International Civil Aviation Organization

The Eleventh Meeting of the FANS Implementation Team for South-East Asia (FIT-SEA/11) and the Eighteenth Meeting of the South-East Asia ATM Coordination Meeting (SEACG/18)

Bangkok, Thailand, 3 – 6 May 2011

Agenda Item 5: Review Current Operations across Southeast Asia and Identify Problem Areas

DRAFT REPORT OF THE MEKONG ATM COORDINATION GROUP MEETING

(Jointly submitted by Cambodia, Hong Kong, China, Lao PDR, Thailand and Viet Nam

(Presented by Thailand)

SUMMARY

This paper presents updates from the Mekong ATM Coordination Group (MK-ATMCG) Meeting held in Thailand on 25 April 2011. The MK-ATMCG's key objective is promotion of cooperative enhancement of Air Traffic Management (ATM) throughout its membership across the Mekong River in order to achieve more seamless and harmonized ATM service delivery across its membership's FIRs and area of responsibility.

1. INTRODUCTION

1.1 The meeting is advised of several earlier ATM coordination meetings between Cambodia, Lao PDR, Thailand and Viet Nam in the form of "ATS Coordination Meeting." The latest of which was held in Thailand on 25 April 2011, where the meeting agreed to change its name to "Mekong ATM Coordination Group Meeting."

1.2 Latest draft report of the meeting is attached in **Attachment A**.

2. DISCUSSION

Seamless ASEAN Sky (SAS) Initiative

2.1 The Mekong ATM Coordination Group (MK-ATMCG) brings together ANSPs with various degrees of relationship to the Mekong River, key member States of which are also members of the Association of the Southeast Asia Nations (ASEAN). Therefore, the meeting discussed recent agreement at the level of ASEAN Air Transport Working Group of the Seamless ASEAN Sky concept. There was a general consensus among the meeting participants that membership of the MK-ATMCG should work towards seamless and harmonized delivery of Air Traffic Management (ATM) and related services across FIR boundaries.

Air Traffic Management (ATM) Matters

2.2 The MK-ATMCG discussed various Air Traffic Management (ATM) issues including status of ATS route proposals among the membership of the meeting.

Southeast Asia Route Review Task Force (SEA-RR/TF) Follow-Up Items

2.3 In addition to status of ATS route proposals, the MK-ATMCG also discussed follow-up items from the Southeast Asia Route Review Task Force (SEA-RR/TF) in respect to arrangement of A1 and A202 routes, which, based on Hong Kong FIR's Traffic Sample Data supported approximately 190 flights/day (1,325 flights/week) and 105 flights/day (735 flights/week) on the week starting on the third Sunday of December 2010 (17-25 December 2010).

2.4 It was noted that, in addition to traditional A1 traffic from Bangkok, Ho Chi Minh, Phnom Penh, Siem Reap as well as other overflight traffic from India and the Middle East with destinations in Hong Kong, China and East Asian destinations, there were also some traffic from Kuala Lumpur and Singapore that actually used A1 instead of L625 to reach Hong Kong and East Asian destinations. Hong Kong, China mentioned that the change could be due to airspace restructure within the Hong Kong FIR, which could save flight time of about 10 minutes for each flight, resulting in A1 becoming contingency route for traffic from Malaysia and Singapore as well as traffic from Thailand, Viet Nam, Cambodia and Lao PDR. As a result of the change in traffic pattern, traffic growth on A1 is expected to be higher than those of other routes within the South China Sea.

A1 Arrangement

2.5 After considerable deliberation, the meeting agreed to the following plans to enhance traffic flow on A1:

a) ***Short Term:*** reduction of radar spacing from 40NM to 30NM in order to increase capacity in the short-term.

b) ***Medium Term:*** realignment of A1 and/or re-designation as RNAV 5 to take advantage of extensive surveillance coverage in order to increase efficiency of operations.

c) ***Longer Term:*** Parallel route south of current A1 in order to provide additional capacity, efficiency and safety in traffic management.

2.6 In the short term, Cambodia, Hong Kong, China, Lao PDR, Thailand and Viet Nam were agreeable to reduction of radar spacing on A1 to 30NM with operational procedure to be completed.

2.7 In the longer term, it was discussed that spacing of the proposed parallel route south of current A1 may be as close as 30NM or less due to availability of surveillance while taking advantage of RNAV 5 capability.

2.8 Thailand presented a conceptual proposal for ATS route parallel to A1 in **Figure 1**.

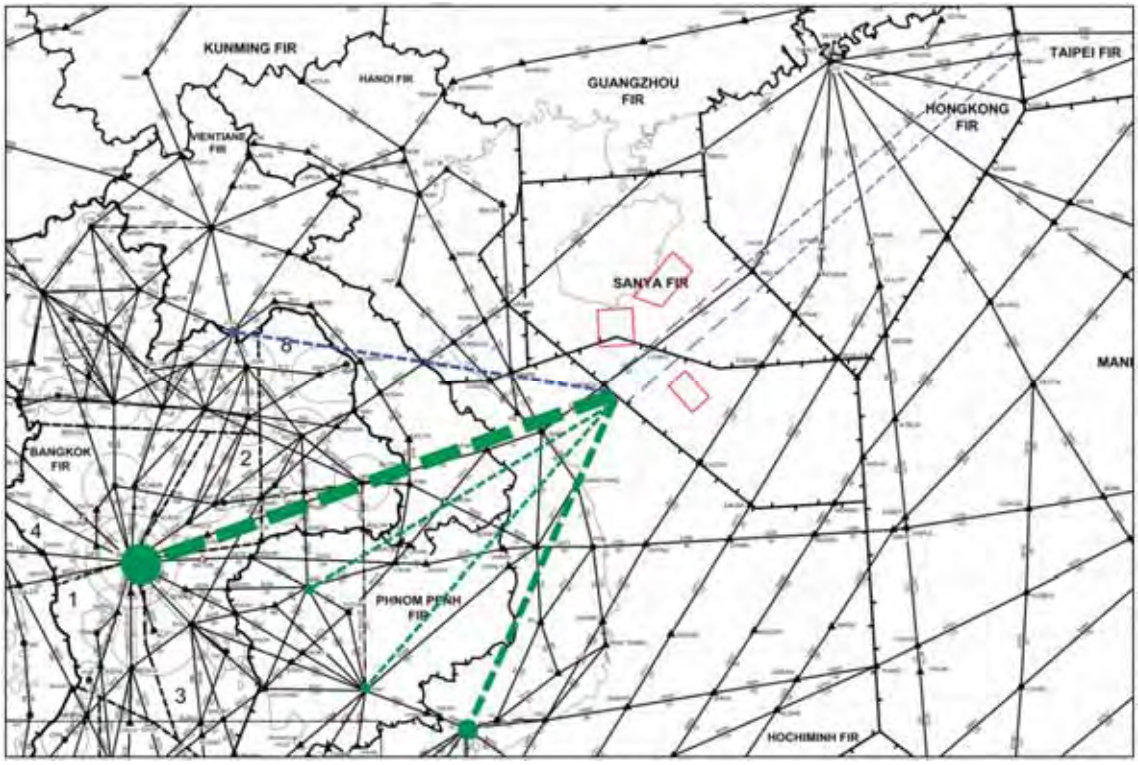


Figure 1: *Conceptual Proposal of ATS route parallel to A1 presented during the meeting*

2.9 The conceptual proposal presented in **Figure 1** shows published danger area within Sanya FIR in red boxes. Therefore, in order to avoid excessive military coordination with Sanya FIR, the parallel ATS route may be better situated south of current A1. While relying on RNAV 5 specification, these ATS routes could be spaced as close as 30NM apart or closer. In addition, dotted line between the Ho Chi Minh – Sanya FIR boundary is scaled to percentage of traffic from these key airports on A1. In addition, current A1 location presents a compromise in order to facilitate traffic joining from Cambodia, Lao PDR, Thailand and Viet Nam.

2.10 Lao PDR supported the conceptual proposal with the proposal of new ATS route from Vientiane also joining at the Ho Chi Minh – Sanya FIR boundary in order to facilitate additional traffic from Vientiane to East Asian destinations as well as joining into current A202 to Hong Kong, China and other destinations in China.

A202 Arrangement

2.11 In respect to A202, Cambodia, Lao PDR, Thailand and Viet Nam were agreeable to a proposal to reduce radar spacing on A202 from current 40NM to 30NM pending coordination with China.

2.12 It was also noted that once traffic from Southeast Asia enters the Hong Kong FIR, radar spacing used to handover traffic to further upstream FIRs is 30NM with pending discussion to further reduce radar spacing on A1 and M750 to 20NM assisted by radar handover arrangements.

En-Route PBN Harmonization

2.13 The meeting discussed re-designation of routes in compliance to the Asia-Pacific Regional PBN Implementation Plan. It was agreed that routes within surveillance coverage should be re-designated as RNAV 5, while routes outside surveillance coverage should be re-designated as RNP 10, with further plan to re-designate as RNP 4 at a later stage.

2.14 It was agreed that re-designation would start with routes crossing more than two FIRs as traffic on those routes are more likely to be in compliance with RNAV 5 or RNP 10 requirements.

Cooperative Traffic Demand Sharing

2.15 In addition to discussion on SEA-RR/TF follow-up items, the meeting also discussed the potential use of collated flight plans as traffic demand in order to optimize traffic on major traffic flows, while also comparing traffic demand to Traffic Sample Data such as those collected within the SEA-RR/TF. The meeting was informed that software automation already exists to extract traffic demand at FIR boundaries from flight plans, which is already in use by AEROTHAI in their Collaborative Decision Making (CDM) activities.

2.16 The MK-ATMCG was informed of AEROTHAI and Hong Kong CAD's agreement to exchange traffic demand data in order to enhance understanding of traffic flows between the Hong Kong FIR and the Bangkok FIR during the 6th Global ATFM Conference held in Phuket between 28 February and 2 March 2011. Cambodia also expressed agreement to exchange traffic demand data in order the enhance understanding and traffic management within related key traffic flows.

Collaborative Decision Making (CDM)

2.17 Thailand also briefed the MK-ATMCG of their Collaborative Decision Making (CDM) activities in enhancing traffic management within the Bangkok FIR affecting flights with BOBCAT slot allocation as well as other affected flights under the Collaborative Departure Planner (CDP) initiative, which has been on operational trial since 11 April 2011.

2.18 It was suggested that CDM activities could also be applied to situation where aircraft from multiple departure airports need to be funnelled through key FIR boundary with certain separation requirement, while ensuring participation of all ANSPs and airspace users involved, optimizing the overall traffic flow.

2.19 The meeting was also informed of the planned CDM Meeting with Singapore during the CANSO Annual General Meeting in Bangkok in June 2011. The CDM meeting aims to explore the possibility of further CDM activities between Singapore and Thailand.

3. ACTIONS BY THE MEETING

3.1 The meeting are invited to:

a) note information presented in this WP;

b) note status of route proposals being updated at the MK-ATMCG;

c) discuss follow-up actions related to the SEA-RR/TF;

d) discuss en-route PBN harmonization plan;

e) discuss potential use of collated traffic demand on major traffic flows at FIR boundaries extracted from flight plan and their role in the effort further enhance traffic management within the region; and,

f) acknowledge activities and initiatives of the MK-ATMCG in enhancing Air Traffic Management (ATM) and in order to achieve seamless and harmonized ATM service delivery among its membership's FIRs and areas of responsibility.

