



*International Civil Aviation Organization*

**The Sixth Meeting of the Bay of Bengal Reduced Horizontal Separation Implementation Task Force (BOB-RHS/TF/6) and the First Meeting of the South Asia/Indian Ocean ATM Coordination Group (SAIOACG/1)**

Bangkok, Thailand, 19 – 23 September 2011

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**Agenda Item 5: Post-Implementation Management Considerations**

**THAILAND READINESS FOR PHASE 2 REDUCED HORIZONTAL SEPARATION**

(Presented by Thailand)

**SUMMARY**

This working paper presents Thailand's readiness for implementation of Phase 2 Reduced Horizontal Separation in the Bay of Bengal and Arabian Sea airspace from 10 minutes procedural separation to 50 NM (RNP 10).

**1. INTRODUCTION**

1.1 The meeting would recall Phase 1 implementation of reduced horizontal separation from 10 minutes procedural separation to 50NM (RNP 10) effective on AIRAC 30 June 2011 for routes P762 and N581 in the Bay of Bengal and Arabian Sea.

1.2 Thailand participated in the implementation through submission of Gross Navigation Error data and summary of month traffic movement to the Bay of Bengal and Arabian Sea Monitoring Agency (BOBASMA) since the agreed monitoring date of 1 July 2010.

1.3 Unfortunately, due to low traffic number on L301 and M502, which continues onward to P762, there has been no opportunity to apply 50NM separation based on RNP 10.

**2. DISCUSSION**

2.1 Thailand's airspace on the Bay of Bengal is fully serviced by VHF communications, fully satisfying Direct Controller-Pilot Communications (DCPC) requirement for the implementation of 50NM longitudinal separation based on RNP 10.

2.2 Meanwhile, the Bangkok FIR is also fully serviced by Secondary Surveillance Radar (SSR) to satisfy monitoring requirements of the 50NM longitudinal separation.

2.3 Therefore, Thailand is ready to proceed with reduced longitudinal separation from 10 minutes to 50NM (RNP 10) under Phase 2 for routes enumerated in **Figure 1** organized by ICAO Asia-Pacific Major Traffic Flows with illustration.

2.4 Checklist of items to be completed prior to target date of AIRAC 15 December 2011 is also included in **Attachment B** of the working paper.

2.5 CNS Infrastructure Availability Checklist for routes in **Figure 1** is included in **Attachment B** of the working paper.

<b>AR 4 Major Traffic Flow: South/Southeast Asia – Europe</b>	
<b>Bangkok FIR</b>	<b>Next FIR</b>
<b>L507</b>	Yangon FIR
<b>P646/G463</b>	Yangon FIR
<b>M626</b>	Yangon FIR
<b>M770</b>	Yangon FIR
<b>L515</b>	Yangon FIR
<b>L759</b>	Yangon FIR
<b>AR 10 Major Traffic Flow: South/Southeast Asia – Middle East</b>	
<b>Bangkok FIR</b>	<b>Continuing Routings</b>
<b>L301</b>	Yangon FIR
<b>L645</b>	Kuala Lumpur FIR
<b>P627</b>	Kuala Lumpur FIR



**Figure 1:** Proposed Routes for inclusion in Phase 2 Reduced Horizontal Separation Implementation  
*Note:*  
 Orange Routes: Phase 1 RHS  
 Green Routes: AR 4 Major Traffic Flow Proposed Routes for Phase 2 RHS  
 Blue Routes: AR 10 Major Traffic Flow Proposed Routes for Phase 2 RHS

2.6 As the region continues reduction of horizontal separation initiative, Thailand looks forward to further reduction on horizontal separation on these routes to 30NM (RNP 4) or surveillance separation (RNAV 5) where surveillance is available.

**3. ACTIONS BY THE MEETING**

3.1 The meeting are invited to:

- a) note information contained in this paper; and,
- b) discuss inclusion of routes proposed in Figure 1 into Phase 2 of reduced horizontal separation implementation.

