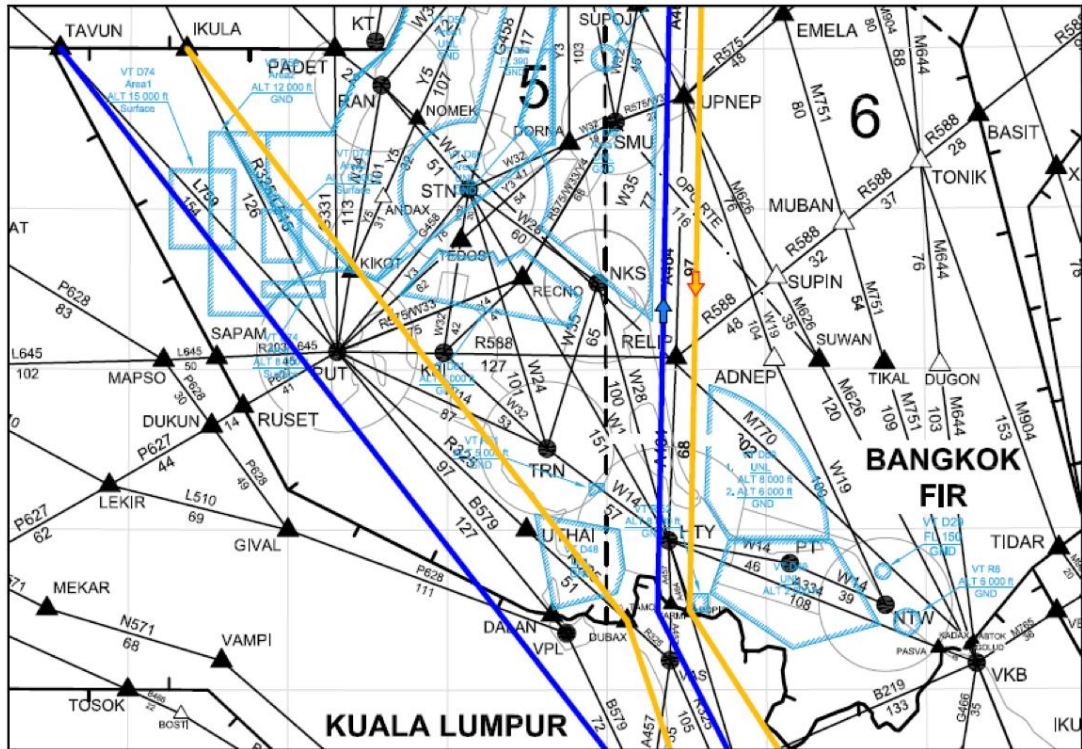
**Figure 2:** Northeast Bay of Bengal Route Structure Enhancement

2.8 Route Structure enhancements shown in **Figure 2** are located in the Northeast section of Bay of Bengal, which was designed to support traffic flow from Southeast Asia to Northern India and Europe, with growth expectations fueled by economic growth and expected introduction of “Open Skies” agreement between EU and ASEAN airspace as announced during EU – ASEAN Aviation Summit in Singapore on 11 – 12 February 2014 in Singapore (Joint Declaration in **Attachment 1**).

2.9 It is expected that the proposed route structure enhancement would enhance parallelism among G463, L507, P646 and N895, which may enable unidirectional route structure within surveillance airspace when ADS-B becomes operational in the Yangon FIR. Proposed restructure of G463, L507, P646 and N895 has been discussed with Myanmar garnering in-principle agreement.

2.10 Moreover, proposed route structure parallel to L301 is expected to support rapid traffic growth between East/Southeast Asia and the Middle East. Current route structure and Flight Level Allocation Scheme limit flights to uneconomic levels of FL260 and FL320. Parallel route to L301 is being proposed north of current L301 in attempt to take advantage of potential surveillance coverage in the northern part of Bay of Bengal as far as practicable.

2.11 Proposed route structure enhancement in **Figure 2** has been tabled at India-Myanmar-Thailand ATM Coordination Group Meeting (IMT) in 2011. It is expected that these route structures will continued to be discussed at the next Bangladesh-India-Myanmar-Thailand ATM Coordination Group Meeting (BIMT) planned in first half of 2014.



**Figure 3:** Southeast Bay of Bengal Route Structure Enhancements

2.12 Route structure enhancement in **Figure 3** attempts to restructure traffic flow between Malaysia – Thailand into more unidirectional flows, supporting overflight traffic between Europe / North India and Singapore / Malaysia as well as traffic flow between Malaysia and Thailand.

2.13 The proposed route structure has been tabled at recent bilateral meetings between Malaysia and Thailand as well as the Group of Five ANSPs ATM Coordination Meeting (G5), garnering support.

2.14 It is expected that, in combination with proposed surveillance data exchange among Malaysia – Thailand and AIDC implementation outlined in a separate Working Paper, the proposed route structure would provide much needed capacity enhancement to airspace Southeast of Bay of Bengal, within surveillance coverage.

Review of SAIOACG Flight Level Allocation Scheme (FLAS)

2.15 The meeting is invited to note that the Asia-Pacific Seamless ATM Plan’s Preferred ATM Service Level (PASL) Phase I, November 2015 (para 7.36) stated that Flight Level Allocation Scheme (FLAS) should only be utilized for safety and efficiency reasons within area in Table 2.

Airspace Category	FLAS should only be applied where:
Category R airspace: <i>not covered</i> by direct communications and/or surveillance	<ul style="list-style-type: none"> <li>• Within airspace concerned</li> <li>• Within adjacent airspace affected by the FLAS</li> </ul>
Category S airspace: covered by direct communications and surveillance	<ul style="list-style-type: none"> <li>• Where crossing track conflicts occurs within 50NM of FIR Boundary</li> <li>• ATS surveillance coverage does not overlap the FIR Boundary concerned, or ATS surveillance data is not exchanged between ATC units concerned</li> </ul>

**Table 2:** Summary of FLAS Principle

2.16 Given that route structure enhancements proposed in Figure 2 and Figure 3 is expected to move routes currently northeast of the Bay of Bengal into communications and surveillance coverage once Myanmar ADS-B become operational, it is proposed that FLAS restriction on those route structures be removed.

2.17 Meanwhile, it is proposed that FLAS for the remaining ATS routes within the Bay of Bengal be reviewed based on communications & surveillance infrastructure in order to support expected future traffic growth.

### **3 ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) Discuss application of en route PBN harmonization in SAIOACG and SEACG airspace;
- b) Discuss and provide in-principle support to route structure enhancements proposed;
- c) Discuss removal of FLAS where communications and surveillance infrastructure are available;
- d) Discuss review of FLAS within the Bay of Bengal airspace based on communications and surveillance infrastructure to support expected future traffic growth; and,
- e) Discuss relevant matters as appropriate.

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