……

ATTACHMENT A

DRAFT REPORT

OF

MEKONG AIR TRAFFIC MANAGEMENT

COORDINATION GROUP MEETING

2011

(MK-ATMCG-2011)

Bang Saen, Chon Buri, Thailand, 24 – 26 April 2011

The views expressed in this Report should be taken as those of the Meeting and not the Organization

History of the Meeting

Introduction i
Officers, Secretariat and Participants i
Opening of the Meeting i
Documentation and Working Language i

Draft Report of MK-ATMCG-2011

Agenda Item 1: Adoption of Agenda 1
Agenda Item 2: Review of Operational Letters of Agreement (LOAs) 1
Agenda Item 3: Air Traffic Management Matters 1
3.1: Airspace Management (ASM) 1
3.2: Air Traffic Flow Management (ATFM) 5
3.3: ATS Coordination 6
Agenda Item 4: CNS Matters 7
Agenda Item 5: Operational Contingency Plan 7
Agenda Item 6: Future Direction 7
Agenda Item 7: Other Business 7

Appendices

Appendix A: List of Participants A-1
Appendix B: Terms of Reference: MK-ATMCG B-1
Appendix C: PowerPoint Presentations Used During MK-ATMCG C-1

1.1 Introduction

1.1.1 The Mekong ATM Coordination Meeting (MK-ATMCG-2011) was held at The Tide Resort, Bang Saen, Chon Buri, Thailand from 24 to 26 April 2011.

1.1.2 The MK-ATMCG meeting was originally held as "ATS Coordination Meeting" among Cambodia, Lao PDR, Thailand and Viet Nam with previous meetings held in Cambodia, Thailand and Laos respectively with previous meetings discussing ATM coordination issues focusing within the region surrounding the Mekong River.

1.2 Officers, Secretariat and Participants

1.2.1 The meeting was facilitated by Mr. Tinnagorn Choowong, Senior Director, Enroute Air Traffic Management Bureau, Aeronautical Radio of Thailand Limited (AEROTHAI). Mr. Piyawut Tantimekabut, Executive Officer, Systems Engineering, Airspace Management Centre, Aeronautical Radio of Thailand Limited (AEROTHAI), acted as Secretariat of the Meeting.

1.2.2 Forty (40) participants from Cambodia (Cambodia Air Traffic Services Co. ,Ltd.: CATS), Hong Kong, China (Hong Kong Civil Aviation Department: HKCAD), Lao PDR (Department of Civil Aviation of Lao PDR: DCAL and Lao Air Traffic Management: LATM), Thailand (Department of Civil Aviation of Thailand: DCA Thailand and Aeronautical Radio of Thailand: AEROTHAI) and Viet Nam (Civil Aviation Administration of Viet Nam: CAAV and Viet Nam Air Traffic Management Corporation: VATM) attended the meeting. A list of participants is in **Appendix A**.

1.3 Opening of the Meeting

1.3.1 Mr. Siri Pichiensopon, Executive Vice President, Aeronautical Radio of Thailand Limited (AEROTHAI) welcomed all participants to the Mekong ATM Coordination Group Meeting.

1.4 Documentation and Working Language

1.4.1 The meeting was conducted in English. All meeting documentation was in English.

Agenda Item 1: Adoption of Agenda

1.1. The meeting adopted the following agenda:

Agenda Item 1: Adoption of Provisional Agenda
Agenda Item 2: Review of Operational LOAs
Agenda Item 3: Air Traffic Management (ATM) Matters
- 3.1 Airspace Management (ASM)
- 3.2 Air Traffic Flow Management (ATFM)
- 3.3 ATS Coordination

Agenda Item 4: CNS Matters
Agenda Item 5: Operational Contingency Plan
Agenda Item 6: Future Direction
Agenda Item 7: Other Related Issues

1.2. It was agreed to change the group's name to "**Mekong ATM Coordination Group (MK-ATMCG)**" in order to harmonize naming with similar groups in the Asia-Pacific region such as "East Asia ATM Coordination Group," "Informal Pacific ATM Coordination Group," and "Informal South Pacific ATM Coordination Group."

1.3. The meeting discussed and agreed to the Terms of Reference attached in **Appendix B**.

Agenda Item 2: Review of Operational Letters of Agreement (LOAs)

2.1. The meeting discussed inclusion of contingency plan in Operational LOAs among members. There were concerns on that inclusion of contingency plan in Operational LOAs would expand signatory required to sign the expanded Operational LOAs which would include contingency plans. Nevertheless, there were discussions that contingency plans can be split into State Contingency Plan and Operational Contingency Plan, latter of which can be readily included in Operational LOAs.

Agenda Item 3: Air Traffic Management Matters

Agenda Item 3.1: Airspace Management (ASM)

ATS Route Review: Previously Coordinated Routes

3.1. The meeting discussed progress of ATS route proposals coordinated at various ICAO meetings with route map shown in **Appendix C**:

3.1.1.M752 (Utapao-ENREP):

3.1.1.1. Thailand proposed route name change to M904 pending ICAO Regional Office coordination and approval process.

3.1.1.2. Cambodia raised potential issue of the new route merging with M753 at ENREP.

3.1.1.3. Thailand reminded the meeting that it is likely traffic on M904 (M752) would most likely be shared with N891. Traffic information would be passed to Ho Chi Minh ACC and Phnom Penh ACC in the case coordination is required.

3.1.2.Ha Noi – BGO and NAN – TATEL

3.1.2.1. The portion of route proposal between CMA-BGO in the proposed LPB-CMA-BGO option was not considered due to crossing through large danger area.

3.1.2.2. Thailand Airspace Panel agreed to consider establishing ATS route between PAE-TATEL since there is already an ATS route linking PAE-NAN with final decision expected by the end of May 2011.

3.1.3.VTN – SAV: A formal letter from DCAL was handed over to DCA Thailand during the meeting. The proposal would be discussed at the next Thailand Airspace Panel.

3.1.4.SRE-UBON-VILAO

3.1.4.1. Due to security situation along the Cambodia-Thailand border and the proposed route crossing through large danger area, discussion is postponed from the previous Thailand Airspace Panel.

3.1.4.2. Cambodia had no objection to the proposed route.

3.1.4.3. Laos expressed concerns on additional traffic merging at VILAO and suggested the use of recently established B329 to access VILAO instead.

ATS Route Review: Recently Proposed Routes

3.2. The meeting discussed progress of recently proposed ATS routes in **Appendix C**:

3.2.1.Extension of A206 between Luang Prabang (LPB) to CMA
3.2.2.VTN – TANGO
3.2.3.VTN – TONPEUNG
3.2.4.NAN – SAGAG
3.2.5.KKN – HAN

3.2.5.1. Thailand proposed the KKN-HAN route to provide shorter route linking Thailand to Ha Noi as well as further destinations in China

3.2.5.2. Viet Nam expressed concerns on military activities south of NOB while requesting potential traffic information.

Southeast Asia Route Review Task Force Follow-Up Items

3.3. The meeting discussed circumstances around ATS route A1 and A202, which, based on Hong Kong FIR's Traffic Sample Data supported approximately 190 flights/day (1,325 flights/week) and 105 flights/day (735 flights/week) on the third week of December 2010. There were concerns of how these two ATS routes could support future traffic growth in the region.

3.4. Thailand presented a visualization of city pairs being serviced by A1 based on Traffic Sample Data in **Figure 1**. City pairs with traffic contribution of approximately 10 percent are shown in orange, while others are shown in green. It was noted that traffic through the Bangkok FIR including overflying traffic from the Bay of Bengal contributes approximately 50-60 percent of the traffic on A1 with destinations in East Asia. Traffic originating from Viet Nam and Cambodia contributed approximately 20 and 8 percent accordingly.

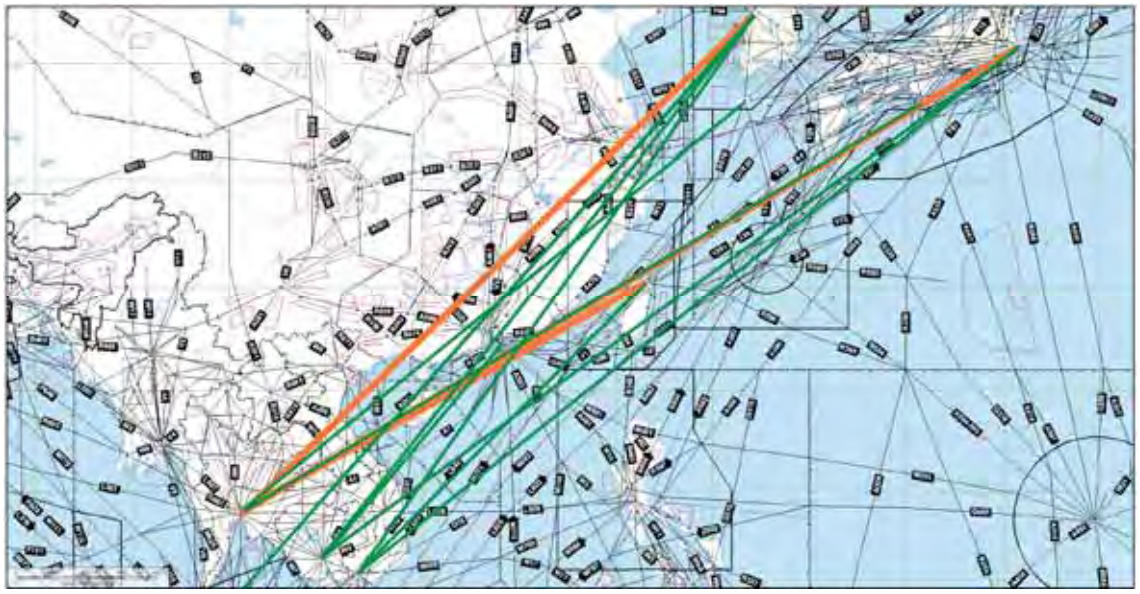


Figure 1: Visualization of Key City Pairs Serviced by A1 based on Traffic Sample Data

3.5. It was also noted that there were also some traffic from Kuala Lumpur and Singapore that actually used A1 instead of L625 to reach Hong Kong and East Asian destinations. Hong Kong, China mentioned that the change could be due to airspace restructure within the Hong Kong FIR, which could save flight time of about 10 minutes for each flight, resulting in A1 becoming contingency route for traffic from Malaysia and Singapore as well as traffic from Thailand, Viet Nam, Cambodia and Lao PDR.

3.6. As a result of the change in traffic pattern, traffic growth on A1 is expected to be higher than those of other routes within the South China Sea.

A1 Arrangement

3.7. After considerable deliberation, the meeting agreed to the following plans to enhance traffic flow on A1:

3.7.1. ***Short Term:*** reduction of radar spacing from 40NM to 30NM in order to increase capacity in the short-term.

3.7.2. ***Medium Term:*** realignment of A1 and/or re-designation as RNAV 5 to take advantage of extensive surveillance coverage in order to increase efficiency of operations.

3.7.3. ***Longer Term:*** Parallel route south of current A1 in order to provide additional capacity, efficiency and safety in traffic management.

3.8. In the short term, Cambodia, Hong Kong, China, Lao PDR, Thailand and Viet Nam were agreeable to reduction of radar spacing on A1 to 30NM with operational procedure to be completed.

3.9. In the longer term, it was discussed that spacing of the proposed parallel route south of current A1 may be as close as 30NM or less due to availability of surveillance while taking advantage of RNAV 5 capability.

