INTERNATIONAL CIVIL AVIATION ORGANIZATION
ASIA AND PACIFIC OFFICE

REPORT OF THE ICAO RVSM SPECIAL COORDINATION MEETING ON THE INDIA/PAKISTAN ATM AND TRANSITION PROCEDURES (SCM/RVSM/IND-PAK)

Bangkok, Thailand

7 – 9 January 2004

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

Published by the ICAO Asia and Pacific Office, Bangkok

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1.1 Introduction

1.1.1 The ICAO RVSM Special Coordination Meeting on the India/Pakistan ATM and Transition Procedures (SCM/RVSM/IND-PAK) was held at the ICAO Asia and Pacific Regional Office, Bangkok, Thailand from 7 – 9 January 2004.

1.2 Attendance

1.2.1 The meeting was attended by eighteen participants from Australia, India, Malaysia, Pakistan, Singapore, Thailand and IATA. A complete list of participants is at **Appendix A.**

1.3 Officers and Secretariat

1.3.1 Mr. Sydney Maniam, Head (Standards), Civil Aviation Authority of Singapore (CAAS), Singapore, continued as Chairman of the Task Force. Mr. David Moores, Regional Officer ATM, ICAO Asia and Pacific Regional Office, Bangkok served as the Secretary for the meeting. Mr. Ron Rigney, Operations Manager, Airservices Australia and Chairman of the ATC Work Group assisted the meeting.

1.4 Opening of the Meeting

1.4.1 The meeting was opened by Mr. David Moores, Regional Officer Air Traffic Management on behalf of Mr. L.B. Shah, Regional Director of the ICAO Asia and Pacific Regional Office. He welcomed participants to Bangkok and expressed appreciation for the efforts of all parties concerned for the successful implementation of RVSM in the Bay of Bengal and Beyond on 27 November 2003.

1.4.2 Mr. Sydney Maniam welcomed participants to the Special Coordination Meeting which had been requested by the RVSM/TF/20 meeting held at New Delhi, India on 27-31 October 2003. He highlighted that the purpose of the meeting was to review the application of RVSM in the Bay of Bengal and Beyond since implementation on 27 November 2003. In particular, the meeting would review the handling of traffic in India and Pakistan, as well as the transition procedures for civil aircraft transiting Afghanistan airspace. He added that the meeting should also identify problems that had been encountered by operators and ATS providers and put measures in place to improve the overall management of traffic in the area.

1.5 Documentation and Working Language

1.5.1 The working language of the meeting as well as all documentation was in English.

1.5.2 Three Working Papers and one Information Paper were presented to the meeting. A list of papers is included at **Appendix B.**

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1. Agenda Item 1: Adoption of Agenda

1.1 The meeting reviewed the provisional agenda presented by the Chairperson and adopted it as the agenda for the meeting. The Agenda is at **Appendix C** to the Report.

2. Agenda Item 2: Review the RVSM Operational Plan

Review of RVSM Implementation in Bay of Bengal and Beyond

2.1 The meeting recalled that the RVSM/TF/20 meeting held at New Delhi, India 27–31 October 2003 had agreed on the operational plan for the implementation of RVSM in the Bay of Bengal and Beyond area on 27 November 2003. Further, the transition procedures for westbound aircraft between India, Pakistan and Afghanistan would be done on a one-month trial basis. In this regard, RVSM/TF/20 agreed to hold this meeting to review air traffic operations following the implementation of RVSM and related air traffic flow management (ATFM) issues in the area concerned. Also, the meeting would consider traffic movement data for aircraft operating on the routes concerned to be provided by the States involved.

2.2 States present presented an update on the implementation of RVSM in the Bay of Bengal and Beyond on 27 November 2003.

