INTERNATIONAL CIVIL AVIATION ORGANIZATION
ASIA AND PACIFIC OFFICE

REPORT OF THE TWENTIETH MEETING OF THE ICAO REDUCED VERTICAL SEPARATION MINIMUM IMPLEMENTATION TASK FORCE (RVSM/TF/20)

NEW DELHI, INDIA

27 – 31 OCTOBER 2003

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

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1.1 Introduction

1.1.1 The Twentieth Meeting of the Reduced Vertical Separation Minimum Implementation Task Force (RVSM/TF/20) was held at New Delhi, India from 27 to 31 October 2003 hosted by the Airports Authority of India.

1.2 Attendance

1.2.1 The meeting was attended by 46 participants from 11 States: Australia, Bangladesh, India, Indonesia, Malaysia, Maldives, Nepal, Pakistan, Singapore, Sri Lanka, and Thailand, and 2 international organizations: IATA and IFALPA. 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 J. Moores, Regional Officer ATM from the ICAO Asia and Pacific Office, Bangkok served as the Secretary for the meeting.

1.3.2 Mr. Yusfandri Gona, Head of Performance & Flight Test Section, Directorate General Air Communication (DGAC) Indonesia, and Mr. Ron Rigney, Operations Manager (International Activities), Airservices Australia, continued as Chairman of the Aircraft Operations & Airworthiness Work Group (OPS/AIR/WG) and of the ATC Operations Work Group (ATC/WG), respectively. Mr. Nopadol Sangngurn, Vice-President, Business Development Bureau, AEROTHAI, was the Chairman of the Safety & Airspace Monitoring Work Group (SAM/WG).

1.4 Opening of the Meeting

1.4.1 The Airports Authority of India opened the meeting with an Inauguration Ceremony officiated by Mr. S. K. Narula, Chairman Airports Authority of India (AAI), Dr. Nasim Zaidi, Joint Secretary, Ministry of Civil Aviation, Mr. K. Ramalingam, Member (Planning and Operations), AAI and Mr. K. Gohain, Joint Director General of Civil Aviation, India.

1.4.2 Mr. Narula in his address welcomed the members of the ICAO RVSM Task Force to Delhi for this important meeting. He recognized the important contribution RVSM implementation in the Bay of Bengal area would make to improve airspace capacity, a problem experienced in many parts of the world. It was heartening to learn that the ICAO Office for the Asia and Pacific Region, its contracting States and other international organizations such as the International Air Transport Association (IATA), the International Federation of Airlines Pilots' Associations (IFALPA) and the International Federation of Air Traffic Controllers' Associations (IFATCA) had been taking various steps to enhance airspace capacity to meet the increasing demands of the air transport industry. He was confident that adequate and appropriate steps were being taken by the aviation experts to ensure that increasing airspace capacity by reducing the vertical separation minimum would in no way dilute applicable safety standards.

1.4.3 He outlined the efforts being made by the AAI to upgrade and expand the infrastructure facilities at airports owned by AAI, which was a continuous process being taken-up on the basis of requirements projected by airlines and other users.

1.4.4 Mr. Narula considered it a great privilege and honour that India was hosting the 20th meeting of the ICAO RVSM Task Force in Delhi. The meeting was important and significant for all concerned as the crucial decision of "Go" or "No-go" in respect of implementation of RVSM would be taken by this meeting. He wished the meeting all success.

1.4.5 Mr. K. Ramalingam welcomed delegates to India for the 20th meeting of the ICAO RVSM Task Force for implementation of RVSM in the Bay of Bengal and Beyond area in conjunction with the Middle East Region. On 28 November 2002, India along with other States in the Asia and Pacific Region had successfully implemented the revised ATS Route Structure Asia to the Middle East/Europe, South of the Himalayas, known as EMARSSH. This was possible due to well coordinated and cooperative efforts of all participating States and international organizations and through the able initiatives and guidance of ICAO. Consequently, airspace capacity had increased significantly in India. However, at certain geographical locations over Kolkata, Khajuraho, Delhi and the Delhi/Karachi FIR boundary, traffic congestion remained high with air traffic converging through multiple ATS routes especially at night. The AAI was earnestly coordinating with Defence authorities to implement new route segments and lowering of the minimum enroute altitude without convergence, and to gain additional flight levels for overflying traffic. The implementation of RVSM would further enhance airspace capacity and offer aircraft more flight level choice.

1.4.6 Mr. Ramalingam informed the meeting of AAI's plan to introduce the Global Satellite Navigation System (GNSS), Space Based Augmentation System (SBAS) and Ground Based Augmentation System (GBAS) at AAI airports. Also, automatic dependent surveillance (ADS) and controller-pilot data link communications (CPDLC) have been installed at Chennai and Kolkata for surveillance of air traffic in oceanic airspace of India in the Bay of Bengal. AAI was in the process of installing ADS and CPDLC at Mumbai to cover the oceanic airspace of the Arabian Sea. India has made significant progress in the implementation of the CNS/ATM system. He expressed his best wishes to the delegates for a successful outcome to the RVSM Task Force Meeting.

1.4.7 Mr. K. Gohain welcomed members of the RVSM Task Force to Delhi for this most significant meeting. He was particular pleased to meet colleagues with whom he had worked at many ICAO meetings. On this occasion, the Task Force was completing a major implementation programme that would be of considerable benefit to airspace users and ATS providers. The RVSM implementation plan involved a wide area of aircraft and airspace operations. A key element to the successfully implementation of RVSM was the airworthiness and operational approval of operators and aircraft. The Director General Civil Aviation, India, as the regulatory authority, had taken all necessary steps to ensure that the Indian aircraft operators met the ICAO RVSM requirements including training of flight crews. Considerable attention had been given to aircraft maintenances requirements to make sure that aircraft continued airworthiness took into account RVSM requirements. It was noteworthy that the majority of the Indian registered aircraft capable of RVSM operations would receive the necessary approvals to meet the implementation date of 27 November 2003.

1.4.8 Mr. Gohain was pleased to see the effort made by the RVSM Task Force to address safety issues as this was the primary concern when major airspace changes were being implemented. The attention to safety detail could not be understated and the "Go" "No-Go" decision to be made by the Task Force must ensure all safety requirements were met. He commended the Task Force members for the excellent work accomplished and looked forward to a successful outcome to this meeting.

1.4.9 Mr. David Moores, on behalf of Mr. L.B. Shah, Regional Director, ICAO Asia and Pacific Regional Office in his address thanked the AAI for their warm and generous hospitality in hosting this very significant meeting of the ICAO RVSM Task Force. The implementation of RVSM on 27 November 2003 would be a major achievement, and bring significant benefits to airspace users and ATS providers as RVSM would link the airspaces of the North Atlantic, Europe, the Middle East, Asia and the Pacific.

1.4.10 He noted that the benefits of RVSM had a significant impact on reducing departure and en-route delays, improving operational efficiency, increasing airspace capacity by enabling aircraft to operate closer to their optimum flight profiles and reducing fuel consumption. RVSM implementation brings with it considerable challenges to the civil aviation community, from aircraft

manufactures, to aircraft operators, regulatory and safety authorities, airspace planners and ATS providers. A significant safety benefit had been the establishment of airspace safety management practices involving wide cooperation across national borders and between many agencies. This has brought new levels of safety management into operational air traffic.

1.4.11 The RVSM effort worldwide has been a collective achievement of all parties involved, and we especially pay tribute to the dedicated professionals who served on the ICAO Asia and Pacific RVSM Task Force in making it possible for RVSM to be successfully implemented in the Pacific, and South China Sea areas. In arriving at the decision whether to go ahead with implementation in the Bay of Bengal and Beyond area to link up with the Middle East Region, the issues to be considered by the Task Force would be carefully and thoroughly considered, and the decision based on technical and safety grounds.

1.4.12 Mr. Sydney Maniam on behalf of the ICAO RVSM Task Force for the Asia Pacific Region expressed sincere appreciation to the Airports Authority of India for the generous hospitality and support in hosting the meeting. He stressed that the meeting was a siginificant milestone in the implementation process where the Task Force would review the readiness of States to implement RVSM on 27 November 2003. He added that India was recognized as a key player in the ICAO RVSM Implementation Plan. Therefore it was fitting that the RVSM/TF/20 meeting was held in New Delhi to make the final decision to go ahead with the implementation of RVSM in the Bay of Bengal and Arabian Sea areas. In conjunction with the Middle East Region, the implementation of RVSM would result in seamless RVSM operations for traffic flows from Asia to the Middle East and Europe. The Task Force was confident that all preparations would be completed to meet the target date for implementation on 27 November 2003.

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 Seven Working Papers and five Information Papers were presented to the meeting. A list of papers is included at **Appendix B**.

Agenda Item 1: Adoption of Agenda

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

Agenda Item 2: Operational Considerations

Readiness reports of States

2.1.1 The meeting was updated on the readiness of States to implement RVSM in the Bay of Bengal and Beyond on 27 November 2003.

Bangladesh

2.1.2 Bangladesh informed the meeting that action was being taken to complete the RVSM Implementation Plan. Agreement had been reached with India on airspace arrangements and a Letter of Agreement (LOA) was being put in place. Dhaka ACC was responsible for providing the air traffic services for the Dhaka FIR except for a portion of the airspace to the southwest containing ATS route L507, which was delegated to Kolkata ACC. The flight level allocation scheme that had been agreed by the RVSM Task Force would be adopted, which required that eastbound levels FL310, 350 and 390 not to be assigned on A599, A201 and B465 in the Yangon FIR. An AIP Supplement was being prepared and would be issued within a week. In addition, the reports on large height deviation (LHD) from January to September 2003, as required by the Monitoring Agency for the Asia Region (MAAR) for the safety assessment were provided to the meeting.

