



**INTERNATIONAL CIVIL AVIATION ORGANIZATION**

**REPORT OF THE SECOND MEETING  
OF THE JOINT COORDINATION MEETING OF THE ICAO REDUCED  
VERTICAL SEPARATION MINIMUM (RVSM) IMPLEMENTATION TASK  
FORCES OF THE MIDDLE EAST AND ASIA REGIONS  
(JCM-RVSM MID/ASIA/2)**

**Abu Dhabi, United Arab Emirates  
27 to 28 August 2003**



## **PART 1 – HISTORY OF THE MEETING**

### **1. Meeting venue**

1.1 The Second Joint Coordination Meeting of the ICAO Reduced Vertical Separation Minimum (RVSM) Implementation Task Forces of the Middle East and Asia Regions (JCM-RVSM MID/ASIA/2) for implementation of RVSM in the Middle East Region and in the Asia Region for the Bay of Bengal and Beyond was held at the conference room of the Hilton Hotel, Abu Dhabi, United Arab Emirates (UAE) from 27 to 28 August 2003. A preparation and planning meeting was held on 26 August 2003.

### **2. Opening**

2.1. The meeting was officially opened by Mr. Khalifa Abu Jamhour, Director, Administration and Finance from the UAE General Civil Aviation Authority (GCAA) on behalf of the Director General of the GCAA. In his opening address Mr. Abu Jamhour extended the warmest welcome to all participants on behalf of the United Arab Emirates' General Civil Aviation Authority, to the second inter-regional coordination meeting on RVSM implementation between the Middle East and Asia Regions. He pointed out that the objective of the meeting is to ensure a safe, smooth and harmonized implementation of RVSM on 27 November 2003.

2.1.1 He was pleased to inform the meeting that the Ninth Meeting of the Middle East RVSM Task Force (MID/RVSM/TF/9), which was held prior to this meeting, had reached a significance milestone with the “Go” decision being made for RVSM implementation in the Middle East Region on 27 November 2003. The members of the MID RVSM/TF were congratulated for this excellent achievement.

2.2 Mr. David Moores, Regional Officer, ATM of the ICAO Asia and Pacific Office on behalf of Mr. Lalit B. Shah, Regional Director, thanked the Director General of the GCAA for the warm welcome extended to participants and for hosting this meeting. It was expected that this meeting would finalize RVSM implementation arrangements and achieve the mutual objective of seamless and harmonized RVSM operations between the Middle East and Asia Regions. He was pleased to report that, despite major disruptions to the Asia Pacific Office meeting schedule caused by the outbreak of the Severe Acute Respiratory Syndrome (SARS) in the Asia Region in late March this year, a concerted effort had been made to keep the RVSM implementation planning process on schedule. The Asia and Pacific Regional Office was confident that a “Go” decision would be made by the RVSM Task Force/20 meeting in October for the Asia Region. He congratulated the MID/RVSM/TF on their excellent achievement.

2.3 On behalf of the ICAO Asia Pacific RVSM Task Force, Mr. Sydney Maniam, Chairman of the Asia/Pacific RVSM Task Force expressed sincere appreciation to the GCAA for its efforts in hosting the meeting and the warm hospitality that had been extended to all delegates. He congratulated the ICAO Middle East RVSM Task Force for being able to complete key preparations and agreeing to go ahead with RVSM implementation on 27 November 2003. He underlined the commitment of the ICAO Asia/Pacific RVSM Task Force to implement RVSM in the Bay of Bengal and Beyond in conjunction with the Middle East. To this end, the States concerned would finalize preparations by the next Task Force Meeting that would be held in October 2003.

### 3. Attendance

3.1 The meeting was attended by a total of 35 participants from 13 States, and two international organizations. The list of participants is at **Appendix A**.

### 4. Officers and Secretariat

4.1 The meeting was jointly chaired by Mr. Sabri Al Busaidy of Oman, Chairman of the Middle East RVSM Task Force and Mr. Sydney Maniam of Singapore, Chairman of the Asia/Pacific RVSM Task Force. Mr. Dhiraj Ramdoyal, Regional Officer ATM, ICAO Middle East Office, Cairo and Mr. David Moores, Regional Officer ATM, ICAO Asia and Pacific Office, Bangkok were joint Secretaries of the meeting and were assisted by the rapporteurs of the three RVSM Task Forces Work Groups: Mr. Mohammed Abdullah Zainal of Bahrain and Mr. Ron Rigney of Australia (ATC/WG), Mr. Dean Fernandes of the UAE and Mr. Yusfandri Gona of Indonesia (OPS/AIR/WG), and Mr. Riis Johansen of the UAE and Dr. Paisit Herabat of Thailand (SAM/WG).