2.3 India reported that RVSM implementation had been smooth and there were no difficulties encountered. India also noted that the peak of westbound international traffic flow was during the period 0100 to 0300 local time. The meeting recalled that at the RVSM/TF/20 meeting, the Airports Authority of India (AAI) reported that agreement had been reached between AAI and the Indian military authority to extend ATS route P628 from ASOPO-VIKIT (position on the Delhi/Karachi FIR boundary), and the segment VIKIT-Rahim Yar Khan (RK) VOR would need to be implemented by Pakistan. India reported that following the RVSM/TF/20 meeting, the minimum en-route altitude (MEA) for ASOPO-VIKIT had been lowered from FL310 to FL300. Further, the MEA on L333 was lowered from FL310 to FL300. India advised that they had completed their arrangements on the route extension and was coordinating the implementation with Pakistan. The meeting expressed appreciation to India for their effort to implement this route extension.

2.4 Pakistan informed the meeting that RVSM had been successfully implemented with significant capacity increases for traffic into Iran and Oman. The transition of civil traffic into Kabul FIR was also progressing well. With regard to the extension of ATS route P628, Pakistan advised that they were discussing with their military authority on lowering the MEA for the route segment VIKIT-RK from FL310 to FL300 for RVSM operations to harmonize the MEA for the entire route. It would be possible to operate the route with the MEA of FL310 but the minimum westbound level would be FL320. However, this would not satisfy operational requirements for use of FL300. The meeting recognised that the route segment ASOPO-RK would relieve congestion and improve efficiency, and thereby contribute to reducing ground delays. India advised that they were ready to implement the segment ASOPO-VIKIT. Pakistan advised that they would implement the segment VIKIT-RK with a MEA of FL310. Coordination for lowering of the MEA to FL300 with the military authority was ongoing and a NOTAM would be issued when agreement was reached to lower the MEA.

2.5 Malaysia reported that RVSM had been successfully implemented. As previously agreed, FL280 and FL320 were jointly used as No-PDC levels for departures from Kuala Lumpur and Singapore. As a result, some aircraft had experienced ground delays due to the unavailability of RVSM levels. Hence, the use of FL300 should be coordinated with Thailand to alleviate the situation. Malaysia also expressed concern on the difficulties faced by some operators to maintain Mach 0.84 when operating at FL280 on ATS route L759.

2.6 Singapore presented traffic movement data for westbound departures from Changi Airport since 27 November 2003. The meeting noted that ground delays had increased as a result of the joint use of FL280 and FL320 with departures from Kuala Lumpur. The meeting agreed that a review should be done to optimize the assignment of levels and consequently reduce the ground delays. The use of FL300 should also be coordinated with Thailand to alleviate the situation.

2.7 Thailand informed the meeting that RVSM had been implemented successfully. However, there had been some flight planning problems regarding the use of the letter 'W' on the RVSM status of aircraft. There were also some teething coordination issues with Vientiane ACC. These matters had been resolved. Thailand reported that the transition of aircraft from the modified single alternate Flight Level Orientation Scheme (FLOS) to the single alternate FLOS and vice versa was progressing well but it was noticed that controller workload had increased due to the FLOS transition. Thailand recommended that consideration of the use of the single alternate FLOS in the Western Pacific/South China Sea area was necessary since it would eliminate the transition tasks, and greatly reduce air traffic controller workload. Thailand presented traffic movement data for westbound flights into the Bay of Bengal and Beyond. The meeting noted that there were periods when there were no flights utilizing FL300. The meeting agreed that arrangements should be made with Malaysia and Singapore for FL300 to be assigned to westbound departures from Kuala Lumpur and Singapore during these periods.

2.8 IATA expressed concern that there had been several instances when westbound international overflights had to re-route when operating in Indian airspace. India explained that the re-routing was unavoidable on occasions due to traffic bunching at route converging points mainly in the Delhi area.