2.1.3 In regard to RVSM training for controllers, Bangladesh requested ICAO to provide assistance to train 10 controllers. Recognizing the short time available, the meeting suggested that the Civil Aviation Authority of Singapore should be approached as they had successfully provided training for Myanmar in early October 2003, and that this training programme would be readily available. The Secretariat advised the meeting that this would be looked into immediately, and requested that details of Bangladesh's requirements be sent by letter to the Bangkok Office.

India

2.1.4 India informed the meeting that RVSM would be implemented in the Chennai, Delhi, Kolkata and Mumbai FIRs of India on 27 November 2003. The continental airspace of India had been designated as non-exclusive RVSM airspace. The oceanic airspace of India in the Bay of Bengal and Arabian Sea areas had been designated as exclusive RVSM airspace.

2.1.5 The AIP Supplement on RVSM Policies and Procedures applicable in Indian FIRs had been published (SI. No. 24/2003). In addition, a trigger NOTAM would be issued on the date agreed by this meeting.

2.1.6 The LOAs with neighbouring FIRs of Colombo, Karachi, Kuala Lumpur, Lahore, Muscat, and Saana have been proposed to the ATS authorities of the FIRs concerned. Draft LOAs with Dhaka, Male, Mauritius, Medan, Mogadishu, Seychelles and Yangon have been dispatched and replies from the States were awaited.

2.1.7 In regard to training, an ATC training manual had been prepared for training of controllers and was being utilized by Regional Training Cells. Training of ATCOs for familiarization with the RVSM environment commenced on 13 October 2003 at all Regional Training Cells. For other major ACCs, such as Nagpur and Ahmedabad training would commence in the first week of

November 2003. AAI aims to complete the training of controllers by 3rd week of November 2003. Wherever feasible, refresher training would also be conducted for those controllers working during the ATC transition period of 0200 to 0400 UTC on 27 November 2003. AAI has an agreement with Airservices Australia to carry out controller training.

2.1.8 In India all the eleven ACCs were radar equipped, and the required modification to FDPS, RDPS and Flight Progress Strip Printing systems were being done.

2.1.9 RVSM was not being implemented in the FIRs of Mauritius, Mogadishu and Seychelles and a significant portion of Mumbai FIR abuts these FIR boundaries. There were six ATS routes which joined Mumbai FIR with Mauritius, Mogadishu and Seychelles FIRs. The southwest portion of the Mumbai FIR was largely served through HF RT. India had proposed a flight level allocation scheme on each of these routes for the respective FIRs. Subject to coordination and agreement with Mauritius, Mogadishu and Seychelles, Mumbai FIC should be able to achieve smooth and effective transition of aircraft from CVSM to RVSM levels and vice versa.

Indonesia

2.1.10 Indonesia presented an update on its preparation for the second phase of RVSM implementation within Bali, Jakarta, and Ujung Pandang FIRs on 27 November 2003. In this phase, procedures would be harmonized with neighboring States, which was key to the successful implementation of RVSM in the Bay of Bengal and Beyond area.

2.1.11 ATC procedures had been revised to apply 1,000 ft vertical separation minimum between RVSM approved aircraft operating within all Indonesian FIRs from FL310 to FL410. However, on EMARSSH phase 2 routes connecting Southeast Asia and the Middle East Region, RVSM would be implemented from FL290 up to FL410, as well as for the ATS routes connecting Jakarta FIR within Brisbane and Melbourne FIRs.

2.1.12 The coordination procedures to facilitate operation of RVSM between the respective en-route sectors and ACCs in Indonesia and also with adjacent FIRs, would be finalized at this meeting and incorporated in the Supplementary Letters of Operational Agreement with the FIRs concerned.

2.1.13 The classroom and simulation of RVSM training of air traffic controllers would be completed by October 2003. This training would cover the whole aspects of RVSM operations and was designed to keep controllers updated on RVSM implementation.

2.1.14 Publication of AIP Supplement No. 07/03 was done on AIRAC date 2 October 2003. In this regard, the meeting suggested that it would be helpful for operators if the EMARSSH phase 2 routes where RVSM would be implemented were specified in detail. A trigger NOTAM would be issued in accordance with the agreement of this meeting.

Malaysia

2.1.15 Malaysia reported that planning had been completed for the implementation of RVSM on 27 November 2003. The AIP Supplement 26/2003 was published on 18 September 2003.

Maldives

2.1.16 Maldives reported that their implementation planning had been completed for the Male FIR. The AIP Supplement had been published and a copy would be provided to the ICAO Asia and Pacific Office.

Myanmar

2.1.17 The Secretariat presented information provided by Myanmar on their implementation arrangements. RVSM will be implemented on all routes in the Yangon FIR between FL 290 to FL410 in exclusive airspace in accordance with the RVSM Implementation Plan. Transition procedures had been prepared for ATS route A599 between Yangon FIR and Kunming FIR for transition to/from China metric to RVSM levels. The flight level allocation scheme for routes in the Yangon FIR had been coordinated with the RVSM Task Force and included in the Myanmar AIP Supplement which would be issued in the first week of November 2003.

2.1.18 ATC procedures had been coordinated with adjacent States through the ICAO Bangkok Office and the LOAs would be actioned as required. This will include the uniform application of 10 minutes longitudinal separation using the Mach number technique (MNT).

ATC operational enhancements

2.1.19 The Myanmar ATS communications suffers from technical deficiencies and planning has been completed to upgrade these facilities. In the interim, to provide back-up VHF coverage for the Yangon ACC for aircraft operating in the northern part of the Yangon FIR (Sector 1) on ATS routes A599, A201 and B465, use would be made of Mandalay ATC's capability to operate on the Yangon ACC en-route frequency 133.2 MHz. Mandalay ATC operates 133.2 MHz from a local transceiver located at Mandalay Airport, which has back-up battery power. A link was also available to the extended range 133.2 MHz RCAG station at Lashio used by Yangon ACC. ATC operating procedures have being revised to authorize Mandalay ATC to operate 133.2 MHz in the event of a loss of communications at the Yangon ACC. Coverage on 133.2 MHz at Mandalay is approximately 200 NM, which includes the Lashio (LSO) VOR and LINSO (transfer of control point on the Kunming/Yangon FIR boundary) areas on A599, and to the west to CHILA on A599 and ANSOS on A201. However, there were some blind spots to the northeast in the vicinity of LINSO. Yangon HF was also being monitored by Mandalay ATC. Direct speech circuits are provided between Yangon ACC and Mandalay ATC for ground/ground communication on VSAT, IDD and HF. AFTN is also available and aircraft flight plans were being provided to Mandalay Approach Control by Yangon ACC for overflying traffic. A NOTAM had been issued requesting operators to address their flight plans to Mandalay APC.

2.1.20 An ATC operational trial of Mandalay's 133.2 MHz commenced on 23 October 2003, and early results on the first day were promising, with all 67 flights operating on A599 and A201 in radio contact with Mandalay ATC. In addition, ADS/CPDLC is available on operational trial at Yangon ACC and a NOTAM will be re-issued providing details of the trial and the logon procedure.

2.1.21 The above measures were expected to provide significant improvements to controller/pilot communications and if the trial was successful, this would be made permanent until Yangon ACC communications were improved.

2.1.22 In addition, Mandalay APC operates primary and secondary radar with coverage of most of the area including A599 and A201. Mandalay APC will monitor traffic on these routes and provide information to Yangon ACC. With the availability of the flight plans at Mandalay, the radar flight data processor is manually updated and SSR labels provided.

Transition procedures from China metric to RVSM flight levels on A599

2.1.23 Myanmar had published RVSM transition procedures in AIC 03/03 for A599 between Kunming and Yangon FIRs for China metric and RVSM levels. In light of discussions at the Special ATS Coordination Meeting on the Air Traffic Flow Management Plan (SCM/ATFMP) for the Bay of Bengal area held at Bangkok on 13-15 October 2003, which Myanmar attended, AIC 03/03 would be cancelled and replaced by transition procedures to be discussed with China at a meeting in Yangon on 3 November 2003. Following the SCM/ATFMP meeting, China had been requested to consider three options for transition from China metric to RVSM levels for westbound traffic on A599 as follows:

Option 1: Kunming ACC to carry out transition from China metric levels 9600m, 10800m and 12000m to RVSM FL320, 360 and 380 respectively in the Kunming FIR. This would require China to establish an RVSM transition area on A599, e.g. between Gengma (GMA) VOR and LINSO;

Option 2: Aircraft to maintain China metric levels 9600m, 10800m and 12000m to position LINSO and to be instructed by Kunming ACC to change to RVSM FL320, 360 and 380 respectively after passing LINSO (transition to take place in the Yangon FIR); and

Option 3: The existing transition arrangements from China metric to non-RVSM FL310, 350 and 390 to remain in effect, and the transition to RVSM FL320, 360 and 380 to be carried out by Yangon ACC in the Yangon FIR between LINSO and LSO VOR.

IATA had advised SCM/ATFMP that they preferred Option 1, as this was operationally the most optimum arrangement.

2.1.24 In line with the flight level allocation scheme agreed by the RVSM Task Force, FL 310, 350 and 390 would not be used by India for eastbound flights on A599 and A201, and the existing transition arrangement for FL290, 330, 370 and 410 to China metric levels would continue. Under this arrangement, Kunming ACC carried out the transition in the Kunming FIR between LINSO and GMA VOR on A599.

ATC Training

2.1.25 With the generous assistance of the Civil Aviation Authority of Singapore and coordination by the ICAO Bangkok Office, RVSM training was successfully carried out in Yangon from 13 to 19 October 2003 for 40 air traffic controllers.