3.10. Thailand presented a revised proposal for ATS route parallel to A1 in **Figure 2**.

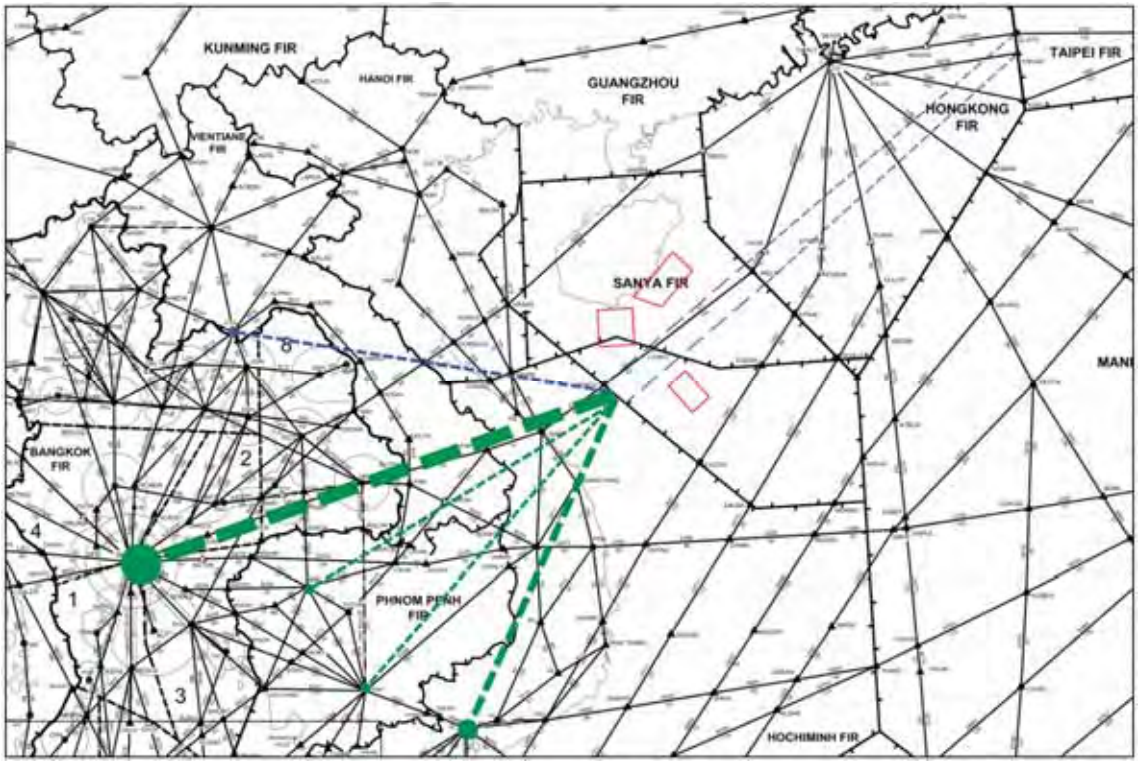


Figure 2: Proposal of ATS route parallel to A1 presented during the meeting

3.11. The proposal presented in **Figure 2** shows published danger area within Sanya FIR in red boxes. Therefore, in order to avoid excessive military coordination with Sanya FIR, the parallel ATS route may be better situated south of current A1. While relying on RNAV 5 specification, these ATS routes could be spaced as close as 30NM apart or closer. In addition, dotted line between the Ho Chi Minh – Sanya FIR boundary is scaled to percentage of traffic from these key airports on A1. In addition, based on comparison of **Figure 1** and **Figure 2**, current A1 location presents a compromise in order to facilitate traffic joining from Cambodia, Lao PDR, Thailand and Viet Nam.

3.12. Lao PDR supported the conceptual proposal with the proposal of new ATS route from Vientiane also joining at the Ho Chi Minh – Sanya FIR boundary in order to facilitate additional traffic from Vientiane to East Asian destinations as well as joining into current A202 to Hong Kong, China and other destinations in China.

A202 Arrangement

3.13. In respect to A202, Cambodia, Lao PDR, Thailand and Viet Nam were agreeable to a proposal to reduce radar spacing on A202 from current 40NM to 30NM pending coordination with China.

Minimum Longitudinal Spacing Applied in Hong Kong, Taipei and Fukuoka FIRs

3.14. It was also noted that once traffic from Southeast Asia enters the Hong Kong FIR, radar spacing used to handover traffic to further upstream FIRs is 30NM with pending discussion to further reduce radar spacing on A1 and M750 to 20NM assisted by radar handover arrangements.

En-Route PBN Harmonization

3.15. The meeting discussed re-designation of routes in compliance to the Asia-Pacific Regional PBN Implementation Plan. It was agreed that routes within surveillance coverage should be re-designated as RNAV 5, while routes outside surveillance coverage should be re-designated as RNP 10, with further plan to re-designate as RNP 4 at a later stage.

3.16. It was agreed that re-designation would start with routes crossing more than two FIRs as traffic on those routes are more likely to be in compliance with RNAV 5 or RNP 10 requirements.

Agenda Item 3.2: Air Traffic Flow Management (ATFM)

Cooperative Traffic Demand Sharing

3.17. Thailand advised the meeting of FIR boundary crossing information available within flight plans, which would represent latest traffic demand, especially when spacing or separation standard used to hand over flights between FIRs remain as key air traffic constraints in the sub-region. Flight Plan-based-traffic demand at FIR boundary can be compared against Traffic Sample Data (TSD) collected during the same time period similar to those collected under the Southeast Asia Route Review Task Force.

3.18. While workload related to collection of TSD may be relatively high for various ANSPs, software can be written based on current geographical data to automate the process of extracting FIR boundary traffic demand from flight plans.

3.19. It is advised that traffic demand at FIR boundaries of an FIR may be incomplete for a traffic flow. In other words, traffic demand perceived by FIR at the beginning of a traffic flow would be different from those in the middle of the flow and towards the end of a particular traffic flow. Therefore, it was recommended that ANSPs should exchange traffic demand information on key traffic flow to reach better understanding of traffic within those traffic flows.

3.20. Once ANSPs involved reach better understanding of those traffic flows, collated traffic demand can be used to:

3.20.1. optimize aircraft spacing;
3.20.2. optimize flight level allocation;
3.20.3. optimize manpower requirement for related ANSPs; and,
3.20.4. optimize sectorization in relevant airspace.

3.21. AEROTHAI and Hong Kong CAD have already reached agreement to exchange traffic demand data during the 6th Global ATFM Conference held in Phuket, Thailand between 28 February and 2 March 2011 in the hope to reach better understanding of traffic between the Bangkok FIR and the Hong Kong FIR.

3.22. Cambodia also expressed agreement in exchanging traffic demand data in order to enhance understanding of key traffic flows relevant to Cambodia, Hong Kong, China and Thailand.

Collaborative Decision Making (CDM)

3.23. Thailand informed the meeting of their initiative to enhance traffic management in the Bangkok FIR using software automation to extract traffic demand information from flight plan in combination with other traffic management information such as those found in BOBCAT slot allocation.

3.24. Such initiative, currently known as "Collaborative Departures Planner" (CDP) is on Operational Trial since 11 April 2011 to enhance management of traffic exiting the Bangkok FIR westbound between 1400 – 1859UTC on P646 (BETNO) and L507 (LIMLA), key routes normally used by BOBCAT departures. In the current stage of CDP trial, key airport CDM milestone of "Target Take-Off Time window" (TTOT window) would be planned along with flight level used exiting the Bangkok FIR.

3.25. It is expected that pre-planning of TTOT window and flight level used to exit the Bangkok FIR taking into account BOBCAT slot allocation would enhance the probability that aircraft would obtain slot allocation flight level in the Kabul FIR, further enhancing quality of service. Current feedback from airlines and ATS units involved were generally positive.

3.26. At a later stage, CDP Trial would be extended to include airline operators. Specifically, airlines would be asked to provide "Departures Flexibility Window" to increase flexibility of the CDP planning process. In return, TTOT window information would be provided to airlines to enhance operational predictability.

3.27. It is advised that CDM activities may be an effective short-term measure to ensure that airspace capacity is used optimally. In the case of CDP, such capacity includes both FIR boundary between the Bangkok FIR and the Yangon FIR in compliance with ATFM/BOBCAT procedure.

3.28. It is also noted that due to increasing traffic from Singapore and Malaysia in combination with upcoming reduced horizontal separation in the Bay of Bengal sub-region and upcoming implementation of RVSM in Afghanistan airspace, CDM activities could be needed.

3.29. Thailand also advised the meeting of the planned CDM Meeting with Singapore during the CANSO Annual General Meeting in Bangkok in June 2011. The CDM meeting aims to explore the possibility of further CDM activities between Singapore and Thailand.

3.30. Since traffic between Singapore and Thailand would need to proceed through the Malaysian airspace, while the three States currently cooperate in handling BOBCAT traffic, it is highly likely that Malaysia would also be invited to the CDM meeting.

Demand and Capacity Management

3.31. Thailand advised the meeting of its development of the ATFM Information Support System (ATFM-ISS), which focuses on processing visualization of traffic demand in comparison with capacity, while being similar to the Air Traffic Capacity Display System (ATCDS) system also deployed by HKCAD using presentation in **Appendix C**.

3.32. It was emphasized that while capacity of airports, both for departure and arriving traffic, and airspace need to established for planning purposes, these capacity numbers should not be taken as fixed capacity. Instead, planning capacity should be adjusted into tactical capacity in order to take into account tactical situation.

Agenda Item 3.3: ATS Coordination

Operational Difficulties

3.33. It was mentioned that Bangkok ACC experienced difficulties in handing over aircraft eastbound on A1 at the current 40NM radar spacing potentially due to traffic management issues within a downstream ACC. This issue should also be addressed within 30NM radar spacing operational procedure.

3.34. Hong Kong, China mentioned operational issues in handling eastbound A1 traffic within the Hong Kong FIR prior to handing aircraft over to the Taipei FIR. As a result, traffic on A1 with onward destinations in East Asia was occasionally rerouted to G86 within the Taipei FIR.

Agenda Item 4: CNS Matters

Surveillance Data Sharing

4.1. Thailand informed the meeting on surveillance data sharing discussions with neighboring ANSPs. Thailand Airspace Panel is in conceptual agreement with surveillance data sharing.

Pre-Departure Clearance (PDC) over Data-Link (DCL)

4.2. Thailand briefed the meeting on its operational trial of pre-departure clearance over data link based on procedures adopted from those graciously provided by HKCAD using presentation in **Appendix C**.

Agenda Item 5: Operational Contingency Plan

5.1. Thailand briefed the meeting on their Operational Contingency Plan, which would be included in updated Operational LOAs.

Agenda Item 6: Future Direction

6.1. The meeting agreed that the MK-ATMCG would convene at least once every year. In case of urgent issues, ad hoc meeting may be organized between annual meetings.

6.2. Since previous meetings were already held in Cambodia, Lao PDR and Thailand, the next meeting in will be held in Viet Nam in 2012.

6.3. It was agreed that for the next meeting, Myanmar would also be invited to enhance ATM coordination within the MK-ATMCG membership. Where necessary, Hong Kong, China and China may also be invited to ensure completeness of discussions.

6.4. It was agreed that progress of the MK-ATMCG would be reported to SEACG meeting and other relevant ICAO meetings.

Agenda Item 7: Other Business

Seamless ASEAN Sky (SAS) Initiative

7.1. The Mekong ATM Coordination Group (MK-ATMCG) brings together ANSPs with various degrees of relationship to the Mekong River, key member States of which are also members of the Association of the Southeast Asia Nations (ASEAN). Therefore, the meeting discussed recent agreement at the level of ASEAN Air Transport Working Group of the Seamless ASEAN Sky concept. There was a general consensus among the meeting participants that membership of the MK-ATMCG should work towards seamless and harmonized delivery of Air Traffic Management (ATM) and related services across FIR boundaries

Closing of the Meeting

7.2. In closing the meeting, the facilitator, Mr. Tinnagorn Choowong, thanked all delegations for attending and actively participating in the meeting's discussions.

7.3. Mr. Bui Van Vo, Director, Air Navigation Department, Civil Aviation Administration of Viet Nam, thanked Thailand for hosting the meeting and inviting Viet Nam to the meeting.