3. Agenda Item 3: Review the ATC procedures and operations

Air Traffic Flow Management Plan

3.1 IATA presented to the meeting its view of the air traffic operation over the Bay of Bengal. The meeting was reminded that airlines operating long haul flights from Southeast Asia and South Asia over the Bay of Bengal to European destinations had endured lengthy delays, extended routings, unplanned re-routes sometimes resulting in expensive technical stops, and many lost hours and resources. The implementation of the EMARSSH Phase II route structure on 28 November 2002 was expected to relieve congestion but there were many reasons why the original route structure could not be implemented as agreed. It was planned that EMARSSH would provided four independent Asia-Europe flows, however only two independent flows via SAMAR and TIGER, that existed prior to EMARSSH were being operated. With RVSM implementation on 27 November 2003 and the extra levels, the flow was expected to be more effectively managed, and hence a reduction in delays. However, this had not occurred, and there had been no significant improvement in the situation at the departure aerodromes in Southeast Asia.

3.2 It was recognized that the route structure over the Indian sub-continent was not ideal, and could be improved further. IATA pointed out that there were four flows through Kabul, each capable of a throughput of 12 movements per hour based on 10 minutes longitudinal separation and using two flight levels, namely FL310 and FL350. This translated ideally to a total of 48 movements per hour or 96 movements for 2 hours. This assumed the ideal state, where aircraft were evenly spread over the four routes and were flying at the same speed. The actual state could be very different, but even assuming a loss of 30 percent of the capacity, there would be 36 movements per hour or 72 movements for 2 hours. Assuming airlines only use 3 routes instead of 4, the load per route was only 12 per hour. From a statically analysis, it was clear that there was sufficient capacity in the Kabul FIR to meet the present traffic demand. The fact that extensive delays were still being experienced at

Southeast Asia airports, even after RVSM implementation, indicated that the available capacity was not being efficiently utilized.

3.3 IATA suggested that slots had been lost through various reasons involving air traffic management and airline operations. To improve the situation there was a need for more flexible air traffic management including a strategic collaborative and cooperative effort involving several FIRs. The meeting recognized that the airspace arrangements should allow for operators gaining equal access to available slots, which needed to be shared in a transparent manner.

3.4 To provide further relief, IATA requested that the RK/Kandahar route should be expeditiously followed up and implemented, and FL280 was urgently required in the Kabul FIR. IATA also urged ATS service providers to make greater use of radar in the provision of ATC service. The meeting was reminded that the Traffic Orientation Scheme (TOS) previously agreed to by States should be used to re-route traffic when traffic load exceeded the capacity of the route system.

3.5 The meeting agreed that all Bay of Bengal States, including Pakistan and Afghanistan should urgently work towards implementing an Air Traffic Flow Management Plan (ATFMP) as a means to resolving the night-time peak hour traffic delays. In this regard, the meeting recalled that considerable work had already taken place on developing an ATFMP and the issues involved were understood by all parties concerned. As the statistics showed, there was sufficient capacity on the existing Afghanistan routes to meet the present demand for the westbound peak night time traffic flow. However, taking into account future traffic growth and the need to cater for contingency situations such as short notice airspace closures and traffic disruption due to adverse weather over the Bay of Bengal, the meeting agreed that there was a requirement for States to continue their cooperative effort to put in place a comprehensive and permanent ATFMP. The meeting was advised by ICAO that this subject was on the work programme of the Bay of Bengal ATS Coordination Group (BBACG) who would continue to progress this effort.

3.6 The meeting agreed that in the short term, the main concern was to optimize the use of the available airspace by applying a flexible use of available flight levels and routes, and to improve coordination and sharing of flight plan information between the ACCs concerned.

3.7 The meeting in considering short term solutions to the ground delays being experienced at Southeast Asia airports, agreed that improvements could be achieved by adopting a collaborative decision-making approach by the ACCs concerned. In this regard, Bangkok, Kuala Lumpur and Singapore ACCs agreed to compile a common database of the flight planning information of the traffic, and based on this data, the ACCs would review the traffic demand prior to the busy period, and allocate flight levels to achieve an optimum traffic flow. It was recognized that to reduce delays at these airports during their peak traffic period, an additional flight level was required. This could be obtained from making use of FL300 which was assigned to Bangkok ACC for crossing traffic on L301. The meeting agreed that FL300 would be made available for traffic operating on the parallel routes across the Bay of Bengal and priority would be given for its allocation to the airport with the greater traffic demand. In addition, any excess capacity from the No-PDC levels of FL280 and FL320 would also be released for use on all routes by coordination between Bangkok, Kuala Lumpur, and Singapore ACCs. To implement this arrangement, an operational trial would be conducted from 2 February to 28 March 2004.