2.1.26 The meeting noted with appreciation the substantial effort made by Myanmar in response to the concerns of the RVSM Task Force to improve communications and ATS for the Yangon FIR. The meeting requested IATA to obtain pilot reports on the quality of the radio and service being provided by Mandalay ATC.

2.1.27 The meeting recognized that availability of adequate communications for ATC was essential for implementation of RVSM. In view of the communication enhancements being put in place by Myanmar and commencement of the operational trail at Mandalay on 23 October, the meeting agreed that an assessment of the results should be done prior to RVSM implementation. Accordingly, ICAO Bangkok Office was requested to coordinate with Myanmar and IATA to obtain information on the outcome of the operational trial.

Nepal

2.1.28 Nepal informed the meeting that they had completed their RVSM implementation plans. The AIP Supplement would be published this week and a copy would sent to the ICAO Asia and Pacific Office.

Pakistan

2.1.29 Pakistan informed the meeting they had completed their RVSM implementation plan as required by the RVSM Task Force. The AIP Supplement S-07/2003 had been published. In regard to training, a group of 10 ATCOs underwent training abroad and they are conducting training to other controllers. RVSM training was expected to be completed well before the implementation date on 27 November 2003.

Sri Lanka

2.1.30 Sri Lanka reported that they had completed their RVSM implementation plan as required by the RVSM Task Force. The AIP Supplement A04/03 had been published. In regard to training, Malaysia has agreed to support Sri Lanka to complete its RVSM ATC training, which was expected to be completed before the RVSM implementation date of 27 November 2003.

Singapore

2.1.31 Singapore reported that they had completed their RVSM arrangements, which involved harmonizing their RVSM airspace with Indonesia from FL310 to FL410. The LOAs with adjacent States would be finalised at the meeting and signed prior to 27 November 2003. A NOTAM would be issued specifying the ATS routes where changes to RVSM levels would apply.

Thailand

2.1.32 Thailand reported that they had completed their RVSM arrangements and published the AIP Supplement.

Publication of AIP Supplement

2.1.33 The meeting noted that apart from Bangladesh and Myanmar who were preparing to issue their AIP Supplements, all other States had issued their AIP Supplements.

Provision of ATS communications

2.1.34 In regard to the above, IATA and IFALPA stressed the importance of States meeting their obligations to provide adequate ATS communications. They also urged States of surrounding FIRs experiencing poor communications to closely monitor the release and acceptance of aircraft in and out of such areas, and to assist operators in relaying pertinent information to the appropriate ACCs.

Report of the ATC Operations Work Group

2.1.35 The ATC Operations Work Group considered the issues related to operational matters for the implementation of RVSM. The meeting reviewed the report of the Work Group.

RVSM Operational Implementation Plan

2.1.36 The meeting reviewed the updates from States on their readiness to implement RVSM on 27 November 2003, noted that two States had yet to publish their respective AIP Supplements, and these were expected to be published by 7 November 2003. In view of the remaining time available, it was suggested that these States be reminded by ICAO to take appropriate NOTAM action as soon as possible. A summary sheet of the status of RVSM implementation readiness by States is shown at **Appendix D.**

Assignment of Flight Levels

2.1.37 The meeting reviewed the Flight Level Allocation Scheme (FLAS) for the Bay of Bengal oceanic and Indian continental airspace, which had been updated at the second meeting of the Joint Coordination Meeting of the ASIA/MID RVSM task Forces (JCM-RVSM MID/ASIA/2) in Abu Dhabi, United Arab Emirates on 27 – 28 August 2003.

2.1.38 As a result of this final review, several minor changes were made in respect to P646 and L507 eastbound within the Bay of Bengal oceanic area, and the inclusion of a reference to "Note 2" under the table for A791/A791E, N877 – Eastbound for International Traffic over Continental India (0001 – 1600 UTC). A summary of the final FLAS arrangements is shown at **Appendix E.**

RVSM/CVSM transition between India, Pakistan and Afghanistan

2.1.39 The meeting focused on several key issues relating to westbound RVSM/CVSM transition arrangements and related air traffic flow management procedures (ATFM) between India, Pakistan and Afghanistan.

2.1.40 For westbound traffic departing Indian airspace, the meeting noted that there were two primary exit points, TIGER and SAMAR, and that Pakistan would be responsible to complete the transition from RVSM to CVSM for aircraft entering the Kabul FIR.

2.1.41 Pakistan informed the meeting that due to the capacity limitations in Afghanistan, it was currently proving very difficult for Pakistan to facilitate departures from Islamabad and Lahore into the westbound traffic flow, noting that such departures would normally prefer to be routed via A466 (SANAM).

2.1.42 India also informed the meeting of regular occurrences where Delhi departures westbound were delayed on the ground, due to the unavailability of levels, which were being occupied by long-haul international flights, enroute from Southeast Asia to Europe, and which were being sequenced into the Kabul FIR at flight levels FL310, FL350 and where possible, FL390.

2.1.43 In noting the current traffic management issues faced by India and Pakistan, the meeting was reminded that these traffic problems were the subject of an overall assessment and review by the Air Traffic Flow Management Group within the Bay of Bengal ATS Coordination Group (BBACG).

2.1.44 India expressed a concern regarding the possibility of Singapore, Kuala Lumpur and Bangkok increasing the departure rate of aircraft once RVSM had been implemented. In response, the meeting was assured that there would be no sudden increase in departures out of these airports. IATA also agreed, noting that within RVSM, there would still only be two available levels for Singapore/Kuala Lumpur departures – i.e. FL280 and FL320, with FL300 reserved for other routes crossing the EMARSSH Routes within the Bay of Bengal.

2.1.45 The meeting noted that agreement had been reached between India and Pakistan for the ATS routes through the Kabul FIR with pairs of levels FL300/320, FL340/360 and FL380/400 to be treated as same level for CVSM transition to FL310, FL350 and FL390 respectively. This would also facilitate in avoiding confliction during transition from RVSM to CVSM with traffic on reciprocal track at FL330 and FL370.

2.1.46 In regard to A466 and N644, it was agreed that the flow arrangement would provide for three aircraft with two at FL310 and one at FL350 operating simultaneously on A466 and N644 at FL310 and FL350. This would be implemented only to accommodate traffic departing from Delhi that may enter the Lahore FIR via SAMAR at FL280. Delhi ACC would sequence the traffic at FL300 and FL320 in a manner that there would be no less than 5 minutes longitudinal separation between two aircraft diverging at "DI" on ATS routes A466 and N644 at FL310. This traffic arrangement would require Lahore ACC radar to effect the level change from RVSM to CVSM.

2.1.47 The meeting noted that the arrangements and ATC procedures would be contained in the Letter of Agreement between India and Pakistan, and would be on a one month trial basis. The meeting also agreed to hold a review meeting on 7 – 9 January 2004 at the ICAO Asia/Pacific Office, Bangkok to review the management of traffic with the implementation of RVSM. Traffic statistics for aircraft operating on these routes would be required for consideration by the review meeting.

2.1.48 Pakistan also confirmed that FL280 and all RVSM levels would be available on G452.

2.1.49 IATA expressed concern that the use of FL280 for traffic departing from Delhi should not result in overflights from Southeast Asia being required to re-route or divert to alternate airports. The meeting agreed that the FIRs concerned would manage the assignment of FL280 such that it would not impact on the operations of long haul international overflights.

2.1.50 The meeting recognized that the introduction of major changes to airspace operations such as RVSM would have an initial impact on the ATS operating environment, and there was a need for a period of consolidation. In this regard, the meeting acknowledged Pakistan's responsibility for transition and the airspace constraints both within the Lahore and Kabul FIRs. The meeting expressed its appreciation to both India and Pakistan for reaching agreement on the operational arrangements.

Other transitional arrangements

2.1.51 The Maldives and India agreed that on G465 and A214, all CVSM levels would be available and that Male FIR would provide RVSM/CVSM transitions.

2.1.52 ICAO advised the meeting that the Regional Office was providing liaison and assistance to Myanmar in relation to developing transitional arrangements between the Yangon and Kunming FIRs. In this regard, IATA requested India's assistance in facilitating transitions for aircraft proceeding from the Myanmar FIR to Kunming FIR.

2.1.53 Bangladesh informed the meeting of transitional arrangements involving the Dhaka FIR and Indian ATS Units in relation to traffic flows between both States, and that these arrangements had been published in the Indian AIP SUP.

Large scale weather deviations, wake turbulence and lateral offsets

2.1.54 In consideration of large scale weather deviation procedures, the meeting was referred to Section 4.3 of the MID/ASIA Regional Supplementary Procedures (Doc 7030), noting that the procedures were valid for both the MID and ASIA/PAC Regions.

2.1.55 The meeting was reminded that whilst the current Doc 7030 referred to 500 feet in the application of weather deviation procedures, it was important to note that within the RVSM environment, this level was reduced to 300 feet, and that the correct procedures had been incorporated within the respective State AIP SUP documents. The amendment MID/ASIA-S 01/03 to Doc 7030 to include RVSM procedures was being processed by ICAO.

2.1.56 In regard to lateral offset procedures, the Secretariat provided the meeting with important information regarding procedures for the application of lateral offsets, as well as an update on progress on work on lateral offset procedures currently being undertaken by the Separation and Airspace Safety Panel (SASP) within ICAO.

2.1.57 The Secretariat informed the meeting that under current arrangements, lateral offsets were intended for two separate applications - i.e. those relating to strategic offsets for aircraft operating on GPS navigation, and those relating to lateral offsets for wake turbulence avoidance within the RVSM environment. In regard to the application of lateral offsets for wake turbulence within RVSM airspace, the current procedure was that aircraft could apply a temporary offset up to 2NM either left or right of track.