List of Participants

	Name		Title/Organization	E-Mail
1.	**CAMBODIA (1)**			
	1.	Mr. Saichon Pingsakul	General Manager, ATS Operation & Development Cambodia Air Traffic Services(CATS)	saichonp@cats.com.kh
2	**KONG KONG, CHINA (3)**			
	2.	Mr. Lucius Fan	Senior Operations Officer Hong Kong Civil Aviation Department (HCAD)	lwcfan@cad.gov.hk
	3.	Mr. Peter M. Chadwick	Senior Operations Officer, ATM Hong Kong Civil Aviation Department (HCAD)	pmchadwick@cad.gov.hk
	4.	Ms. Esther Tang	Evaluation Officer Hong Kong Civil Aviation Department (HCAD)	esptang@cad.gov.hk
3.	**LAO PDR (2)**			
	5.	Mr. Inthanousorn Sisanonh	Deputy Director General, Department of Civil Aviation of Lao PDR (DCAL)	
	6.	Mr. Maity Sylithammavong	Deputy Chief of Approach, Lao Air Traffic Management (LATM)	
4.	**THAILAND (32)**			
	7.	Mr. Chai Kaewkitinarong	Transport Technical Officer, Practitioner Level, Department of Civil Aviation of Thailand (DCA)	
	8.	Mr. Siri Pichiensopon	Executive Vice President, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	siri.pi@aerothai.co.th
	9.	Mr. Aphinun Vannangkura	Vice President (Air Traffic Management), Aeronautical Radio of Thailand Ltd. (AEROTHAI)	aphinun.va@aerothai.co.th
	10.	Mr. Tinnagorn Choowong	Senior Director, Enroute Air Traffic Management, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	tinnagorn.ch@aerothai.co.th
	11.	Mr. Chumnan Ruechai	Director, Area Control Centre 1 Aeronautical Radio of Thailand Ltd. (AEROTHAI)	chumnan.ru@aerothai.co.th
	12.	Mr. Pramurn Inchonbot	Director, Provincial Approach Control Centre, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	pramurn.in@aerothai.co.th
	13.	Mr. Sunun Nimfuk	Director, Area Control Centre 2 Aeronautical Radio of Thailand Ltd. (AEROTHAI)	sunun.ni@aerothai.co.th

	Name		Title/Organization	E-Mail
	14.	Mrs. Sirikes Niemloy	Director, Airspace Management Centre, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	sirikes.ni@aerothai.co.th
	15.	Mrs. Siriluk Visalachitra	Director, Corporate Relations Department, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	gade@aerothai.co.th
	16.	Mr. Watee Arthakamol	Director, Air Traffic Management Planning Department, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	watee@aerothai.co.th
	17.	Mr. Winyou Sriwong	Director, Aeronautical Information Management Centre, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	winyou.sr@aerothai.co.th
	18.	Ms. Benchamas Chawananikul	Air Traffic Control Manager, Area Control Centre 1, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	
	19.	Ms. Orapim Chammek	Air Traffic Control Manager, Area Control Centre 1, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	
	20.	Mr. Teeravut Sungseemek	Air Traffic Control Manager, Area Control Centre 1, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	
	21.	Ms. Permporn Kiatphadungkul	Air Traffic Controller, Area Control Centre 1, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	
	22.	Mr. Nitiya Jaiyai	Air Traffic Control Manager, Area Control Centre 2, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	
	23.	Mr. Phuwadol Phanumas	Air Traffic Control Manager, Area Control Centre 2, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	
	24.	Mrs. Siripan Theerapong	General Administrative Manager, Area Control Centre 2, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	
	25.	Mr. Thaweep Sooksee	Air Traffic Control Manager, Area Control Centre 2, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	
	26.	Ms. Chananya Pinkeawprasert	Air Traffic Control Manager, Airspace Management Centre, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	chananya.pi@aerothai.co.th chananya_pink@yahoo.com

	Name		Title/Organization	E-Mail
	27.	Mr. Piyawut Tantimekabut	Executive Officer, Systems Engineering Airspace Management Centre, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	piyawut@gmail.com piyawut@aerothai.co.th
	28.	Mrs. Surada Rungrueng	General Administrative Manager, Airspace Management Centre, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	
	29.	Mr. Suvichan Sthitgitpichead	Air Traffic Control Manager, Airspace Management Centre, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	
	30.	Mr. Yootana Kittitadakul	Air Traffic Control Manager, Airspace Management Centre, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	ykbacc@gmail.com
	31.	Mr. Bunpot Kujaphan	General Administrative Manager, Aeronautical Information Management Centre, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	
	32.	Mr. Waipot Mahardthai	Air Traffic Control Manager, Provincial Approach Control Centre, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	
	33.	Ms. Samaporn Aksornanan	Aeronautical Communication and AIS Executive Officer, Procedure Design for Air Navigation Services Department, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	
	34.	Mr. Sinchai Nilotbol	Engineer Manager, Air Traffic Communication Systems Engineering Department, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	
	35.	Mr. Thanitpong Wibuyarnon	Engineer Manager, Air Traffic Surveillance Systems Engineering Department, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	
	36.	Mrs. Bongkote Saduagkan	General Administrative Manager, Corporate Relations Department, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	
	37.	Ms.Prapasara Kongsawat	Senior Administration Officer, Corporate Relations Department, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	

	Name		Title/Organization	E-Mail
	38.	Ms. Puntaree Suwan	Administration Officer, Corporate Relations Department, Aeronautical Radio of Thailand Ltd. (AEROTHAI)	
5.	**VIET NAM (2)**			
	39.	Mr. Bui Van Vo	Director, Air Navigation Department, Civil Aviation Authority of Viet Nam (CAAV)	
	40.	Mr. Pham Van Long	Deputy Director, Southern ATS Company, Viet Nam Air Traffic Management(VATM)	

Draft Terms of Reference

Mekong ATM Coordination Group (MK-ATMCG)

1. The objective of the MK-ATMCG is:

   In collaboration with affected stakeholders ensuring inter-regional harmonization, accelerate cooperative initiatives among its membership in order to enhance flight efficiency while maintaining safe, expeditious flow of traffic with the goal of providing seamless and harmonized air traffic management service.

2. To meet this objective the Coordination Meeting shall:

   a. Serve as key instrument for coordination on matters of joint concern on airspace utilization, air traffic management, aeronautical telecommunication services, aviation meteorological services, search and rescue and aeronautical information services within area of responsibility of the meeting's membership;

   b. Identify operational ATM issues and difficulties within area of responsibility of the meeting's membership;

   c. Develop solutions to resolve noted ATM issues and difficulties;

   d. Develop solutions to enhance operational efficiency within membership's area of responsibility;

   e. Cooperate with other groups involved in similar work in order to achieve harmonized inter-regional solutions;

   f. Coordinate implementation of noted solutions in a cooperative manner through coordination action plans with timelines that is harmonized with adjacent regions, consistent with ICAO SARPs and Global Air Navigation Plans (Doc 9750); and,

   g. Progress of MK-ATMCG may be reported to ICAO Southeast Asia ATM Coordination Group (SEACG) as well as other relevant ICAO meetings

3. Membership of the meeting shall include:

   a. *Cambodia:* State Secretariat of Civil Aviation of Cambodia (SSCA) and Cambodia Air Traffic Services Co.,Ltd. (CATS)

   b. *Lao PDR:* Department of Civil Aviation of Lao PDR (DCAL) and Lao Air Traffic Management (LATM)

   c. *Myanmar:* Department of Civil Aviation, Myanmar

   d. *Thailand:* Department of Civil Aviation of Thailand (DCA Thailand) and Aeronautical Radio of Thailand (AEROTHAI)

   e. *Viet Nam:* Civil Aviation Administration of Viet Nam (CAAV) and Viet Nam Air Traffic Management Corporation (VATM)

4. Partners of the meeting may include but not be limited to airlines and airspace users in Cambodia, Lao PDR, Myanmar, Thailand and Vietnam.

AEROTHAI Aeronautical Radio of Thailand
บริษัท วิทยุการบินแห่งประเทศไทย จำกัด

Mekong ATM Coordination Group Meeting (MK-ATMCG)

24-26 April 2011: Bang Saen, Chon Buri, Thailand

Agenda

- **Agenda Item 1:** Adoption of Agenda
- **Agenda Item 2:** Review of Operational LOAs
- **Agenda Item 3**: Air Traffic Management (ATM) Matters
- **Agenda Item 4:** CNS Matters
- **Agenda Item 5:** Operational Contingency Plan
- **Agenda Item 6:** Future Direction
- **Agenda Item 7:** Other Related Issues

Agenda Item 1: Adoption of Agenda

- **1.1** Renaming of the Meeting
  - **Mekong ATM Coordination Group Meeting**
  - Mekong Air Navigation Service Coordination Meeting
  - Sub-Mekong Region ATM Coordination Meeting
  - Mekong ATM System Coordination Meeting
  - Mekong Region CNS/ATM Implementation Group
- **1.2** Terms of Reference Discussion

Agenda Item 2: Review of Operational LOAs

- **2.1** Inclusion of Contingency Arrangement in LOAs

Agenda Item 3: ATM Matters

- **3.1** Airspace Management (ASM)
- **3.2** Air Traffic Flow Management (ATFM)
- **3.3** Air Traffic Services (ATS) Coordination

Agenda Item 3.1: Airspace Management

- **3.1.1** ATS Route Review
  - Previously Coordinated Routes
  - Recently Proposed Routes
- **3.1.2** Southeast Asia Route Review Task Force Follow-Up Items
  - A1/A202 Arrangement
- **3.1.3** En-Route PBN Harmonization
  - RNAV Route Application in 2012