3.8 In regard to a flexible use of flight levels, the meeting expressed reservations about the effectiveness of the No-PDC arrangements presently being practice as this tended to result in a rigid flight level assignment**.** The meeting noted that the No-PDC arrangement was introduced to alleviate coordination between ACCs during periods of busy traffic and to assure assigned flight levels were available for use by ATC. A rigid application of No-PDC could lead to a lack of flexibility and efficiency by not making use of all available flight levels. The meeting agreed that all flight level assignment for the Bay of Bengal routes should be subject to a flexible approach where

due consideration is given to airports with the higher traffic load. In this context Malaysia, Singapore and Thailand agreed to review their practices and to optimize flight level assignment.

3.9 On the issue of sharing FL300 flexibly amongst Thailand, Malaysia and Singapore to accommodate more aircraft departing Singapore and Kula Lumpur, India informed the meeting that as per agreement between India and Myanmar, a longitudinal separation of 15 minutes between crossing traffic at waypoints MABUR (intersection of L301 and L759) and BUBKO (intersection of N895 and M770) was provided by Yangon ACC. India requested Thailand to ensure that the same separation standard be provided by Yangon ACC by extrapolating the estimates of westbound traffic up to MABUR and BUBKO. Thailand assured the meeting that they would ensure the same longitudinal separation standard at MABUR and BUBKO in coordination with Yangon ACC.

Extension of P628 - ASOPO direct Rahim Yar Khan (RK) and beyond (G452/V390)

3.10 The meeting recalled the official announcement made at the RVSM TF/20 meeting in Delhi (27 – 31 October 2003) in relation to the agreement reached between the key parties to extend ATS route P628 from ASOPO direct to Rahim Yar Khan (RK) VOR, and to lower the minimum enroute altitude (MEA) from FL310 to FL300 across Indian airspace.

3.11 India informed the meeting that it was estimated that the introduction of the extension to P628 (ASOPO direct RK) would reduce the loading on existing routes by up to 30 percent, which would in turn reduce the workload on ATC sectors. India advised the meeting that it was ready to implement the extension of P628 and would coordinate an implementation date with Pakistan.

3.12 Pakistan re-affirmed that approval had been given to implement the extension of P628 from ASOPO direct to RK; however, if introduced immediately, there would be a requirement to limit the lower level to FL310, pending further approval to reduce the lower level to FL300. Pakistan indicated that internal approval to use FL300 may be available within a matter of days.

3.13 Pakistan reminded the meeting that the EMARSSH Project evolved from the IATA JRDG/Pakistan meetings held during 2000 and that under the original EMARSSH plans, there were to be several new parallel ATS routes across Pakistan. However in the short-term, aircraft intending to use the extension of P628 to RK would then be required to route via G452, and B466 to Kandahar and V390 beyond. Pakistan and India agreed to coordinate on issuing a NOTAM on the implementation of the P628 extension on 22 January 2004. In the longer term, Pakistan foreshadowed a need to coordinate interface arrangements with the neighboring FIRs to the west of Afghanistan.

3.14 IATA expressed its appreciation to India and Pakistan for their cooperative efforts in developing plans for the introduction of the extension of P628 from ASOPO direct RK. They anticipated a significant reduction in current delays to aircraft departing Southeast Asia airports, due to the expected reduced loading on ATS routes L750 and L759 as a result of the alternative routing being made available on P628/G452/V390.

3.15 In regard to implementing a new route segment RK-Kandahar (KN), ICAO would coordinate with Afghanistan the Middle East Office and other parties concerned as soon as practicable.