2.1.58 The meeting noted that one State had specified right of track shall be applied for lateral offset procedures for wake turbulence avoidance within RVSM airspace. In this regard, the meeting recalled that the left or right of track offset had been standardised across the APAC/MID/EUR regions and given that many long range flights traverse more than one of these regions during the cruise, it may be more appropriate for the State concerned to review the requirement to offset only to the right of track whilst in its airspace.

2.1.59 In response, the State concerned noted the advice from the Secretariat, whilst acknowledging some concerns regarding separation and safety considerations in the application of left and right of track. Whilst stipulating that right of track was not in conflict with current ICAO procedures for lateral offsets for wake turbulence avoidance, the State agreed to remove the right of track stipulation in the next issue of the AIP.

2.1.60 In further discussion, IATA proposed that the lateral offset procedures should be standardised on a global basis and in the interim, suggested that 1NM right of track be applied for strategic offsets and 2NM right of track for wake turbulence avoidance within RVSM airspace. The meeting noted this proposal and recommended that this matter be referred to the next meeting of the ATM/AIS/SAR Sub-Group as well as being placed on the agenda for the 90-day RVSM Post Implementation Review meeting.

Radio Failure Procedures

2.1.61 IFALPA raised concerns regarding the correct Radio Failure procedures to be followed in the event of radio failure during the RVSM cutover. In response, the meeting was informed that Radio Failure procedures for RVSM operations had been included within the respective State AIP SUPs and that these procedures would apply at the cutover time and beyond.

Procedures for the suspension of RVSM

2.1.62 The meeting agreed that in the event of circumstances that would require the suspension of RVSM operations, Air Traffic Service Units would coordinate on a tactical basis and that where necessary, procedures would be included in Letters of Agreement. The meeting was also referred to Doc 7030 for further guidance in this regard.

Large Height Deviation reporting arrangements

2.1.63 The meeting reiterated the need for States to provide timely and accurate submission of Large Height Deviation reports to MAAR, including "Nil Reports" where appropriate.

Procedures for change over to RVSM

2.1.64 The meeting reaffirmed that the change over time for RVSM implementation would be **0200 UTC** on 27 November 2003, noting that this was the same time that had been used for the implementation of the EMARSSH route structure on 28 November 2002. One State informed the meeting that due to operational considerations with an adjoining FIR, the change over to RVSM would commence at 0200 and would be completed by 0230 UTC. The meeting noted this bi-lateral arrangement between the two FIRs and suggested that these special arrangements be included in the Trigger NOTAM.

2.1.65 In relation to Flight Planning, the meeting was reminded of a previous concern raised by IATA at JCM/2 relating to the filing of ATS Flight Plans prior to 0200 UTC, for operations after the change over time. As many of the Flight Plans would have been submitted prior to 0200 UTC, they may not contain RVSM levels within the relevant Fields of the FPL. Under such circumstances, IATA urged the ATS Providers to include some special/localised arrangements, which would ensure that ATS FPLs would not be rejected by the various automated flight data processors, as it would be very difficult for airlines to re-generate ATS FPLs after the event.

2.1.66 In consideration of traffic management arrangements, the Secretariat reminded the meeting that prior to the cutover period, westbound traffic would be operating at CVSM **Odd Levels** and accordingly, States were urged to carefully plan change over arrangements with adjoining FIRs to ensure that a safe transition to RVSM levels was undertaken. In this regard, those States with airspace adjoining the MID region were also reminded to note the special requirements of the MID States in interfacing with the Asia Region during the change over period.

2.1.67 The meeting also considered the proposed arrangements for the Trigger NOTAM and agreed that States should issue the Trigger NOTAM on Monday 17 November 2003. A sample of the Trigger NOTAM is shown in **Appendix F**.

Letters of Agreement

2.1.68 The meeting noted that most States had finalised LOAs with adjoining ATS Units and that other States had exchange drafts LOAs ahead of finalisation.

2.1.69 The ICAO Secretariat took the opportunity to update the meeting on recent activities concerning Myanmar regarding coordination with China on the RVSM transition procedures for the Kunming/Yangon FIRs, which should lead to preparation of draft LOAs between Myanmar and China.

Agenda Item 3: Issues Relating to Airworthiness and Operation of Aircraft

3.1 The Airworthiness and Operations Work Group considered the issues related to airworthiness and operations of aircraft. The meeting reviewed the report of the Work Group.

Assessment of Operator Readiness

3.2 The meeting noted the readiness of aircraft and airlines for RVSM operations on international routes in the Bay of Bengal and Beyond area. More than 88 percent of civil registered aircraft were RVSM approved. Further, some domestic and regional airlines were in the process of receiving RVSM approval and the number of approved aircraft should increase. Hence, the 90 percent target should be reached in the near term.

3.3 The meeting noted that most domestic and regional operators of some States required their aircraft to be monitored. In this regard, MAAR would provide the GPS Monitoring Unit (GMU) for each State concerned. However, there were a limited number of GMUs available in the Asia Region and this would require operators to wait for monitoring to be carried out. In this regard, most of the States in the Bay of Bengal area had issued temporary operational approvals to operators before RVSM implementation on 27 November 2003, valid for 6 months for operators with prior RVSM experience, and 3 months for operators without prior RVSM experience in accordance with the *Manual on Implementation of a 300m (1 000 ft) Vertical Separation Minimum Between FL290 and FL410 Inclusive* (Doc 9574). The flight monitoring would be required to be performed and finalized within the operational approval period as issued by the State authority.

3.4 The meeting noted that most RVSM operators had installed ACAS II (TCAS II V.7), and this was incorporated in the RVSM approval process, and necessary to improve the operational and safety level of flights operating within RVSM airspace in accordance with the ICAO Annex 6 ACAS II requirement.

Monitoring Program for Height-Keeping Performance

3.5 The Work Group meeting reviewed the monitoring programme for aircraft height-keeping performance and large height deviation, and noted the following:

a) height-keeping performance monitoring and large height deviations data would be submitted to MAAR; and

b) large height deviations would be reported according to the definition of causes of LHD, and using the MAAR form: Large Height Deviation Report/Form A as attached at **Appendix G**.

3.6 The meeting reported that there had been no large height deviations reported due to aircraft system failure or pilot error and adverse weather in Bay of Bengal and Beyond area since 1997.

Draft Amendment to the ICAO Regional Supplementary Procedures (Doc 7030/4)

3.8 The meeting reviewed a draft proposal for amendment (Serial No. MID/ASIA-S 01/3 RAC) of the MID/ASIA Supplementary Procedures for special in flight contingencies and for air-ground communications failure for FIRs in the MID/ASIA Regions where RVSM would be implemented on 27 November 2003. The meeting noted that in regard to the area of applicability, paragraph 7.5.1.1, the following FIRs needed to be included in the proposal: Chennai, Colombo,

Delhi, Dhaka, Karachi, Katmandu, Kolkata, Lahore, Male, Mumbai, and Yangon. The Secretariat advised the meeting that the proposal would be revised to include the FIRs in the Asia Region.

Continuous Airworthiness Programme and Monitoring

3.9 The meeting considered that the continuous airworthiness programme and height-keeping performance monitoring should be included in the State Authority Procedures and the Airline Operation Manual, in order to assess continued airworthiness of aircraft for RVSM operation, and that altimeter systems were reliable and comply with the RVSM altimetry system tolerances.

3.10 The meeting further considered that the post RVSM implementation monitoring system of height-keeping performance should be established for the Bay of Bengal and beyond area. The meeting proposed to renew the assessment of GMU flight monitoring by sampling method every two years for the group or non-group aircraft. The meeting however agreed that the frequency of monitoring should be decided on a global basis. The meeting considered that the State Authority should be responsible to coordinate the flight monitoring according to the ICAO procedures in Doc 9574.

Agenda Item 4: Safety and Airspace Monitoring Considerations

Review of Duties and Responsibilities of Monitoring Agency for Asia Region (MAAR)

4.1 The meeting was informed that the transfer of the duties and responsibilities of the Regional Monitoring Agency (RMA) for the Asia Region from the Asia/Pacific Approvals Registry and Monitoring Organization (APARMO) to the Monitoring Agency for Asia Region (MAAR) took place on **2 September 2003**.

Readiness Assessment for the Implementation of RVSM in Bay of Bengal

4.2 The meeting reviewed the results of the readiness assessment provided by MAAR of operators and aircraft observed in the Bay of Bengal airspace where RVSM would be implemented. The assessment relied on the traffic sample data collected during the period of 15 December 2002 to 15 February 2003 in the Bay of Bengal airspace. The meeting was informed that the percentage of operations currently being conducted by State-RVSM approved operators and aircraft in the Bay of Bengal RVSM airspace was **88.28** percent.

4.3 The meeting noted that the percentage of approvals would increase as a number of aircraft already had airworthiness approval and were in the process of obtaining full RVSM approval. The meeting recalled that the RVSM Task Force had adopted a target of 90 percent of operations between FL290 and FL410 inclusive in the designated airspaces. It was further noted that this was a desirable target to avoid excluding a larger number of non-approved operators from RVSM airspace.

4.4 In light of the results of the readiness assessment, the meeting agreed that the readiness of operators and aircraft met the requirement for the planned implementation of RVSM in the Bay of Bengal on 27 November 2003.

Final Safety Assessment for the Implementation of RVSM in Bay of Bengal

4.5 The meeting reviewed the summary of the TSD and LHD reports associated with the implementation of RVSM, focusing on the airspace in the Bay of Bengal, as shown in Table 1 and 2, respectively.