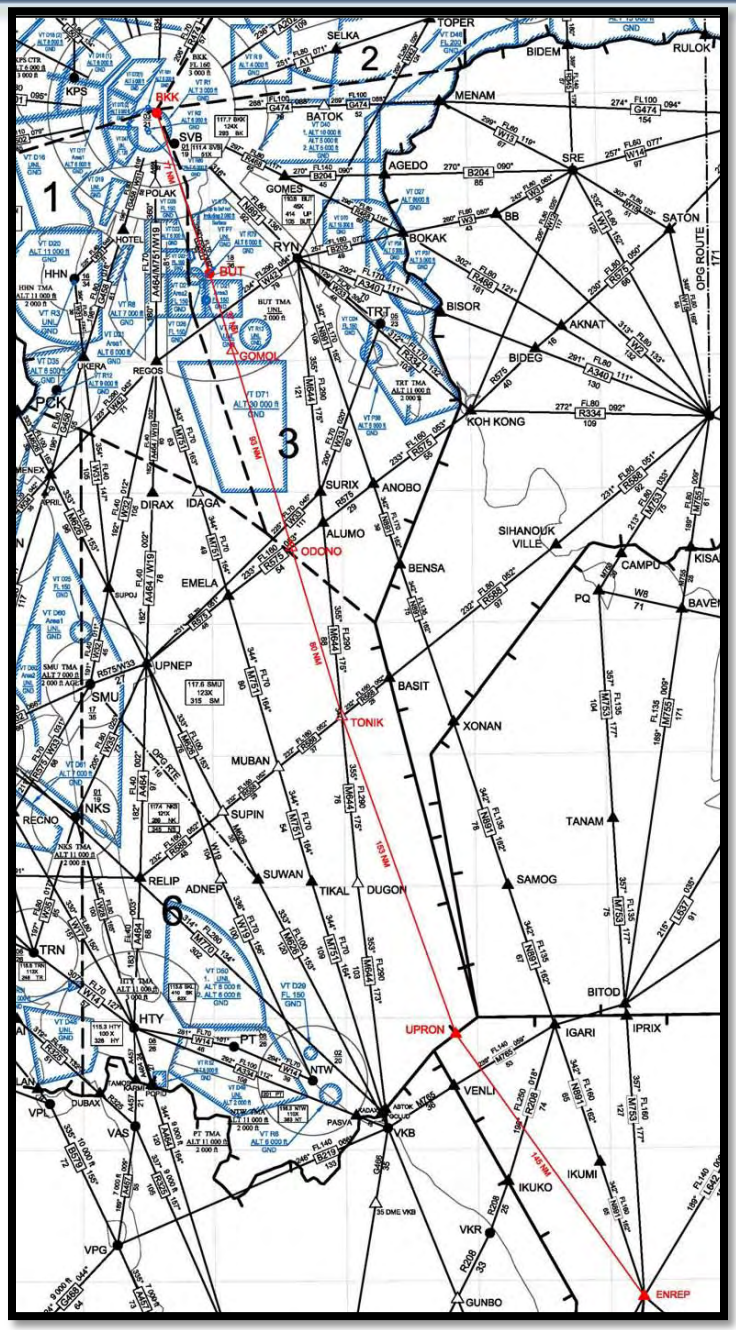
Agenda Item 3.1.1: ATS Route Review

Previously Coordinated Routes

- U-Tapao – ENREP (M752/M904)
- HAN-RGN / NAN-TATEL
- VTN-SAV
- SRE-UBON-VILAO

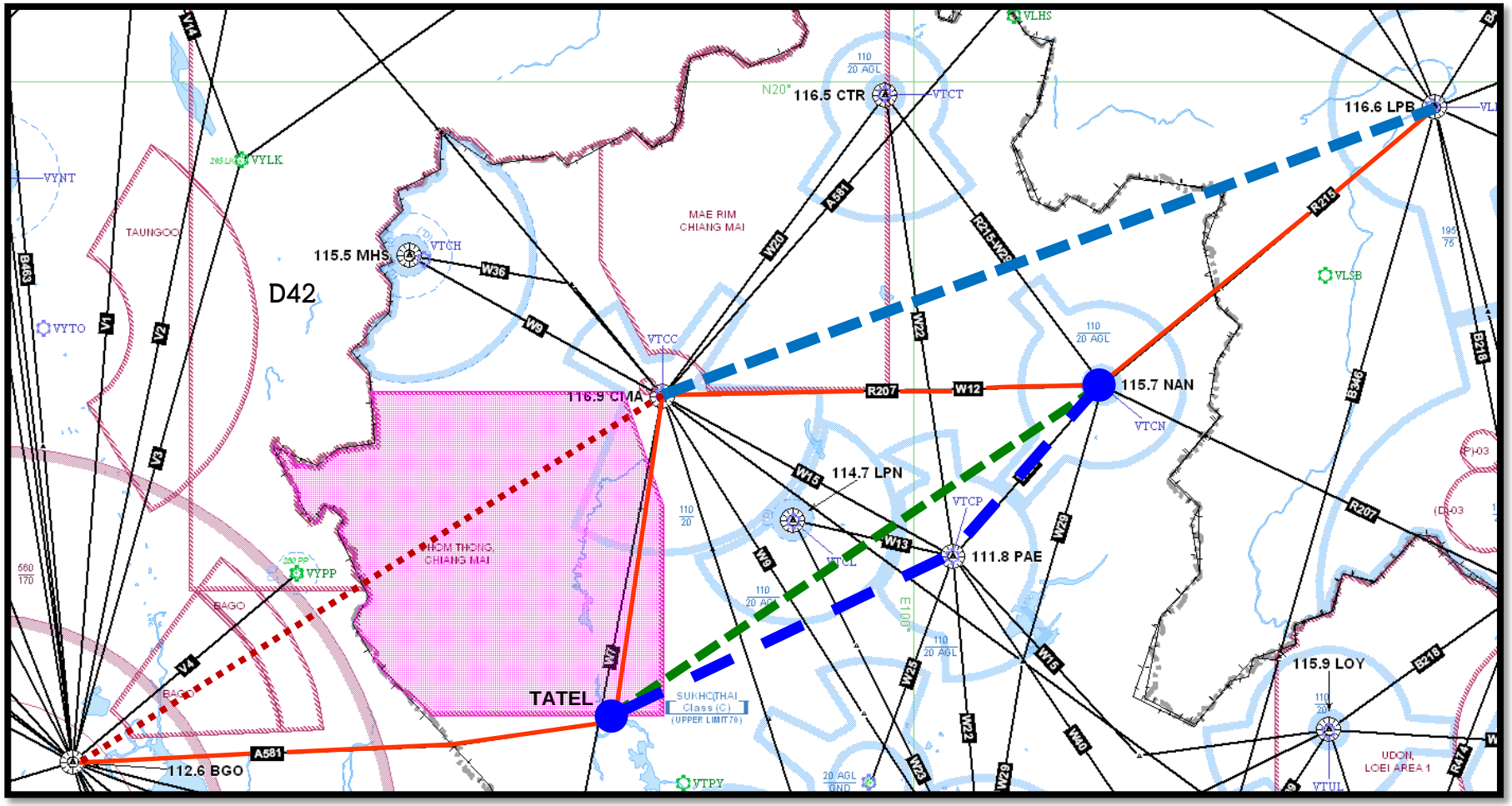
Recently Proposed Routes

- **Lao PDR**
  - LPB-CMA A206 Extension
  - VTN – TANGO
  - VTN – TONPEUNG
- **Thailand**
  - NAN – SAGAG
  - KKN – HAN

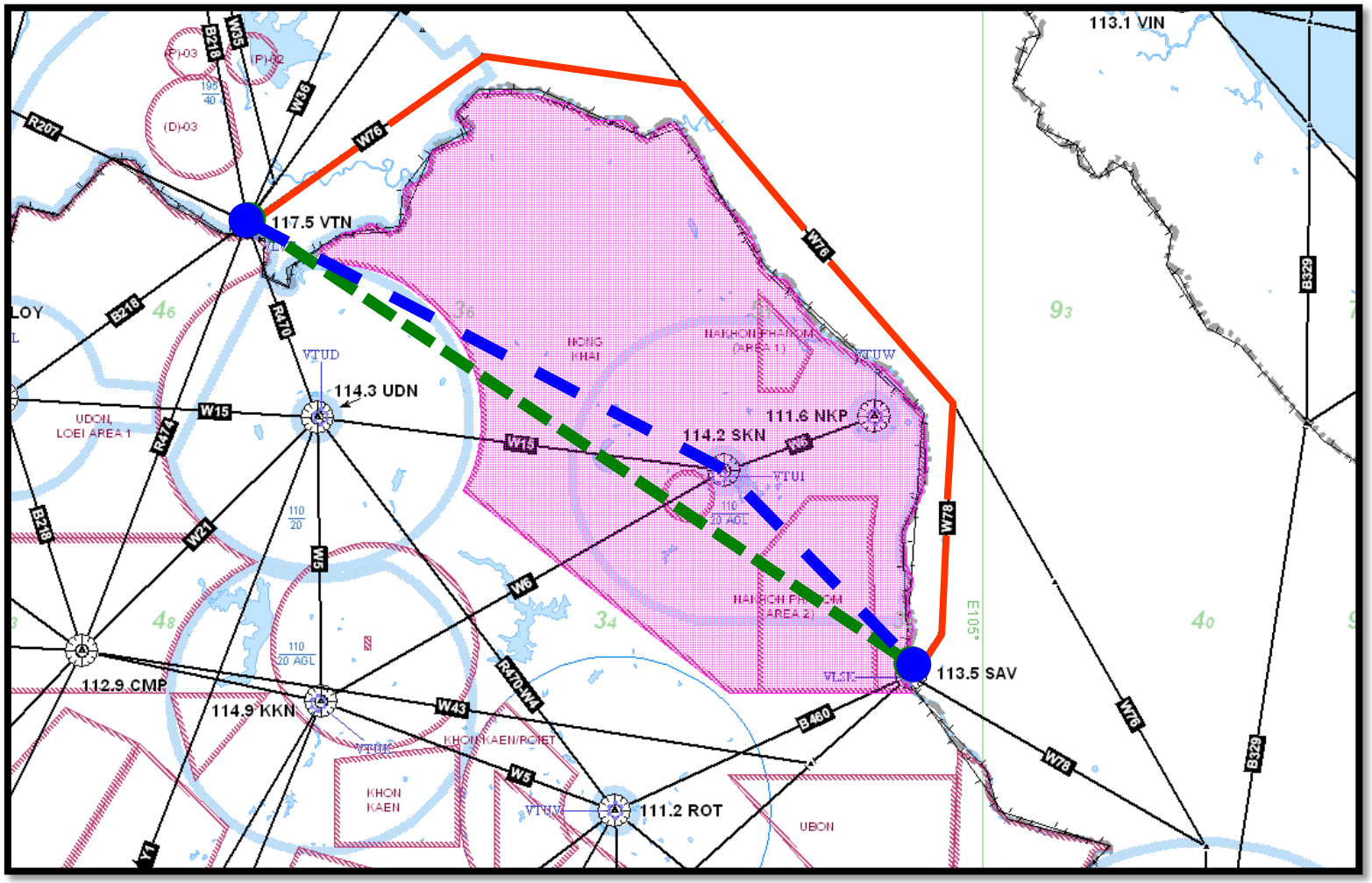

TOPER
SELKA
BIDEM
RULOK
MENAM
BKK
KPS
BATOK
SVB
AGEDO
SRE
GOMES
POLAK
BB
SATON
HOTEL
BOKAK
RYN
BUT
HHN
GOMOI
TRT
BISOR
AKNAT
UKERA
REGOS
BIDEG
PCK
KOH KONG
SURIX
ANOBO
DIRAX
IDAGA
ALUMO
ODONO
SIHANOUK VILLE
BENSA
CAMPU
KISA
EMELA
PQ
BAVER
UPNEP
SMU
BASIT
TONIK
XONAN
MUBAN
SUPIN
TANAM
RECNO
NKS
SAMOG
RELIP
ADNEP
SUWAN
TIKAL
DUGON
BITOD
TRN
HTY
UPRON
IGARI
IPRIX
PT
NTW
VENLI
DUBAX
VPL
VAS
PASVA
VKB
IKUKO
IKUMI
VPG
VKR
GUNBO
ENREP
OPG ROUTE
1
2
3
6
80 NM
150 NM
140 NM