Access to FL280 within the Kabul FIR

3.16 Pakistan informed the meeting that access to FL280 for aircraft transiting the Kabul FIR would resolve some of the RVSM/CVSM transitional issues for westbound traffic and generally improve the flow of traffic across the region.

3.17 The meeting noted the additional capacity enhancements and workload reductions that could be achieved through accessibility to FL280 on specific routes within the Kabul FIR. ICAO advised the meeting that arrangements were being finalized with the Coalition Forces for civil aircraft to operate at FL280 in Afghanistan airspace, and it was anticipated that FL280 would be made available in the near term. ICAO would provide details in due course.

Management of M770 and L759

3.18 Under current operating arrangements, traffic departing Southeast Asia airports westbound on M770 and L759 were considered to be operating on the one ATS route due to the convergence of these routes over India at KKJ.

3.19 The meeting recognized that consideration should be given to operate separate routes, on the understanding that such traffic would be diverging overhead KKJ, whilst under radar coverage. Under this arrangement the following streams would apply:

a) M770/A466 or N644 (in view of the night time use restriction on L333); and

b) L759/L750

3.20 The meeting acknowledged that capacity enhancements could be achieved on M770 and L759 if these were considered to be separated routes south of KKJ. To optimize use of ATS routes L759, M770, P646, and L507, India informed the meeting that an advisory NOTAM would be issued and airline operators would be encouraged to file existing routes L507/P646/M770 - Varanasi - 'BBN' VOR – R460 to exit India via SAMAR, and L759-KKJ- L333 via TIGER. This would provide optimum utilization of the routes and help decongestion of traffic on a particular route. In order to facilitate this enhanced traffic management plan, it was further suggested that aircraft operating on M770 would then proceed via P646/R460/A466, and that traffic operating on L759 would continue via L333 to L750. India advised that they could accommodate this arrangement of traffic flows. Pakistan advised the meeting that due consideration should be given to ensure the routes through Kabul FIR were not overloaded. The meeting agreed to an operational trial commencing on 2 February to 28 March 2004. The States involved would coordinate the operational procedures for this arrangement and information would be published by NOTAM in consultation with IATA.

3.21 IATA supported the proposal and would coordinate with airlines on flight planning for the use of these routes. Airlines would be encouraged to operate in accordance with this traffic flow arrangement.

3.22 The meeting was advised by an airline representative that the speed restriction applied on L759 which required aircraft to be capable of flying at M 0.84 posed difficulties for some aircraft types. Apparently, it was not possible for a B777 and some similar aircraft types to fly at M0.84 at FL280. The meeting felt that this should be subject of a further study. Meanwhile, the meeting would consider other means of applying the MNT to achieve the best results on L759.

4. Agenda Item 4: Review the transition procedures for the Kabul FIR

4.1 The meeting reviewed the operation of the transition procedures by Pakistan for traffic transiting the Kabul FIR. The meeting recalled that RVSM/TF/20 agreed to restrict the traffic operating on A466 and N644 and diverging at Dera Ismail Khan (DI) to 2 aircraft at a time, with the two routes being treated as one. However, traffic from Delhi airport may be accepted at FL280 with the provision that Delhi ACC ensures 5 minutes longitudinal separation and the aircraft was proceeding on a different route. The meeting agreed that at times when FL280 was not being used by Delhi departures that this level should be made available to other aircraft in the system.

5. Agenda Item 5: Letters of Agreement

5.1 The meeting agreed that States should review existing LOAs in particular to take into account the matters agreed concerning changes to operational procedures between ACCs.

6. Agenda Item 6: Other Business

Long-Term improvements

6.1 The meeting identified the following improvements that could be achieved over the long term for operations over the Bay of Bengal and Beyond:

- ICAO Route Review Task Force – first meeting planned in May 2004)
- Integrated ATFM system
- Progress Kabul/ Western interface with adjoining FIRs
- Establish full/remainder of EMARSSH routes
- Integration of ATM systems (e.g. ADS/CPDLC and ADS-B)
- Reduction of longitudinal separation standards to 50NM
- Improvements to ATS infrastructure in Kabul FIR

6.2 ICAO reminded the meeting that considerable time and effort had been put into dealing with the air traffic management issues for the Bay of Bengal and Beyond area by States and international organizations during the past year. Some progress has been made to improve the situation but there remained considerable work to be done which would be undertaken by BBACG.