4.6 It was recalled that the RVSM/TF/15 meeting agreed that the TSD of aircraft operating on the EMARSSH routes would be collected from 15 December 2002 to 15 February 2003 by the States involved: Dhaka, Kolkata, Chennai, Delhi, Mumbai, Jakarta, Kuala Lumpur, Male, Yangon, Katmandu, Karachi, Lahore, Singapore, Colombo, and Bangkok FIRs. These States were also requested to provide monthly LHD reports starting from August 2002 and sent to the MAAR by the first week of the following month.

States	Bangladesh	India				Maldives	Myanmar	Nepal
FIR	Dhaka	Chennai	Delhi	Kolkata	Mumbai	Male	Yangon	Katmandu
Dec-02		x	x	x	x	x	x	
Jan-03		x	x	x	x	x		
Feb-03		x	x	x	x	x		
States	Pakistan		Sri Lanka	Indonesia	Malaysia	Singapore	Thailand	
FIRs	Karachi	Lahore	Colombo	Jakarta	Kuala Lumpur	Singapore	Bangkok	
Dec-02	x	x	x		x	x	x	
Jan-03	x	x	x		x	x	x	
Feb-03		x	x		x	x	x	

Table 1: – TSD Reports Received by MAAR by Month-Year for the RVSM Implementation in the Bay of Bengal

4.7 The meeting reviewed the final safety assessment for the implementation of RVSM in the Bay of Bengal area presented by MAAR. The meeting took note of the report on the summary of the LHD duration in minutes occurred in Bay of Bengal between January 2002 and September 2003, as shown in Table 2.

4.8 The TSD and LHD reports were used to estimate risks from technical and operational errors, which would facilitate the completion of the safety assessments for the Bay of Bengal airspace where RVSM would be implemented. Detailed information on the results of the safety assessment are provided in paragraph 4.12 below.

Month-Year	Duration of LHD (Minutes)					
	Bangkok	Chennai	Delhi	Kolkata	Mumbai	Other FIRs*
Jan-02	0	0	0	0	0	0
Feb-02	0	0	0	0	0	0
Mar-02	0	0	0	0	0	0
Apr-02	0	0	0	0	0	0
May-02	0	0	0	0	0	0
Jun-02	0	0	0	0	0	0
Jul-02	0	0	0	0	0	0
Aug-02	0	0	0	0	0	0
Sep-02	4	0	0	0	0	0
Oct-02	1	0	0	0	0	0
Nov-02	0	0	0	0	0	0
Dec-02	0	0	0	0	0	0
Jan-03	0	0	0	0	0	0
Feb-03	1	0	0	0	10	0
Mar-03	0	0	0	0	0	0
Apr-03	0	0	0	0	0	0
May-03	0	9	0	0	0	0

Month-Year	Duration of LHD (Minutes)					
	Bangkok	Chennai	Delhi	Kolkata	Mumbai	Other FIRs*
Jun-03	0	0	0	0	0	0
Jul-03	0	0	0	0	0	0
Aug-03	0	0	0	0	0	0

Table 2: – LHD Duration in BOB by Month-Year and FIR

Remarks:– Other FIRs* = Colombo, Dhaka, Jakarta, Karachi, Katmandu, Kuala Lumpur, Lahore, Male, Singapore, and Yangon

4.9 The meeting reviewed the cause of LHD reported to MAAR, and agreed that all of the LHD occurrences were attributable to operational errors.

4.10 Based on the collision risk estimates, the technical and operational risks for the RVSM implementation in the Bay of Bengal were 1.00 x 10^{-9} and 2.08 x 10^{-9} fatal accidents per flight hour, respectively. The total risk attributed to all causes was 3.08 x 10^{-9}. The trends of collision risk estimates for each month using the appropriate 12-month interval of LHD reports received by MAAR are shown in Figure 1. Therefore, the risk estimates of both technical and total risks satisfied the agreed TLS value of no more than 2.5 x 10^{-9} and 5.0 x 10^{-9} fatal accidents per flight hour due to the loss of a correctly established vertical separation standard of 1,000 ft and to all causes, respectively.

4.11 **The meeting reminded all States to continue to provide MAAR with monthly reports on large height deviations, including a 'NIL' occurrence report. The LHD reports should be sent to MAAR via email or fax by the first week of the following month**.

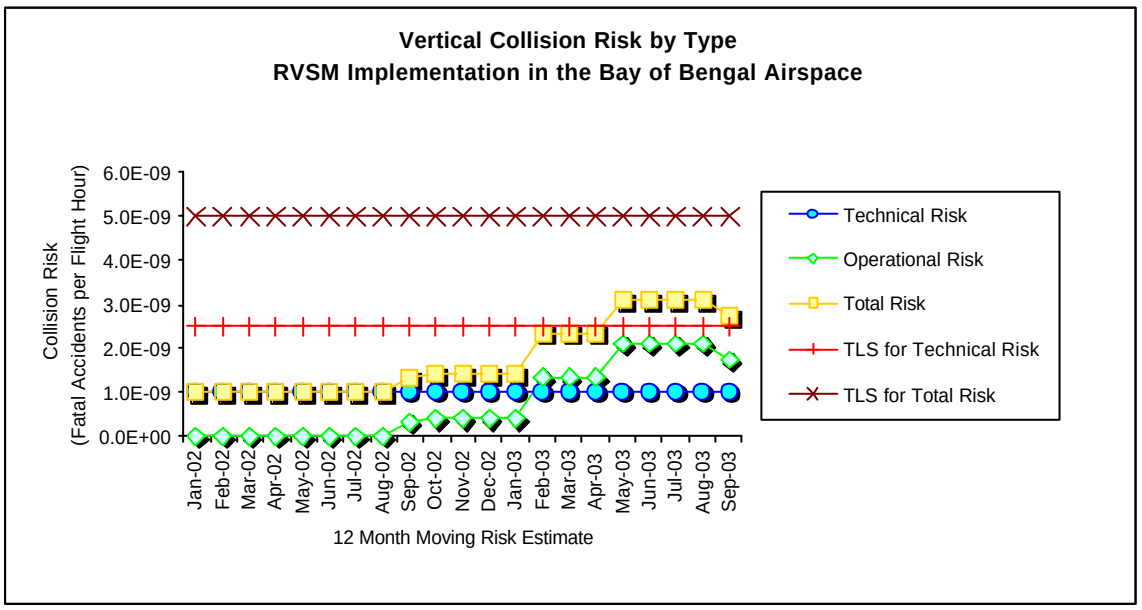

Figure 1: – Trends of Risk Estimates for the RVSM Implementation in BOB

4.12 IATA expressed concern regarding the occurrences of LHD due to operational errors, and sought solutions to prevent the reoccurrences of such errors. It was noted that the MAAR would notify the ICAO Asia Pacific Regional Office of the LHD occurrences, so that ICAO could liaise with the States concerned to take appropriate actions.

Review of the Monitoring Requirements for States in Bay of Bengal and Beyond Area

4.13 The meeting noted that States had been requested to provide updated aircraft registration and aircraft RVSM approvals information to MAAR on a monthly basis.

4.14 The meeting was reminded of the duties and responsibilities of MAAR related to maintaining the RVSM approval records and facilitating the transfer of approval data to/from other RVSM RMAs. Further, the meeting recognized the importance of maintaining an up-to-data global database of State approved RVSM aircraft, and that the ICAO Bangkok Office would issue a State letter advising States of the transfer of responsibility of RVSM monitoring from APARMO to MAAR on 2 September 2003 as approved by APANPIRG/14 (August 2003). States would be requested to cooperate with MAAR and provide the required safety reports. The meeting was informed that MAAR would coordinate with the ICAO Asia Pacific Regional Office to send a state letter to States requesting the information as shown in **Appendix H**.

4.15 MAAR requested that States submit the aircraft registration and aircraft approval information including both RVSM airworthiness and operational approvals on the last week of each month. The updated list of this information can be submitted to MAAR at the following addresses:

E-Mail (most preferable): **maar@aerothai.co.th**
Fax: 662-287-8155
Address: Monitoring Agency for Asia Region (MAAR)
ATS Operations Bureau, AEROTHAI
102 Ngamduplee Tungmahamek, Sathorn
Bangkok 10120 Thailand

Information related to the RVSM implementation for the Asia Region could be obtained from the MAAR website (**www.aerothai.co.th/maar**). A model format for Stares to submit their information to MAAR is provided in Appendix H.

4.16 The meeting expressed its appreciation to MAAR for its effort in carrying out the readiness assessment and the safety assessment. These assessments were essential in making the GO/NO-GO decision for the Bay of Bengal RVSM implementation at this RVSM/TF/20 meeting.

Agenda Item 5: Implementation on 27 November 2003 (Go/No-Go Decision)

5.1 Taking into account the preparations that had been completed by the States concerned and the results of the operator readiness and safety assessments, the meeting agreed to go ahead with the implementation of RVSM in the Bay of Bengal and Beyond on 27 November 2003.

Agenda Item 6: Review of Action Items

6.1 The meeting reviewed and updated the list of tasks relating to the implementation of RVSM in the Bay of Bengal and Beyond on 27 November 2003, as shown in **Appendix I**.

Agenda Item 7: Future Work – Meeting Schedule

7.1 The meeting agreed on the future work of the Task Force as follows:

RVSM/TF/21: 7-9 January 2004, ICAO Asia/Pacific Office, Bangkok, Thailand (tentative)
(Review of ATM Using RVSM in the Bay of Bengal and Beyond)

RVSM/TF/22: 3 days February 2004 and location TBD
(90-day follow up review on Bay of Bengal and Beyond focus)

RVSM/TF/23: 3 days June 2004 and location TBD
(Review of FLOS for Western Pacific/South China Sea area)

RVSM/TF/24: 3 days November 2004 and location TBD
(1-year follow-up review on Bay of Bengal and Beyond focus)

Agenda Item 8: Other Business

Air Traffic Flow Management Plan for the Bay of Bengal Area

8.1 The meeting noted the development of the Air Traffic Flow Management Plan (ATFMP) for the Bay of Bengal Area by the Bay of Bengal ATS Coordination Group (BBACG) to maximize air traffic management and operational efficiency for traffic departing from Southeast Asia, India and Pakistan airports to Europe through Afghanistan airspace. A coordination meeting to progress the ATFMP would be held from 3 to 5 November 2003 in Singapore.