M752/M904

HAN-RGN / NAN-TATEL

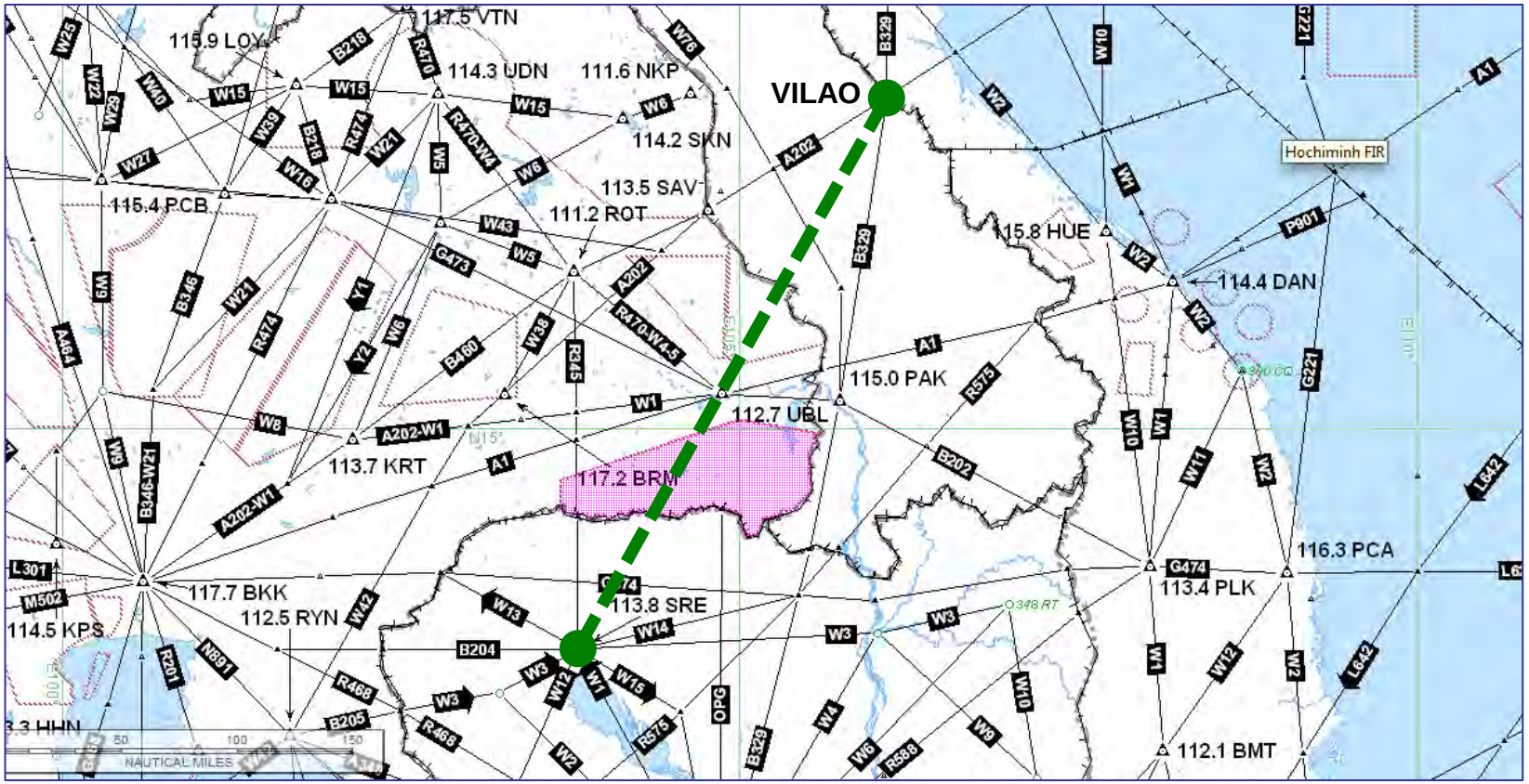


VTN-SAV

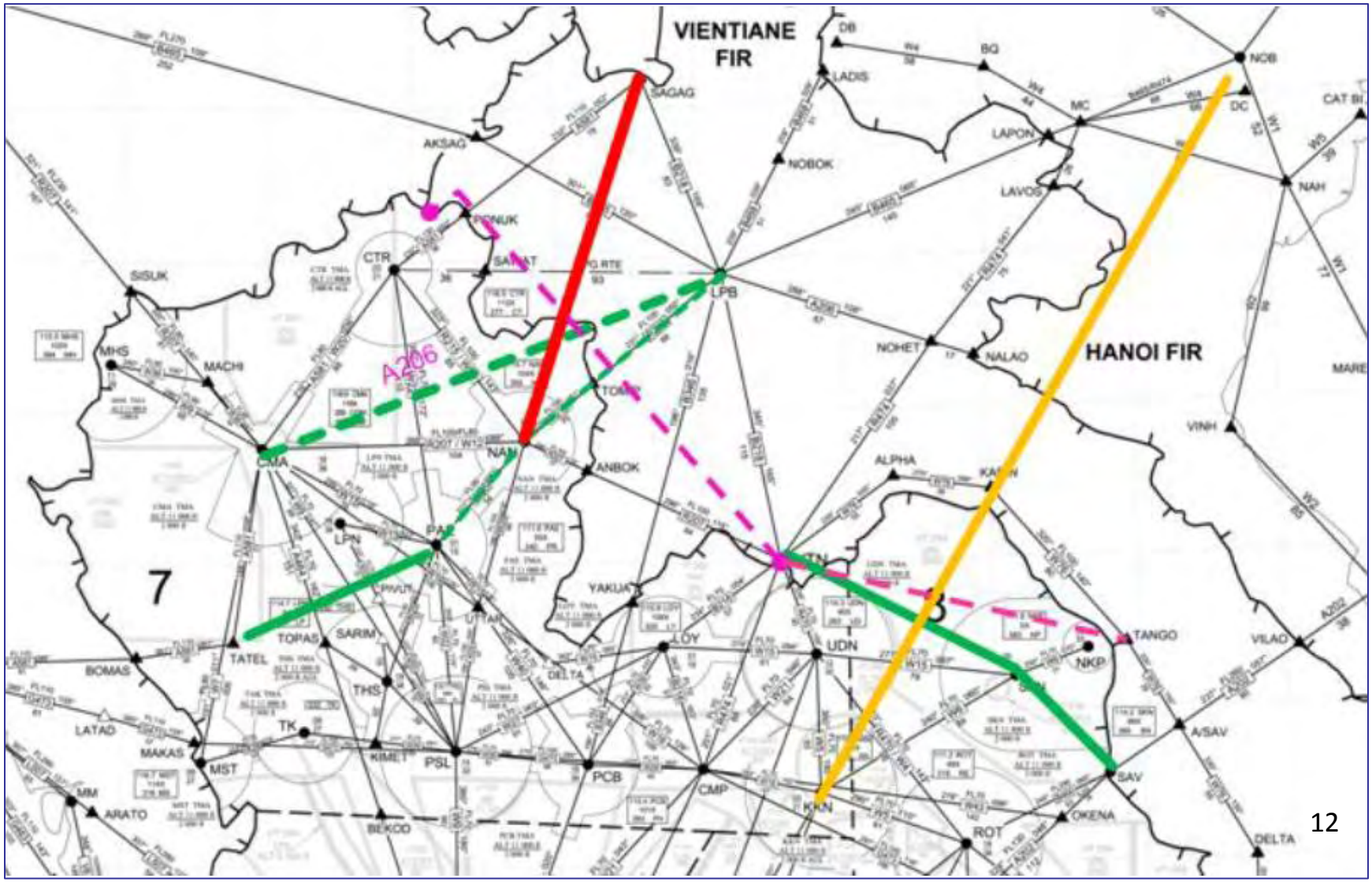


113.1 VIN
117.5 VTN
114.3 UDN
114.2 SKN
111.6 NKP
113.5 SAV
112.9 CMP
114.9 KKN
111.2 ROT
NONG KHAI
NAKHON PHANOM (AREA 1)
NAKHON PHANOM (AREA 2)
UDON, LOEI AREA 1
KHON KAEN/ROIET
KHON KAEN
UBON
VTUD
VTUW
VTUI
VLSK
VTUK
VTUV
W76
W78
W15
W5
W6
W43
W21
W36
W35
B218
B460
B329
R207
R470
R474
R470-W4
Y1
E105°