6.3 The meeting was encouraged to provide detailed information on their operational issues and planning to enhance their CNS/ATM systems, including traffic movement data for the RVSM/TF/21 90-day Review Meeting scheduled on 8-12 March 2004. In this regard, all ATS providers involved were requested to provide traffic movement data for the 24 hour periods from 19 to 25 January and 16 to 22 February 2004 using a standard format, as shown in **Appendix D**. It was stressed that the actual times of aircraft operation showing the hourly breakdown must be provided.

6.4 The meeting agreed to the list of tasks as shown in the Action Plan in **Appendix E**.

7. Closing of the Meeting

7.1 Mr. Sydney Maniam expressed appreciation to the ICAO Asia and Pacific Office for the arrangements in hosting the meeting. He commended all staff involved for their warm hospitality and support for the meeting. He also thanked all participants for their active participation which contributed to the successful completion of the meeting.

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LIST OF PARTICIPANTS

STATE/NAME	DESIGNATION/ADDRESS	CONTACT DETAILS
AUSTRALIA		
Mr. Ron Rigney	Operations Manager (International Activities) Brisbane Centre Air services Australia Locked Bag 747 Eagle Farm QLD 4009 Australia	Tel: 61-7-3866 3487 Fax: 61-7-3866 3599 E-mail: ron.rigney@airservicesaustralia.com
INDIA		
Mr. K. Gohain	Joint Director General Department of Civil Aviation Technical Centre, Opposite Safdarjung Airport New Delhi 110003 India	Tel: +91 11 2462 9539 Res: +91 11 2467 9251 Mobile: +91 98 9100 9091 Fax: +91 11 2463 3140
Mr. R.C. Khurana	General Manager (ATM) Airports Authority of India Rajiv Gandhi Bhawan Safdarjung Airport New Delhi India	Tel: +91 11 2465 2648 Fax: +91 11 2461 1078 E-mail: gmatmchqnad@airportsindia.org.in
Mr. M.C. Dangi	Deputy General Manager (ATM) Airports Authority of India Rajiv Gandhi Bhawan Safdarjung Airport New Delhi, India	Tel: +91 11 2461 0204 2463 2950 ext 2227 Fax: +91 11 2461 1078 E-mail: mcdangi@airportsindia.org.in
MALAYSIA		
Mr. Ghazali Said	Deputy Director, Air Traffic Control Center Department of Civil Aviation Malaysia Block A, Air Traffic Control Complex Sultan Abdul Aziz Shah Airport 47200 Subang, Selangor Durul Ehsan Malaysia	Tel: +603-7847 3573 Fax: +603-7847 3572
Mr. Tay Swee Boon	Air Traffic Control Officer Department of Civil Aviation Malaysia Block A, Air Traffic Control Complex Sultan Abdul Aziz Shah Airport 47200 Subang, Selangor Durul Ehsan Malaysia	Tel: +603-7847 3573 E-mail: taysboon@tm.net.my
Capt. Awtarjet Singh	Fleet Manager B747 Flt Ops Division Malaysia Airlines (MAS) Grd Flr East Wing, FMB KLIA 64000 Sepang, Selangor Malaysia	Tel: +603-85255329/55308 Fax: +603-85255313 E-mail: jets@mas.com.my