Afghanistan airspace restrictions

8.2 The meeting recognized that traffic flows through Afghanistan airspace were constrained by restrictions imposed by the Coalition Forces (Afghanistan airspace control authority). This had a major effect on traffic delays being experienced at major airports in the Asia Region. Discussions have been ongoing between the Coalition Forces, ICAO and other concerned organizations to obtain more airspace capacity for international civil operations. The unavailability of FL280 was one of the main contributing factors to delay. Full benefits of RVSM cannot be realized due to RVSM not being implemented in the Kabul FIR. Therefore, by not having FL280 available, this further limits the effectiveness of RVSM. Accordingly, the meeting urged ICAO to arrange a meeting with the Coalition Forces and other parties concerned to gain additional use of airspace, in particular FL280.

EMARSSH route improvements

8.3 Mr. S. Krishan, Executive Director ATM, Airports Authority of India informed the meeting that agreement had been reached between AAI and the Indian military authority to extend ATS route P628 from ASOPO to Rahim Yar Khan (RK) VOR and to lower the minimum enroute altitude (MEA) from FL 310 to FL300. Further, the MEA on L333 was also lowered from FL310 to FL300. The route changes would be put into effect as soon as administrative arrangements were completed. The meeting expressed its appreciation to AAI and the Indian military for achieving this significant improvement to the EMARSSH routes, which would greatly enhance air traffic management arrangements over India and benefit operators.

9. Closing of the Meeting

9.1 Mr. Sydney Maniam expressed sincere appreciation to the Airports Authority of India for hosting the 20th RVSM Task Force Meeting. He commended all concerned for their untiring efforts and excellent support for the meeting. He also thanked all participants for their active participation and cooperation, which had contributed significantly to the successful completion of the meeting.

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LIST OF RVSM TF/20 WORKING PAPERS (WPs) AND INFORMATION PAPERS (IPs)

NUMBER	AGENDA	WORKING PAPERS	PRESENTED BY
WP/1	1	Provisional Agenda for Task Force/20	Chairperson
W/2	4	Summary of Traffic Sample Data and Large Height Deviation Reports in Connection with the RVSM Implementation in Bay of Bengal	Thailand
WP/3	4	Assessment of the Readiness of Operators and Aircraft Types for the RVSM Implementation in the Bay of Bengal Airspace	Thailand
WP/3	4	Development of a Comprehensive Profile of Operators and Aircraft Types Expected to Operate in the Bay of Bengal Airspace Where the Reduced Vertical Separation Minimum (RVSM) is to be Provisionally Applied	Thailand
WP/4	4	Summary of the Safety Assessment for the RVSM Implementation in the Bay of Bengal Reflecting the EMARSSH Route Structure	Thailand
WP/5	4	Request for the Updates of RVSM Approval Records of Aircraft Registered with the States in the Asia Region	Thailand
WP/6	2	Trigger NOTAM	Secretary
WP/7	6	Implementation of the Reduced Vertical Separation Minimum(RVSM) in the Bay of Bengal and Beyond	Chairperson

NUMBER	AGENDA	INFORMATION PAPERS	PRESENTED BY
IP/1	2	Update On The Special Coordination Meeting on the Development of an Air Traffic Flow Management Plan (ATFMP) for the Bay of Bengal Area for Traffic Asia/Europe And RVSM Matters	Secretary
IP/2	2	The Progress of Indonesia for Second Phase of RVSM Implementation in Indonesia	Indonesia
IP/3	2	Report on Myanmar's Readiness to Implement RVSM	Myanmar
IP/4	2	Implementation of RVSM In India FIRs	India
IP/5	4	Development of a Comprehensive Profile of Operators and Aircraft Types Expected to Operate in the Bay of Bengal Airspace Where the Reduced Vertical Separation Minimum (RVSM) Is To Be Provisionally Applied	Thailand

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AGENDA FOR TASK FORCE/20

Agenda Item 1:	Adoption of Agenda
Agenda Item 2:	Operational Considerations
Agenda Item 3:	Issues Relating to Airworthiness and Approval of Aircraft
Agenda Item 4:	Safety and Airspace Monitoring Considerations
Agenda Item 5:	Implementation on 27 November 2003 (Go/No Go Decision)
Agenda Item 6:	Review of Action Items
Agenda Item 7:	Future Work – Meeting Schedule
Agenda Item 8:	Other Business

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PROPOSED AGENDA FOR
THE SAFETY AND AIRSPACE MONITORING WORK GROUP
(SAM/WG)

(Presented by the Chairperson of Safety and Airspace Monitoring Work Group)

Agenda Item 1:	Review Safety and Airspace Monitoring Working Group Terms of Reference
Agenda Item 2:	Review Duties and Responsibilities of Monitoring Agency for Asia Region (MAAR)
Agenda Item 3:	Complete the Bay of Bengal and Beyond Readiness Assessment
Agenda Item 4:	Review the monitoring requirements for States in Bay of Bengal and Beyond area
Agenda Item 5:	Complete the Bay of Bengal and Beyond Safety Assessment
Agenda Item 6:	Review the RVSM TF Task List for the Bay of Bengal and Beyond
Agenda Item 7:	Future SAM Work Program
Agenda Item 8:	Any Other Business

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**PROPOSED AGENDA FOR
THE ATC OPERATIONS WORK GROUP
(ATC/WG)**

(Presented by the Chairperson of ATC Operations Work Group)

Agenda Item 1: Review the Terms of Reference in preparedness for RVSM implementation

Agenda Item 2: Review the preparedness of States ahead of RVSM implementation, including:

a) Planning of ATC workload and Training requirements
b) AIS including status of AIP SUP
c) Safety assessments to support implementation

Agenda Item 3: Review the transition arrangements between States, including:

a) Confirmation of transition areas
b) Vertical transition procedures for RVSM (Single Alternate FLOS and Modified Single Alternate FLOS) and CVSM airspace

Agenda Item 4: Review the operational plan, operational readiness and related procedures, including:

a) No-PDC procedures for RVSM operations in the Bay of Bengal and Beyond
b) Wake turbulence and Lateral offsets
c) Large scale weather deviations
d) Non-compliant operations and procedures for suspension of RVSM
e) Large Height Deviation (LHD) reporting arrangements

Agenda Item 5: Review RVSM operational implementation plan, including:

a) Cutover time-frame
b) Flight Planning
c) Traffic Management
d) Trigger NOTAM

Agenda Item 6: Review status of Letters of Agreement between adjoining FIRs

Agenda Item 7: Review of assigned action items under RVSM Task List

Agenda Item 8: Any other matters relating to the operational plan for RVSM implementation in the Bay of Bengal and Beyond.

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PROPOSED AGENDA FOR

THE AIRCRAFT OPERATIONS/AIRWORTHINESS WORK GROUP

(OPS/AIR/WG)

(Presented by the Chairperson of OPS/AIR Work Group)

Agenda Item 1: Review of OPS/AIR Terms of Reference (Agreed on Agenda)

Agenda Item 2: Review of Readiness Assessment of Implementation

a) State Authority Readiness Reporting
b) Airline Approved Status (Airworthiness & Operational Approved)

Agenda Item 3: Review of Aircraft Height-Keeping Performance Monitoring Programme

a) Large Height Keeping Deviations
b) Large Scale Weather Deviations

Agenda Item 4: Review RVSM Approval Process and Procedures

a) Airworthiness and Operational Process
b) APARMO Forms
c) In flight Contingency Procedures

Agenda Item 5: Review the RVSM ICAO Manual 9574

Agenda Item 6: Review Task List

Agenda Item 7: Future OPS/AIR Work Programme

a) Review state authority and operator implementation of ACAS II
b) AEROTHAI preparation as the RMA for the Asia Region

Agenda Item 8: Report to ICAO RVSM Task Force.

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OPERATIONAL PLAN FOR THE IMPLEMENTATION OF RVSM IN THE ASIA REGION

Flight Information Region/Area of Responsibility	Flight Levels	Flight Level Orientation Scheme (FLOS)	Exclusive Airspace	Initial Implementation	Remarks
Bangkok	290 - 410	Single Alternate	Yes	27 Nov 2003	All of Bangkok FIR - AIP SUP A3/03 published
Chennai	290 - 410	Single Alternate	Exclusive over Oceanic airspace and non-exclusive over territorial airspace	27 Nov 2003	As agreed at SCM Kuala Lumpur 11 – 13 Aug 2003 AIP SUP has been published
Colombo	290 - 410	Single Alternate	Yes	27 Nov 2003	For crossing routes FL290 FL300 No PDC on P762, L645 and A327 AIP SUP A04/03 published 11 Sep 2003
Delhi	290 - 410	Single Alternate	Non-exclusive	27 Nov 2003	As agreed at SCM Kuala Lumpur 11 – 13 Aug 2003 AIP SUP has been published
Dhaka	290 – 410	Single Alternate	Yes	27 Nov 2003	- LOAs being prepared (India/Bangladesh) - AIP SUP to be published by 7 Nov
Jakarta (Bay of Bengal)	**310 – 410** 290 – 410	Single Alternate	Yes	27 Nov 2003	**FL310 – FL410** all Indonesian FIRs **AND** FL290 – FL410 on the EMARSSH routes AIP 0703 (2 Oct 2003 refers)
Karachi	290 - 410	Single Alternate	Yes	27 Nov 2003	AIP SUP published with transition details
Kathmandu	290 - 410	Single Alternate	Yes	27 Nov 2003	AIP to be distributed by 01 Nov 03