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**ESSENTIAL ITEMS TO BE COMPLETED BY STATES  
BEFORE PHASE 2 IMPLEMENTATION OF BOB-RHS**

<b>Item</b>	<b>Subject</b>	<b>Suggested Action</b>	<b>Completion Required by</b>
1	Letters of Agreement (LOAs)	Changes and final agreement to present LOAs between adjacent ACCs.  Present Status: To be completed by 15 Dec 2011	Before implementation on 15 Dec 2011
2	AIP Supplement	Where appropriate an AIP SUP describing operational changes.  Present Status: AIP Supplement to be published with effect from 0000UTC on 20 Oct 2011	Published and distributed by 20 Oct 2011 (56 days before implementation)
3	ATC Training	a) Training in new procedures involving a reduced separation minimum or new procedure. b) Where appropriate, training in the use of ADS-C/CPDLC, including coordination requirements with adjacent ACCs  Present Status: To be completed by 15 Dec 2011	Before implementation on 15 Dec 2011
4	Collection of data reference lateral and longitudinal deviations by aircraft	All data on deviations to be sent to the EMA for their evaluation	From implementation on 15 Dec 2011
5	Preparation of a Safety Case	Annex 11, para 2.27.5 – in addition to the quantitative Safety Case prepared by SEASMA in collaboration with BOBASMA, each State must prepare a Safety Case based on a qualitative assessment by ATM experts that identifies any safety risks, mitigations and controls  Status: Safety case to be completed by 15 Dec 2011; no issue expected	Before implementation on 15 Dec 2011
6	ATS Systems	Confirm that ADS-C/CPDLC equipment or CPDC is operable to meet the requirements of 50NM longitudinal separation  Status: VHF communications used for DCPC with radar monitoring and procedure used to transition to procedural environment	Before implementation on 15 Dec 2011
7	User Consultation	User Consultation with regard to Phase 2 of reduced longitudinal separation has taken place during all meetings of the BOB-RHS/TF	Before implementation on 15 Dec 2011

## Attachment B: CNS Infrastructure Availability Checklist

**CNS Infrastructure Availability Checklist  
Proposed Routes for Phase 2 BOB-RHS Implementation**

**AR-4 Major Traffic Flow: South/Southeast Asia – Europe**

<b>Route: L507 (BKK-LIMLA)</b>					
<b>FIR</b>	<b>RNP 10 Communications Requirement Direct Controller-Pilot Communication in voice / CPDLC</b>	<b>RNP 10 Navigation Requirement RNP 10 Approval</b>	<b>RNP 10 Surveillance Position Report at least every 24 minutes</b>	<b>Additional Information on current mode of Operation for Phase 2</b>	<b>Adequate for RNP 10 50/50 Operation?</b>
	<b>Communication Means</b>	<b>Navigation Specification</b>	<b>Surveillance in Place</b>		
BANGKOK	VHF direct communications between ATC and pilots	RNP 10 Approval	Frequent position update by radar	Use radar to monitor RNP 10 operation	Yes

<b>Route: P646/G463 (BKK-BETNO)</b>					
<b>FIR</b>	<b>RNP 10 Communications Requirement Direct Controller-Pilot Communication in voice / CPDLC</b>	<b>RNP 10 Navigation Requirement RNP 10 Approval</b>	<b>RNP 10 Surveillance Position Report at least every 24 minutes</b>	<b>Additional Information on current mode of Operation for Phase 2</b>	<b>Adequate for RNP 10 50/50 Operation?</b>
	<b>Communication Means</b>	<b>Navigation Specification</b>	<b>Surveillance in Place</b>		
BANGKOK	VHF direct communications between ATC and pilots	RNP 10 Approval	Frequent position update by radar	Use radar to monitor RNP 10 operation	Yes

## Attachment B: CNS Infrastructure Availability Checklist

<b>Route: M626 (VKB-EKAVO)</b>					
<b>FIR</b>	<b>RNP 10 Communications Requirement Direct Controller-Pilot Communication in voice / CPDLC</b>	<b>RNP 10 Navigation Requirement RNP 10 Approval</b>	<b>RNP 10 Surveillance Position Report at least every 24 minutes</b>	<b>Additional Information on current mode of Operation for Phase 2</b>	<b>Adequate for RNP 10 50/50 Operation?</b>
	<b>Communication Means</b>	<b>Navigation Specification</b>	<b>Surveillance in Place</b>		
BANGKOK	VHF direct communications between ATC and pilots	RNP 10 Approval	Frequent position update by radar	Use radar to monitor RNP 10 operation	Yes