STATE/NAME	DESIGNATION/ADDRESS	CONTACT DETAILS
PAKISTAN		
Mr. Zahid H. Khan	General Manager ATS HQCAA, Terminal-1 JIAP, Karachi—75200 Pakistan	Tel: +92-21-9248756 Fax: +92-21-9248758 Telex : 29534DGCA PK E-mail: gmats@cyber.net.pk zhkjiap@hotmail.com
Mr. S. Kausar A. Jafri	Manager Routes & Navigation's Flight Operations Pakistan International Airlines Karachi Airport Pakistan	Tel: +92-21-45794478 Fax: +92-21-4574154 E-mail: jafri@piac.com.pk
SINGAPORE		
Mr. Sydney Maniam	Head (Standards) Civil Aviation Authority of Singapore Singapore Changi Airport P.O. Box 1 Singapore 918141	Tel: 65-6541-2456 Fax: 65-6545-6516 E-mail: sydney_maniam@caas.gov.sg
Mr. Rosly Saad	Deputy Chief SATCC Civil Aviation Authority of Singapore Singapore Changi Airport P.O. Box 1 Singapore 918141	Tel: +65-6541-2430 Fax: +65-6545-6252 E-mail: rosly_saad@caas.gov.sg
THAILAND		
Mr. Tinnagorn Choowong	Air Traffic Control Manager Bangkok Area Control Centre Aeronautical Radio of Thailand Ltd. 102 Ngamduplee, Rama 4 Rd. Sathorn Bangkok, Thailand 10120	Tel: +66-2-285 9975 Mobile: +66-9-8166486 Fax: +66-2-285 9406 E-mail: tinnagorn.ch@aerothai.co.th
Dr. Pasit Herabat	Senior Systems Engineer ATS Operations Bureau AEROTHAI 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel: +66-2-287 8154 Fax: +66-2-287 8155 E-mail: paisit@aerothai.co.th maar@aerothai.co.th
Capt. Werasak Wiroonpetch	Manager, International Aviation Affairs & Development Department Thai Airways International Public Co, Ltd 89 Vibhavadi Rangsit Rd Bangkok 10900, Thailand	Tel: 66-2-545 2665, 545-2666 Fax: 66-2-545 3849 E-mail: werasak.w@thaiairways.com
IATA		
Mr. Soon Boon Hai	Assistant Director, Safety Operations & Infrastructure – Asia/Pacific International Air Transport Association 77 Robinson Road #05-00 SIA Building Singapore 068896	Tel: +65-6239 7267 Fax: +65-6536 6267 E-mail: soonbh@iata.org

STATE/NAME	DESIGNATION/ADDRESS	CONTACT DETAILS
Mr. Owen B. Dell	Manager, International Operations Cathay Pacific Airways Limited International Affairs Department 9/F Central Tower, Cathay Pacific City 8 Scenic Road Hong Kong International Airport Lantau, Hong Kong, China	Tel: +852 2747 8829 Fax: +852 2141 8829 SITA: HKGVLCX E-mail: owen_dell@cathaypacific.com
Capt. Aric Oh	Management Pilot - Technical Singapore Airlines 161 Tai Keng Gardens Singapore 535433	Tel: +65-6540 3694 Fax: +65-6542 9564 E-mail: aric_oh@singaporeair.com.sg ciraho@pacific.net.sg
Mr. Matthew Bouttell	Navigation Analyst Qantas Airways 203 Coward St Mascot NSW Australia	Tel: +61-2-9691 1034 Fax: +61-2-9691 1118 E-mail: mbouttell@qantas.com.au
ICAO		
Mr. David J. Moores	Regional Officer, ATM ICAO Asia and Pacific Office 252/1 Vibahvadi Rangsit Road Ladyao, Chatuchak Bangkok 10900, Thailand	Tel: +66-2-537 8189 ext 151 Fax: +66-2-537 8199 E-mail: dmoores@bangkok.icao.int icao_apac@bangkok.icao.int

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LIST OF WORKING PAPERS (WPs) AND INFORMATION PAPERS (IPs)

NUMBER	AGENDA	WORKING PAPERS	PRESENTED BY
WP/1	1	Provisional Agenda for SCM/RVSM/IND-PAK	Chairperson
WP/2	2	RVSM Transition between India, Pakistan, and Afghanistan	Secretariat
WP/3	3	Air Traffic Flow Management for the Bay of Bengal	IATA