SRE-UBL-VILAO



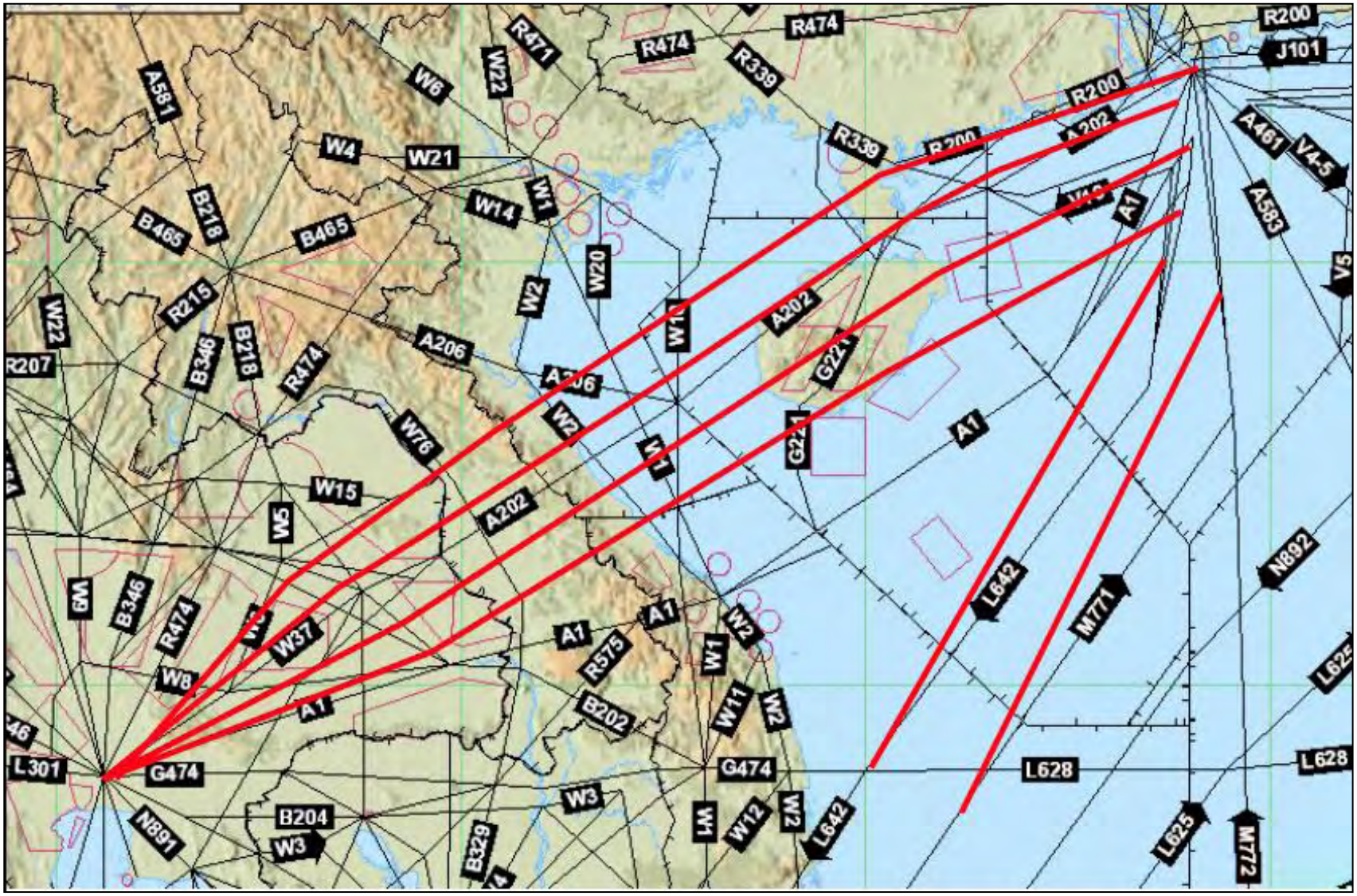
Recently Proposed Routes



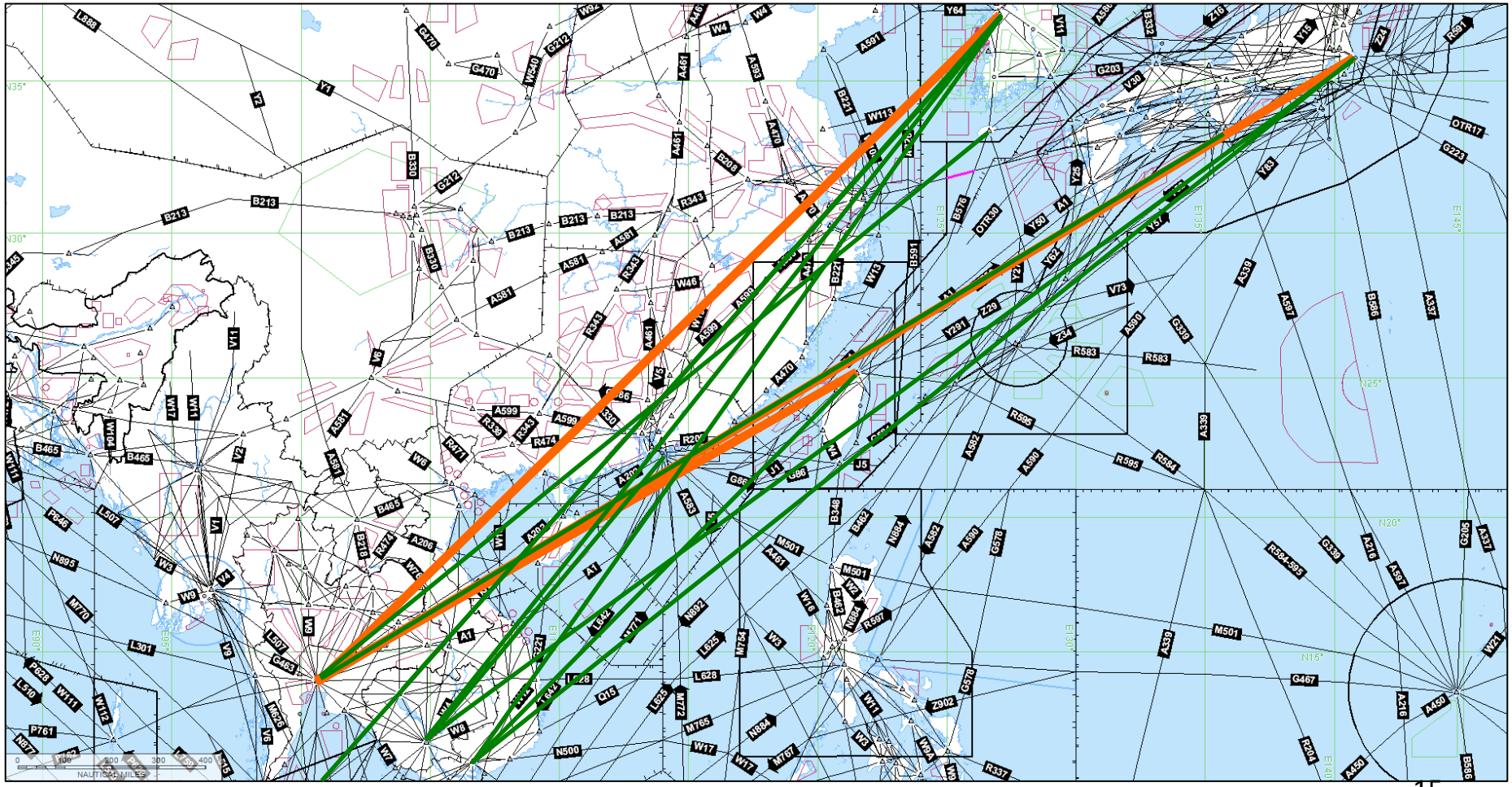
Agenda Item 3.1.2: SEA-RR/TF Follow-Up

- **A1/A202 Arrangements**
  - A1/A202 Radar Spacing Arrangement
  - A1 Realignment
  - A1 Parallel Route
    - Conditional Route (CDR)
    - Implementation and Application Issues
      - Uni-directional or Bi-Directional?

A1/A202 Route Proposal at SEA-RR/TF

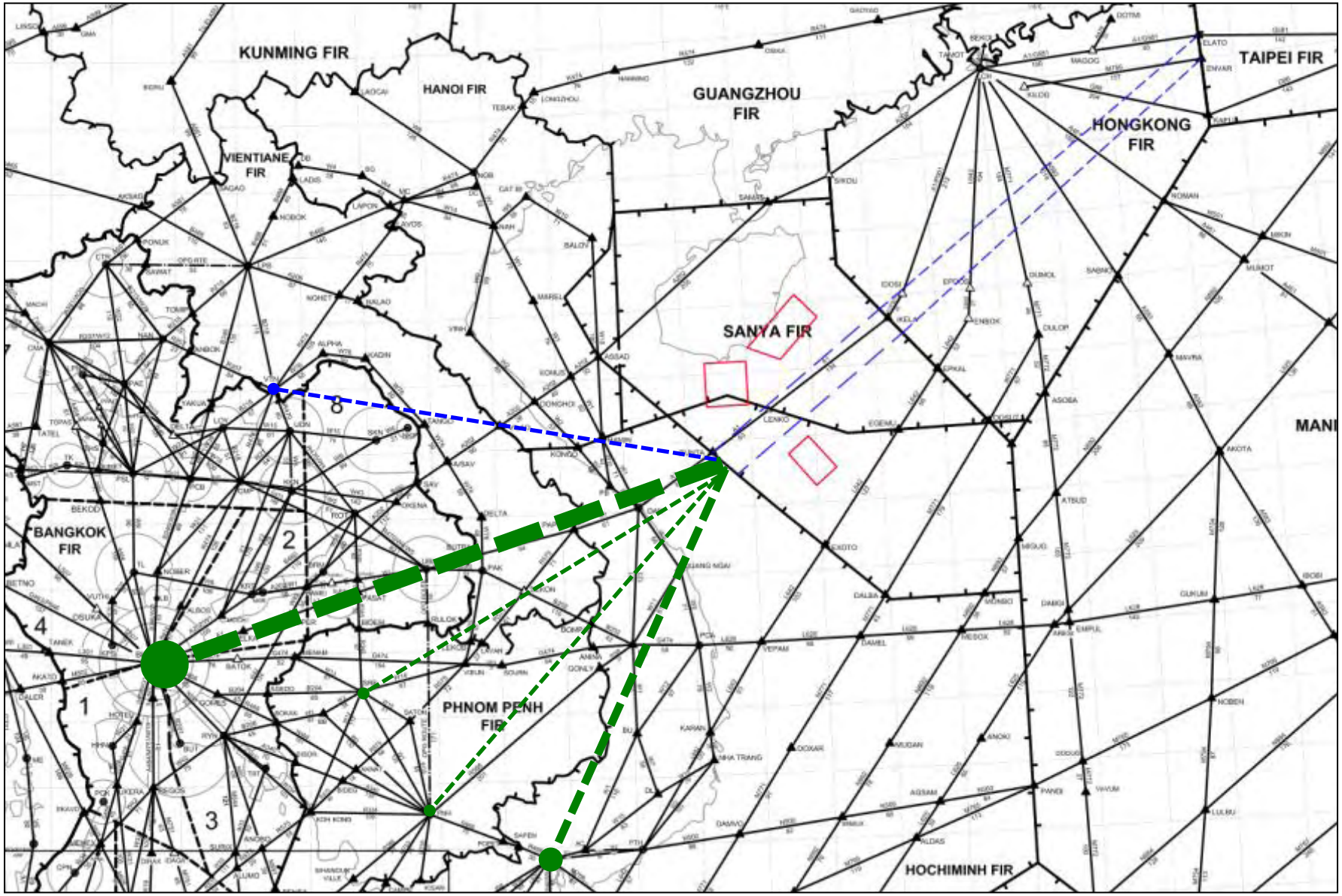


Key City Pair Traffic Flow on A1



AEROTHAI Aeronautical Radio of Thailand
บริษัท วิทยุการบินแห่งประเทศไทย จำกัด

A1 Realignment and Parallel CDR



Agenda Item 3.1.3: En-Route PBN Harmonization

- **RNAV 5 Route Candidates**
  - A1
  - A202
  - B218
  - B346
  - G474
  - R468
  - R474

Agenda Item 3.2: ATFM Matters

- **3.2.1** Cooperative Traffic Demand Data Sharing
- **3.2.2** Collaborative Decision Making (CDM)
- **3.2.3** Demand and Capacity Management

3.2.1 Cooperative Traffic Demand Data Sharing

- **Flight Plans and ATS Messages**
  - Can be converted to FIR Boundary Crossings
  - Represent latest “traffic demand” before operations
  - Mechanisms available to process FPLs
- **What can be exchanged?**
  - Flight Plan and ATS Messages
  - Processed traffic demand

3.2.1 Cooperative Traffic Demand Data Sharing

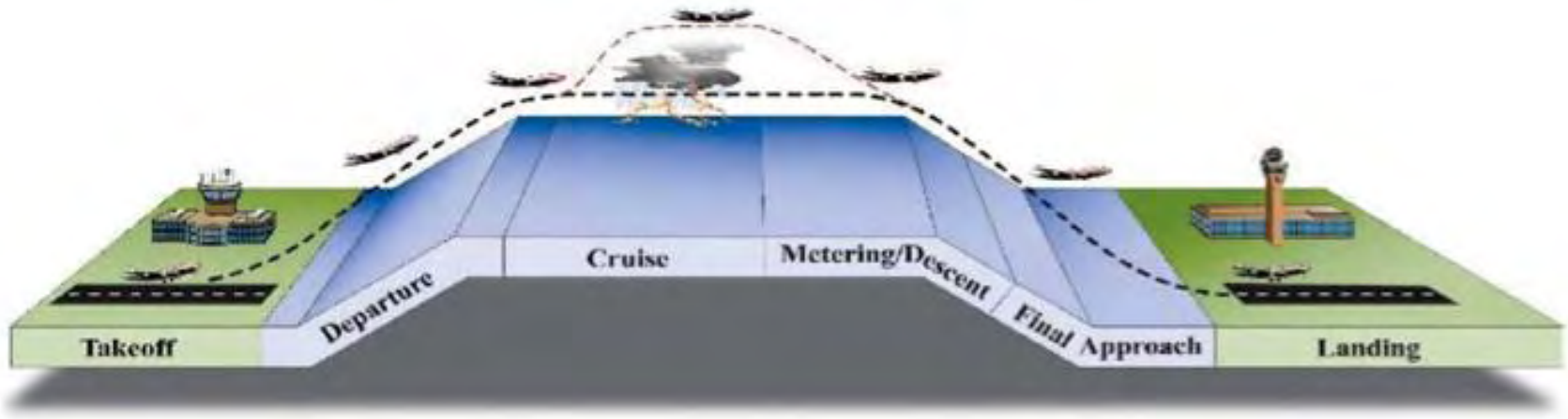
- **Phase 1: Static Flight Plan Log Exchange**
  - Time Frame: Week starting on 3rd Sunday of month
  - Message Types: FPL
  - Return Information: Cross-FIR traffic demand
- **Phase 2: Dynamic Flight Plan Forwarding**
  - FIR-Boundary Crossing traffic demand views
  - Traffic information at major international airports

3.2.1 Cooperative Traffic Demand Data Sharing

Use of Traffic Demand

- Optimize use of ATS route
  - Separation or spacing in use
    - Assist in planning need for reduced spacing
  - Flight Level Allocation (Still needed?)
- Operational Staff Planning
- Sectorization Planning

3.2.2 Collaborative Decision Making (CDM)



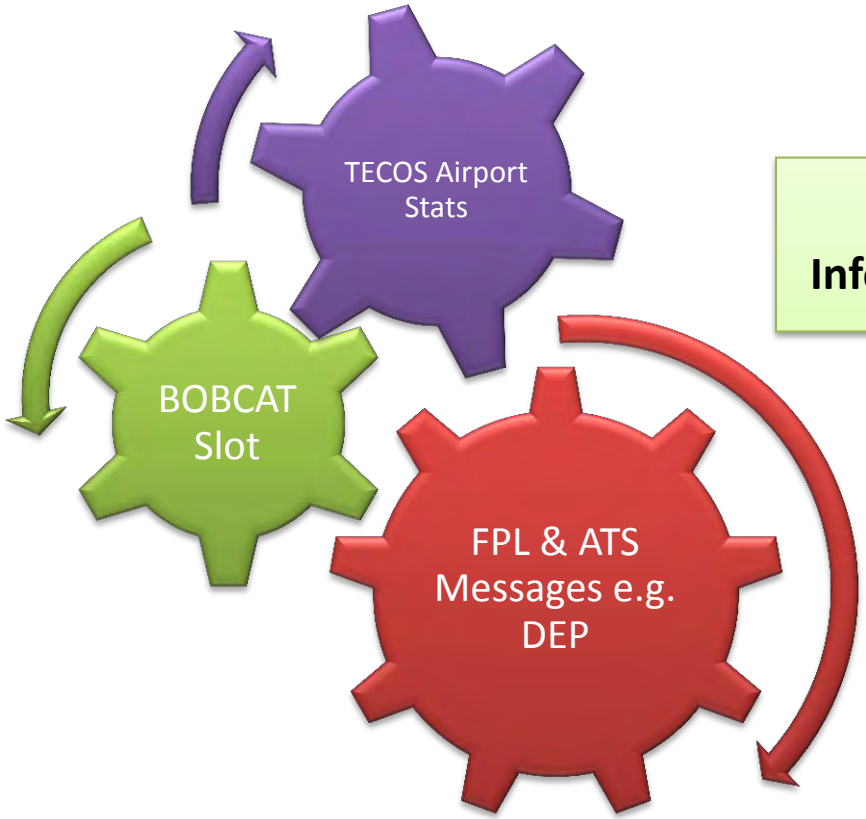
3.2.2 Collaborative Decision Making (CDM)