Flight Information Region/Area of Responsibility	Flight Levels	Flight Level Orientation Scheme (FLOS)	Exclusive Airspace	Initial Implementation	Remarks
Kolkata	290 - 410	Single Alternate	Exclusive over Oceanic airspace and non-exclusive over territorial airspace	27 Nov 2003	As agreed at SCM Kuala Lumpur 11 – 13 Aug 2003 AIP SUP has been published
Kuala Lumpur	290 - 410	Single Alternate	Yes	27 Nov 2003	AIP 26/03 refers
Lahore	290 - 410	Single Alternate	Yes	27 Nov 2003	AIP Published with details of transition areas
Male	290 - 410	Single Alternate	Yes	27 Nov 2003	AIP published
Mumbai	290 - 410	Single Alternate	Exclusive over Oceanic airspace and non-exclusive over territorial airspace	27 Nov 2003	As agreed at SCM Kuala Lumpur 11 – 13 Aug 2003 and JCM Abu Dhabi 27 – 28 Aug 2003 AIP SUP has been published
Singapore	290 – 410	Single Alternate (see details in NOTAM)	Yes	27 Nov 2003	Routes from Singapore to Jakarta FIRs will be **FL310 – FL410** NOTAM to be issued
Yangon	290 – 410	Single Alternate **Note: (transition arrangements to be finalised for CVSM and China Metric)**	Yes	27 Nov 2003	ICAO coordinating activities prior to implementation AIP SUP pending

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FLIGHT LEVEL ALLOCATION SCHEME FOR THE BAY OF BENGAL OCEANIC AIRSPACE
(H24)

WESTBOUND

Bay of Bengal	**Flight Level Allocation**
N877, P628, L759, M770, P570, M300, N563, N571, P574	FL280, 320, 340, 360 (FL360 subject to coordination) 380, 400
P646 and L507	All Westbound levels available
P762, L301, N895, L645, A327	FL300, 360 (FL360 subject to coordination)

EASTBOUND

Bay of Bengal	**Flight Level Allocation**
N877, P628, L759, M770, P570, M300, N563, N571, P574	All Eastbound Flight Levels available (Except for FL290)
P762, L645, A327	All Eastbound Flight Levels available. FL290 No PDC
L301, N895, P646 and L507	All Eastbound Flight Levels available.

FLIGHT LEVEL ALLOCATION SCHEME FOR INTERNATIONAL TRAFFIC OVER CONTINENTAL INDIA
(0001-1600 UTC)

Over Continental India all ATS routes and RVSM levels are available between 0001 and 1600 UTC, subject to the conditions below:

WESTBOUND

Indian Continental Airspace	**Flight Level Allocation**
A791/A791W, N877	FL300, 340, 360, 400 available **(See note below)**

EASTBOUND

Indian Continental Airspace	**Flight Level Allocation**
A791/A791E, N877	FL310, 350, 390, 410 available **(See note 2 below)**

Notes:

1) For Indian AIP Supplement:

Airlines are to flight plan in accordance with the Flight Levels Allocation Table above to cross Indian continental airspace on:

a) N877 between VVZ – NNP – PRA – TASOP; and

b) A791/A791E/A791W between CEA VOR to TELEM/TASOP

2) Flight Level changes to meet the requirements of the flight level allocation scheme over Continental Indian will be done within Indian continental airspace

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TRIGGER NOTAM

FOR RVSM IMPLEMENTATION IN THE BAY OF BENGAL AND BEYOND

(To be issued on 17 November 2003)

E) TRIGGER NOTAM (name of State/authority) AIRAC AIP SUP (reference number),
EFFECTIVE 0200 UTC 27 NOV 2003, REDUCED VERTICAL SEPARATION MINIMA WILL BE IMPLEMENTED IN THE MIDDLE EAST AND BAY OF BENGAL REGIONS

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MONITORING AGENCY FOR ASIA REGION
(MAAR)

Large Height Deviation Report

Report to the Monitoring Agency for Asia Region (MAAR) of an altitude deviation of 300 ft or more, including those due to TCAS, turbulence and contingency events.

Name of FIR: _____
(Please complete Section I or II as appropriate)

SECTION I:

There were no reports of large altitude deviation for the month of _____

SECTION II:

There was/were _____ report(s) of an altitude deviation of 300 ft or more between FL290 and FL410. Details of the altitude deviation are attached (Form A).
(Please use a separate form for each report of large height deviation).

SECTION III:

When complete, please return to the following email (preferable), fax, or mailing address:

E-Mail: maar@aerothai.co.th
Fax: 66-2-287-8155

Monitoring Agency for Asia Region (MAAR)
ATS Operations Bureau, AEROTHAI
102 Ngamduplee Tungmahamek, Sathorn
Bangkok 10120 Thailand

Form A

Report of an Altitude Deviation of 300 ft or More Between FL 290 and FL 410

(1) Reporting agency

(2) Location of deviation

(3) Date of occurrence (UTC)

(4) NOPAC/CENPAC/CEP/SOPAC/Japan-Hawaii/South China Sea/BOB/Other

(5) Flight identification and type

(6) Flight level assigned

(7) Observed/reported final level Mode C/Pilot report

(8) Duration at flight level

(9) Cause of deviation

(10) Other traffic

(11) Crew comments, if any, when noted

(12) Remarks

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INFORMATION REQUIRED FOR
AIRCRAFT REGISTRATIONS AND RVSM APPROVALS TO BE SUBMITTED TO MAAR

Requested Information	Description
Registration Number	The registration number of the aircraft
Operator	The ICAO code name of the aircraft operator according to the ICAO Doc 8585
State of Operator	The ICAO code name of the state, where the aircraft operator was registered, according to the ICAO Doc 7910
Aircraft Type	The ICAO code name of type of the aircraft according to the ICAO Doc 8643
Aircraft Series	The aircraft's series
Serial Number	The aircraft's serial number
Mode S (Hex)	The hexadecimal value of the aircraft's Mode S code (if available)
State of Registry	The ICAO code name of the state, where the aircraft was registered, according to the ICAO Doc 7910
Date of Registry	The date when the aircraft was registered in form of dd/mm/yy
Is A/W RVSM Approved?	This field indicates whether the aircraft has obtained the RVSM airworthiness approval. The value of this field can be only "YES" or "NO"
Date of A/W RVSM Approved	The date when the aircraft has obtained the RVSM airworthiness approval in form of dd/mm/yy
Is RVSM Operational Approved?	This field indicates whether the aircraft has obtained the RVSM operational approval to operate in the RVSM airspace. The value of this field can be only "YES" or "NO"
Date of RVSM Operational Approved	The date when the aircraft has obtained the RVSM operational approval to operate in the RVSM airspace in form of dd/mm/yy
State of RVSM Operational Approval	The ICAO code name of the state, where the aircraft was approved to fly in RVSM airspace, according to the ICAO Doc 7910
Date of RVSM Expired (if applicable)	The date when the RVSM approval will be expired in form of dd/mm/yy (if applicable)
Remarks	Any remark

EXAMPLE OF AIRCRAFT REGISTRATIONS AND RVSM APPROVAL RECORD TO BE SUBMITTED TO MAAR

Reg. No.	Operator	State of Operator	Aircraft Type	Aircraft Series	Serial No.	Mode S (Hex)	State of Registry	Date of Registry	Is AW Approved ?	Date of AW Approved	Is RVSM Approved ?	Date of RVSM Approved	State of RVSM Approval	Date of RVSM Expired	Remarks
HSTPC	ABC	VT	B742	200	21xxx	80XXXX	VT	02/03/01	YES	26/02/80	YES	31/05/99	VA	30/05/03	-
HSTCH	ABC	VT	B763	34P	33xxx	7BXXXX	VT	23/03/03	YES	23/03/03	NO	-	VA	-	-
HSTCG	ABC	VT	B763	34P	34xxx	7CXXXX	VT	23/03/03	NO	-	-	-	VA	-	-

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SN	ACTIVITY	START	COMPLETE	PRESENT STATUS	GROUP RESPONSIBLE
1	**Identify Operational Need**	**18-Jan-02**	**30-Nov-02**	**Completed**	
2	Agree operational concept for Bay of Bengal and beyond (within ICAO Asia Region)	18-Jan-02	30-Nov-02	**Completed**	ATC/WG, RVSM/TF
3	**Safety Assessment**	**18-Jan-02**	**31-Oct-03**	**Completed**	
4	Review available summary data (non-compliant aircraft, aberrant aircraft etc)	18-Jan-02	**31-Oct-03**	**Completed**	SAM/WG, MAAR, RVSM/TF
5	Examine history of height keeping errors related to ATC clearances and assess possible RVSM impact	18-Jan-02	**31-Oct-03**	**Completed**	SAM/WG, MAAR, RVSM/TF
6	Confirm RVSM risk model assumptions/parameters are consistent with airspace where RVSM is to be applied	18-Jan-02	**31-Oct-03**	**Completed**	SAM/WG, MAAR, RVSM/TF
7	Conduct simulations to predict occupancy after RVSM implementation	18-Jan-02	**31-Oct-03**	**Completed**	SAM/WG, MAAR, RVSM/TF
8	Collect weather and turbulence data for analysis - this should include Himalayan standing wave analysis	18-Jan-02	**27-Nov-03**	In progress	SAM/WG, OPSAIR, RVSM/TF
9	Report monthly large height deviations to APARMO/MAAR or equivalent monitoring agency (including operational errors)	18-Jan-02	Ongoing	In progress	ATS Providers, Users
10	**Feasibility Analysis**	**18-Jan-02**	**27-Nov-03**	In progress	
11	Examine the operational factors and workload associated with implementation	18-Jan-02	27-Nov-03	In progress	ATC/WG, RVSM/TF
12	**Determination of Requirements (airborne & ground systems)**	**18-Jan-02**	**27-Nov-03**	In progress	
13	States assess the impact of RVSM implementation on controller automation systems (e.g. equipment suffixes) and plan for upgrades/modifications	18-Jan-02	31-Oct-03	**Completed**	States
14	**Aircraft & Operator Approval Requirements**	**18-Jan-02**	**27-Nov-03**	In progress	
15	Promulgate the operational approval process	18-Jan-02	7-Jun-02	**Completed**	OPS/AIR/WG, RVSM/TF
16	Notify States when significant changes occur to RVSM documentation	18-Jan-02	31-Oct-03	**Completed**	OPS/AIR/WG, RVSM/TF