NUMBER	AGENDA	INFORMATION PAPERS	PRESENTED BY
IP/1	-	Order of Business	Secretariat

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AGENDA FOR SCM/RVSM/IND-PAK

Agenda Item 1: Adoption of Agenda

Agenda Item 2: Review the RVSM Operational Plan

Agenda Item 3: Review the ATC procedures and operations

Agenda Item 4: Review the transition procedures for the Kabul FIR

Agenda Item 5: Letters of Agreement

Agenda Item 6: Other Business

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Appendix D

RVSM IMPLEMENTATION IN THE BAY OF BENGAL AND BEYOND

TRAFFIC DATA TEMPLATE

COLLECTION OF TRAFFIC MOVEMENT FOR THE PERIODS: **DATA FOR THE PERIODS:** **19 to 25 January 2004 and 16 to 22 February 2004**

Traffic movement should include departures and overflights in the Bay of Bengal airspace

Definitions

Date	Date in the format of DD/MM/YY
Aircraft Call Sign	Call sign of the aircraft
Aircraft Type	ICAO code name of aircraft type according to the ICAO Doc 8643
Departure Aerodrome	Code name of origin aerodrome of the flight
Destination Aerodrome	Code name of destination aerodrome of the flight
Estimated Time of Departure (ETD)	Estimated time of departure of the flight in UTC
Revised ETD	Revised estimated time of departure of the flight in UTC
Actual Time of Departure (ATD)	Actual time of departure of the flight in UTC
Flight Plan Level	Planned flight level of the flight
Final Level Assigned	Final cruising level assigned to the flight
Route 1	Initial flight plan route of the flight
Route 2	Subsequent flight plan route of the flight
Entry Time	Entry Time over FIR Boundary or Transfer of Control Point
Exit Time	Exit Time over FIR Boundary or Transfer of Control Point
Remarks	Other relevant information

Date DD/MM/ YY	Aircraft Call Sign	Aircraft Type	Departure Aerodrome	Destination Aerodrome	Estimated Time of Departure (ETD)	Revised ETD (if applicable)	Actual Time of Departure (ATD)	Flight Plan Level	Final Assigned Level	Route 1	Route 2 (including changes in route segment)	Entry time at FIR Boundary or Transfer of Control Point	Exit time at FIR Boundary or Transfer of Control Point	Remarks

ACTION PLAN

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	Status	REMARKS
1.	Introduce flexible use of FL300 on Bay of Bengal routes	2 February 2004	Thailand, Malaysia, Singapore		Thailand, Malaysia and Singapore to establish a common flight plan database for the peak westbound traffic flow
2.	Implement new segment on P628 ASOPO to RK	NOTAM 22 January 2004	India and Pakistan		Pakistan to coordinate lowering of the MEA to FL300
3.	Review the fixed mach number procedure using of Mach 0.84 on L759	Immediate	IATA		Fixed MNT to be applied only when required by ATC. Consideration to be given to aircraft Mach number display in the B777
4.	Pursue additional flight levels in Kabul FIR	On-going	ICAO		Coalition considering approval of FL280
5.	Use of L759/L750 and M770/A466 and N644 as separate routes	2 February-28 March 2004	Thailand, Malaysia, Singapore, India an Pakistan		To enhance traffic management in the BOB and reduce ground delays
6.	Develop a westbound Air Traffic Flow Management Plan (ATFMP)	On-going	All concerned States, ICAO, IFATCA, IFALPA, IATA		States/IATA to review progress and report to BBACG/14
7.	Establishment of route segment RK to KN	Immediate	ICAO	Pakistan approved introduction of route segment in Pakistan airspace	Coordination with all parties concerned for extension of the route in Afghanistan airspace
8.	Collect traffic movement data for the Bay of Bengal routes	19-25 January & 16-22 February 2004	All States in Bay of Bengal		For review by 90-Day RVSM/TF/21 meeting

? END?