- **Phase 1: Bangkok Departures with BOBCAT Slot**
  - Collaborative Departures Planner (CDP)
  - Rich data sharing between Bangkok ATFMU, Bangkok ACC and Suvarnabhumi Tower
  - Assist in collaborative planning of several airport CDM milestones
    - Target Take Off Time window (TTOTw)
    - Planned FL Exiting FIR Boundary
- **Phase 2: Airline Involvement**
  - Airlines Providing “Departures Flexibility Window” (earliest and latest feasible departure)
  - Airlines provided TTOT window

Collaborative Departures Planner (CDP)

Fusing information from…

…to enable CDM information sharing



Fused Information

Bangkok ATFMU

Web

Bangkok ACC

VTBS Tower

3.2.2 Collaborative Decision Making (CDM)

- **CDM Meeting with Singapore CAAS (June 2011)**
  - Discussion of possible CDM Trial for Bangkok – Singapore city pair
  - Potential involvement of DCA Malaysia
  - Potential application of CDP on departures from Singapore / Malaysia with BOBCAT slots

3.2.3 Demand and Capacity Management

Traffic Demand

- **Schedule & Permission**
- **Repetitive Flight Plan (RPL)**
- **Flight Plan (FPL)**
- **Operational ATS Messages**
  - DEP
  - EST
  - ARR
- **Surveillance Track**

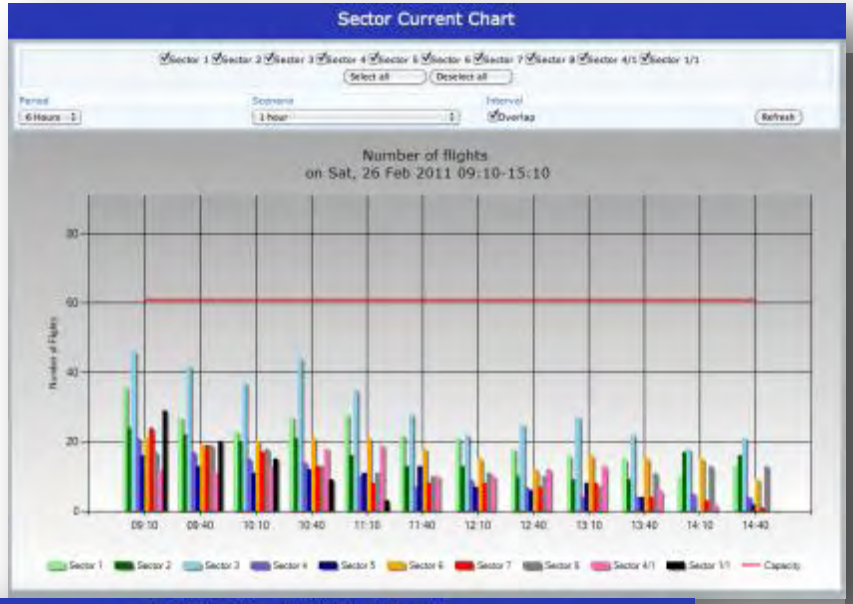
ANS Capacity

- **Airport Capacity**
  - Arrival Rate
  - Departure Rate
- **Airspace Capacity**
  - Sector Capacity
  - Route Capacity
    - Separation / Spacing
- **Planning Capacity vs. Tactical Capacity**

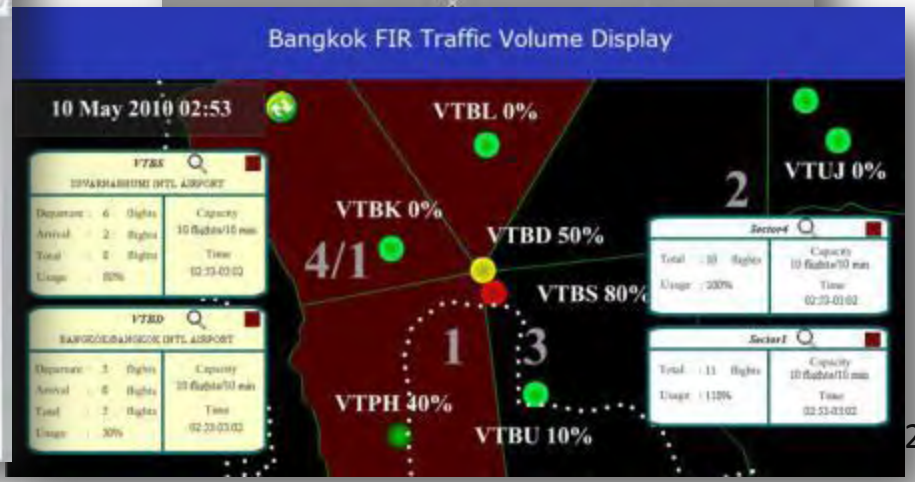
ATFM Information Support System (ATFM-ISS)

- **Traffic Demand Visualization – Phase 1 (2010)**
  - **Input:** Schedule, Repetitive Flight Plan, Flight Plan
  - **Output:**
    - Traffic demand forecast at airport
    - Traffic demand forecast at sector
    - Basic delay advisory for each airport/sector volume
- **Planned Trial and Implementation**
  - Bangkok ACC: Early 2011
  - Bangkok Suvarnabhumi Airport: 2011

ATFM-ISS


Sector Current Chart
Number of flights
on Sat, 26 Feb 2011 09:10-15:10

Airport Departure and Arrival Statistics
Number of flights at VTBS
on Sat, 26 Feb 2011 06:00-09:00


Bangkok FIR Traffic Volume Display
10 May 2010 02:53
VTBL 0%
VTUJ 0%
VTBK 0%
VTBD 50%
VTBS 80%
VTPH 40%
VTBU 10%
4/1
1
2
3

ATFM-ISS

- **Phase 2 (2011-2012)**
  - Traffic demand forecast on waypoint/fix
    - FIR Boundary waypoint/fix included
  - Flight plan prediction to enhance traffic demand forecast at sector volume ahead of flight plan submission
  - Integration of surveillance track information
  - Flexible sector/airport capacity during various time of day

3.2.3 Demand and Capacity Management

- **Sharing of Traffic Demand data**
- **Development of Airport and Airspace Capacity**
- **Sharing / Exchange of Capacity data**
  - Mechanism to enhance capacity
- **CDM mechanism**
  - Flexible Use of FL
  - Departures Management when required

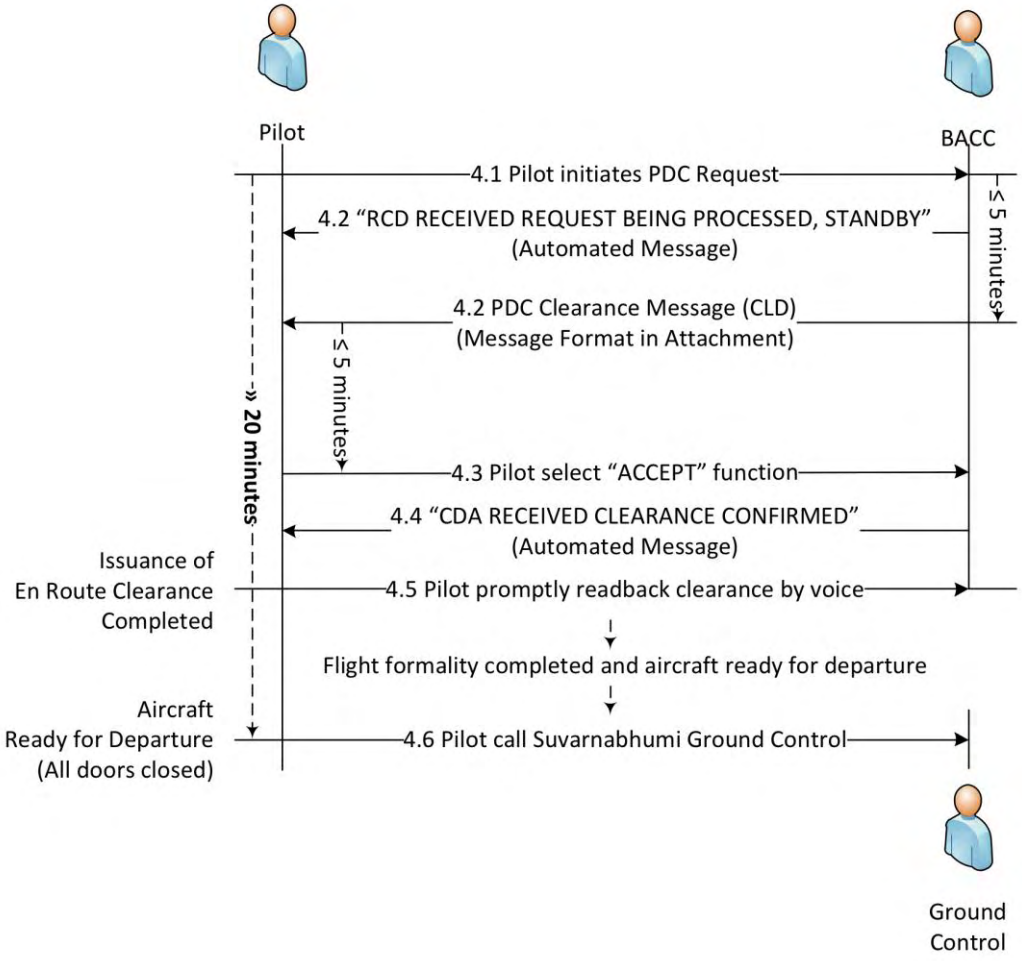
Agenda Item 3.3: ATS Coordination

- **3.3.1** Operational Difficulties
  - Coordination difficulties between Ubon Approach and Pakse Approach

Agenda Item 4: CNS Matters

- **4.1** Surveillance Data Sharing
- **4.2** Pre-Departure Clearance (PDC) over Data Link (DCL)

4.2: Pre-Departure Clearance (PDC) over Data Link (DCL)



Agenda Item 5: Operational Contingency Plan

- **5.1** State Contingency Plan
- **5.2** Operational Contingency Plan
  - Contingency Routes

Agenda Item 6: Future Direction

- **6.1** Frequency of the Meeting
  - At least once a year
- **6.2** Venue of the Next Meeting
  - Viet Nam

Agenda Item 7: Other Related Issues

- **7.1** Bangkok Air Traffic Management Centre (ATMC)
  - Operational by 2013-2014
  - Planned AIDC-based ATS message exchange with neighboring FIRs
- **7.2** Flight Data Management Center (FDMC) / RPL Center

บริษัท วิทยุการบินแห่งประเทศไทย จำกัด

AERONAUTICAL RADIO OF THAILAND