<b>Route: M770 (GOLUD-PADET)</b>					
<b>FIR</b>	<b>RNP 10 Communications Requirement Direct Controller-Pilot Communication in voice / CPDLC</b>	<b>RNP 10 Navigation Requirement RNP 10 Approval</b>	<b>RNP 10 Surveillance Position Report at least every 24 minutes</b>	<b>Additional Information on current mode of Operation for Phase 2</b>	<b>Adequate for RNP 10 50/50 Operation?</b>
	<b>Communication Means</b>	<b>Navigation Specification</b>	<b>Surveillance in Place</b>		
BANGKOK	VHF direct communications between ATC and pilots	RNP 10 Approval	Frequent position update by radar	Use radar to monitor RNP 10 operation	Yes

<b>Route: L515 (PUT-IKULA)</b>					
<b>FIR</b>	<b>RNP 10 Communications Requirement Direct Controller-Pilot Communication in voice / CPDLC</b>	<b>RNP 10 Navigation Requirement RNP 10 Approval</b>	<b>RNP 10 Surveillance Position Report at least every 24 minutes</b>	<b>Additional Information on current mode of Operation for Phase 2</b>	<b>Adequate for RNP 10 50/50 Operation?</b>
	<b>Communication Means</b>	<b>Navigation Specification</b>	<b>Surveillance in Place</b>		
BANGKOK	VHF direct communications between ATC and pilots	RNP 10 Approval	Frequent position update by radar	Use radar to monitor RNP 10 operation	Yes

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<b>Route: L759 (PUT-TAVUN)</b>					
<b>FIR</b>	<b>RNP 10 Communications Requirement Direct Controller-Pilot Communication in voice / CPDLC</b>	<b>RNP 10 Navigation Requirement RNP 10 Approval</b>	<b>RNP 10 Surveillance Position Report at least every 24 minutes</b>	<b>Additional Information on current mode of Operation for Phase 2</b>	<b>Adequate for RNP 10 50/50 Operation?</b>
	<b>Communication Means</b>	<b>Navigation Specification</b>	<b>Surveillance in Place</b>		
BANGKOK	VHF direct communications between ATC and pilots	RNP 10 Approval	Frequent position update by radar	Use radar to monitor RNP 10 operation	Yes

**AR-10 Major Traffic Flow: South/Southeast Asia – Middle East**

<b>Route: L301 (BKK-TANEK)</b>					
<b>FIR</b>	<b>RNP 10 Communications Requirement Direct Controller-Pilot Communication in voice / CPDLC</b>	<b>RNP 10 Navigation Requirement RNP 10 Approval</b>	<b>RNP 10 Surveillance Position Report at least every 24 minutes</b>	<b>Additional Information on current mode of Operation for Phase 2</b>	<b>Adequate for RNP 10 50/50 Operation?</b>
	<b>Communication Means</b>	<b>Navigation Specification</b>	<b>Surveillance in Place</b>		
BANGKOK	VHF direct communications between ATC and pilots	RNP 10 Approval	Frequent position update by radar	Use radar to monitor RNP 10 operation	Yes

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<b>Route: L645 (PUT-SAPAM)</b>					
<b>FIR</b>	<b>RNP 10 Communications Requirement Direct Controller-Pilot Communication in voice / CPDLC</b>	<b>RNP 10 Navigation Requirement RNP 10 Approval</b>	<b>RNP 10 Surveillance Position Report at least every 24 minutes</b>	<b>Additional Information on current mode of Operation for Phase 2</b>	<b>Adequate for RNP 10 50/50 Operation?</b>
	<b>Communication Means</b>	<b>Navigation Specification</b>	<b>Surveillance in Place</b>		
BANGKOK	VHF direct communications between ATC and pilots	RNP 10 Approval	Frequent position update by radar	Use radar to monitor RNP 10 operation	Yes

<b>Route: P627 (PUT-RUSET)</b>					
<b>FIR</b>	<b>RNP 10 Communications Requirement Direct Controller-Pilot Communication in voice / CPDLC</b>	<b>RNP 10 Navigation Requirement RNP 10 Approval</b>	<b>RNP 10 Surveillance Position Report at least every 24 minutes</b>	<b>Additional Information on current mode of Operation for Phase 2</b>	<b>Adequate for RNP 10 50/50 Operation?</b>
	<b>Communication Means</b>	<b>Navigation Specification</b>	<b>Surveillance in Place</b>		
BANGKOK	VHF direct communications between ATC and pilots	RNP 10 Approval	Frequent position update by radar	Use radar to monitor RNP 10 operation	Yes