SN	ACTIVITY	START	COMPLETE	PRESENT STATUS	GROUP RESPONSIBLE
17	**Perform Rulemaking (if required)**	**18-Jan-02**	**27-Nov-03**	In progress	
18	Recommend State airspace regulatory documentation	18-Jan-02	27-Nov-03	In progress	States
19	**Perform Necessary Industry & International Co-ordination**	**18-Jan-02**	**27-Nov-03**	In progress	
20	Establish target implementation date	18-Jan-02	18-Jan-02	**Completed**	RVSM/TF
21	Report to ATS/AIS/SAR/SG/13	23-Jun-03	27-Jun-03	**Completed**	RVSM/TF, Chairman
22	Process Doc 7030 amendment	18-Jan-02	27-Nov-03	In progress	ICAO Regional Office
23	Publish advance AIC	18-Jan-02	31-Jan-03	**Completed**	States
24	Publish AIP Supplement containing RVSM policy/procedures	18-Jan-02	7-Nov-03	In progress	States
25	Review inter-facility coordination procedures	18-Jan-02	27-Nov-03	In progress	States
26	Finalize changes to Letters of Agreement	18-Jan-02	27-Nov-03	In progress	States
27	Disseminate information on RVSM policy and procedures through FAA RVSM Website	7-Jun-02	31-Oct-03	**Completed**	OPS/AIR WG, RVSM/TF
28	**Approval of Aircraft & Operators**	**18-Jan-02**	**27-Nov-03**	In progress	
29	Establish approved operations readiness targets	18-Jan-02	**18-Jan-02**	**Completed**	IATA, ATC/WG, RVSM/TF
30	Assess operator readiness	18-Jan-02	**31-Oct-03**	**Completed**	IATA, OPS/AIR/WG
31	**Develop Pilot & ATC Procedures**	**18-Jan-02**	**27-Nov-03**	In progress	
32	Review application of tactical offset procedure to mitigate the effects of wake turbulence and TCAS alerts	18-Jan-02	4-Jul-03	**Completed**	RVSM/TF

SN	ACTIVITY	START	COMPLETE	PRESENT STATUS	GROUP RESPONSIBLE
33	Review weather and contingency procedures for applicability under RVSM	18-Jan-02	4-Jul-03	**Completed**	RVSM/TF
34	Publish appropriate Pilot/ATC policy & procedures on RVSM website	18-Jan-02	Ongoing	In progress	RVSM/TF
35	Identify transition areas and procedures	3-Sep-03	5-Sep-03	**Completed**	States, ATC/WG
36	Conduct simulation modelling to assess impact of RVSM operations	18-Jan-02	27-Nov-03	In progress	States, ATC/WG
37	Report on simulation activity	18-Jan-02	27-Nov-03	In progress	ATC/WG, RVSM/TF
38	Coordinate use of ACAS II (TCAS V.7) for RVSM operations	18-Jan-02	31-Oct-03	**Completed**	OPS/AIR/WG, RVSM/TF
39	Develop procedures for handling non-compliant aircraft (inc ferry & maintenance) in ATS documentation	18-Jan-02	30-Sep-03	**Completed**	OPS/AIR/WG, ATC/WG, RVSM/TF
40	Develop mutually acceptable ATC procedures for non-approved State aircraft to transit RVSM airspace	18-Jan-02	30-Sep-03	**Completed**	ATC/WG, RVSM/TF
41	Implement procedures for suspension of RVSM	18-Jan-02	27-Nov-03	In progress	ATC/WG, RVSM/TF
42	Liaise with State defense authorities regarding military operations	18-Jan-02	27-Nov-03	In progress	States
43	**Pilot & ATC Training**	**18-Jan-02**	**27-Nov-03**	In progress	
44	Provide Pilot/ATC training documentation based on past experience	18-Jan-02	Ongoing	In progress	IATA, RVSM/TF
45	Conduct local RVSM training for air traffic controllers	18-Jan-02	27-Nov-03	In progress	States, ATC/WG
46	**Perform System Verification**	**18-Jan-02**	**31-Oct-03**	**Completed**	
47	Height keeping performance monitoring needed to undertake initial safety analysis	18-Jan-02	31-Oct-03	**Completed**	APARMO, MAAR and SAM/WG, RVSM/TF
48	Provide representative traffic movement data to APARMO / MAAR	18-Jan-02	Ongoing	In progress	States

SN	ACTIVITY	START	COMPLETE	PRESENT STATUS	GROUP RESPONSIBLE
49	Undertake initial safety analysis	18-Jan-02	31-Mar-03	**Completed**	SAM/WG, RVSM/TF
50	Prepare/maintain regional status report detailing RVSM implementation plans	18-Jan-02	Ongoing	In progress	RVSM/TF
51	**Final Implementation Decision**	**18-Jan-02**	**27-Nov-03**	In progress	RVSM/TF
52	Review aircraft altitude-keeping performance and operational errors	18-Jan-02	31-Oct-03	**Completed**	SAM/WG, OPS/AIR/WG
53	Complete ATS State documentation	18-Jan-02	7-Nov-03	In progress	States
54	Publish Trigger NOTAM	18-Jan-02	17-Nov-03	In progress	States
55	Complete readiness assessment	18-Jan-02	31-Oct-03	**Completed**	APARMO, MAAR and SAM/WG, RVSM/TF
56	Complete safety analysis	18-Jan-02	31-Oct-03	**Completed**	APARMO, MAAR & SAM/WG, RVSM/TF
57	**Declare Initial Operational Capability**	18-Jan-02	**27-Nov-03**	In progress	APARMO, MAAR and SAM/WG, RVSM/TF
58	**Monitor System Performance**	18-Jan-02	**27-Nov-04**	In progress	
59	Perform Follow-On Monitoring	18-Jan-02	Ongoing	In progress	APARMO, MAAR, OPS/AIR/WG, SAM/WG
60	Complete transition of monitoring functions from FAA to AEROTHAI	30-May-02	2-Sep-03	**Completed**	SAM/WG, MAAR
61	**Declare Full Operational Capability**	18-Jan-02	**27-Nov-04**	In progress	RVSM/TF
62	Task Force/15 (Bangkok)	3-Jun-02	7-Jun-02	**Completed**	RVSM/TF
63	Special Coordination Meeting (Manila) - Western Pacific/South China Sea Focus	29-Jul-02	31-Jul-02	**Completed**	RVSM/TF
64	Task Force/16 (Bangkok) - Western Pacific/South China Sea Focus	23-Sep-02	25-Sep-02	**Completed**	RVSM/TF

SN	ACTIVITY	START	COMPLETE	PRESENT STATUS	GROUP RESPONSIBLE
65	1st Joint Interface Meeting with Middle East RVSM Task Force (Abu Dhabi)	19-Oct-02	20-Oct-02	**Completed**	RVSM/TF
66	Seminar/5 (Bangkok) - 3 days	15-Jan-03	17-Jan-03	**Completed**	RVSM/TF
67	Task Force/17 (Bangkok) - Bay of Bengal and Beyond Focus - 5 days	20-Jan-03	24-Jan-03	**Completed**	RVSM/TF
68	Task Force/18/19 (Bangkok) - 1 year/90 day follow up review on Western Pacific/South China Sea/ Bay of Bengal Focus - 5 days	30-Jun-03	4-Jul-03	**Completed**	RVSM/TF
69	Special ATS Coordination Meeting (Kuala Lumpur) - FLOS for Bay of Bengal and Beyond	11-Aug-03	13-Aug-03	**Completed**	ATC/WG
70	2nd Joint Interface Meeting with Middle East RVSM Task Force (Abu Dhabi) - 3 days	27-Aug-03	28-Aug-03	**Completed**	ATC/WG
71	Special ATS Coordination Meeting (Bangkok) - Transition for Bay of Bengal and Beyond	3-Sep-03	5-Sep-03	**Completed**	ATC/WG
72	Task Force/20 (New Delhi) - **Go/No-Go** for Bay of Bengal and Beyond implementation - 5 days	27-Oct-03	31-Oct-03	**Completed**	RVSM/TF
73	Review of Air Traffic Management using RVSM in Bay of Bengal and Beyond (Bangkok) - 3 days	8-Jan-04	10-Jan-04		RVSM/TF Chairman, ATC/WG, IATA, India and Pakistan
74	Task Force/21 (Location TBD) - 90 day follow up review on Bay of Bengal and Beyond implementation - 3 days	10-Mar-04	12-Mar-04		RVSM/TF
75	Task Force/22 (Location TBD) - Review of FLOS for Western Pacific/South China Sea - 3 days	00 Jun 04	00 Jun 04		RVSM/TF
76	Task Force/23 (Location TBD) - 1 year follow up Bay of Bengal and Beyond implementation - 3 days	00 Nov 04	00 Nov 04		RVSM/TF

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