### 5. Language

5.1 The meeting was conducted in English. The documentation was issued in English.

### 6. Agenda

6.1 The following Agenda was adopted:

Agenda Item 1:	Operational considerations
Agenda Item 2:	Development of a common amendment proposal to the Regional Supplementary Procedures
Agenda item 3:	Safety and airspace monitoring
Agenda Item 4:	Other business

### 7. Action agreed

#### RVSM Implementation Strategy

7.1 The meeting agreed to the revised RVSM implementation strategy for the MID and ASIA Regions:

- a) RVSM would be implemented within all FIRs/airspace forming part of the MID and ASIA RVSM Implementation Plans from FL 290 to FL 410 inclusive;
- b) implementation of RVSM in the Middle East Region would be in an RNP 5 environment and interface with the Asia and Africa Regions in an RNP 10 environment;

- c) in the Asia Region, RVSM will be implemented on EMARSSH routes in an RNP 10 oceanic environment and over continental India. States concerned will include other routes in the operational plan for RVSM implementation, as necessary;
- d) the date for implementation of RVSM in the Middle East and Asia Regions will be 27 November 2003. The exact time for the change over from CVSM to RVSM will be 0200 UTC and will be carried out in accordance with the plans to be developed by States and ATS providers;
- e) the “Go” decision for RVSM implementation in the Middle East Region was made at the MID/RVSM/TF/9, 24-27 August 2003 and the “Go/No-Go” decision for the Asia Region will be made at the APAC RVSM/TF/20 in October 2003. No major problems were foreseen for the successful implementation of RVSM;
- f) States will provide transition procedures for flight level changes between CVSM and RVSM at the interface airspace between MID/ASIA;
- g) States will address all matters related to RVSM airspace safety monitoring in the Asia Region to the Monitoring Agency for the Asia Region (MAAR);
- h) the flight level allocation schemes for the Bay of Bengal and continental India, and for the Arabian Sea are as presented in this report; and
- i) all States concerned are committed to complete outstanding issues in a timely manner prior to the implementation date.

#### Letters of Agreement (LOAs)

7.3 The meeting agreed that:

- a) States concerned should ensure that all LOAs be signed at least one month prior to the implementation date. To this end, draft LOAs should be prepared as soon as possible in consultation with adjacent Area Control Centres;
- b) the relevant ICAO Regional Offices concerned would assist in the coordination of procedures contained in the LOAs, as necessary; and
- c) the signing of LOAs would be monitored by the RVSM Task Forces.

#### Special In-flight contingency procedures

7.4 The MID/ASIA *Regional Supplementary Procedures* (Doc 7030) for special in-flight contingencies will be amended including procedures for RVSM operations.

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## **PART II – REPORT ON AGENDA ITEMS**

### **Agenda Item 1: Operational considerations**

#### **Report of the RVSM/TF/19 Meeting**

1.1 The meeting was presented with an update of the Asia/Pacific RVSM/TF/19 meeting, which progressed planning for implementation of RVSM in the Bay of Bengal and Beyond scheduled on AIRAC date 27 November 2003, and was held at the ICAO Asia and Pacific Office, Bangkok, Thailand from 30 June to 4 July 2003.

#### Flight level orientation scheme for the Bay of Bengal and India

1.1.1 India presented a proposed flight level allocation scheme for the Indian FIRs. This took into account the requirements of international and domestic traffic flows over the Bay of Bengal and India. The flight level allocation scheme for the RVSM band FL 290 to FL 410 inclusive was designed with in-built separation of crossing tracks, and for weather deviations over the Bay of Bengal, which were significant during cyclonic activity in the monsoon season. The meeting reviewed the flight level allocation scheme and IATA proposed some changes. This matter had been progressed by the Special ATS Coordination Meeting held at Kuala Lumpur on 11-13 August 2003 hosted by the Civil Aviation Authority of Malaysia. Further information on the meeting is provided below.

#### Coordination with Myanmar

1.1.2 The APAC RVSM/TF/19 meeting expressed concern that Myanmar had not been able to attend Task Force meetings and up-to-date information on their readiness was not available. The meeting recognized that, if RVSM was not implemented in the Yangon FIR as planned, this could lead to serious consequences for the successful implementation of RVSM in the Bay of Bengal and Beyond.

1.1.3 As requested by the RVSM TF/19 meeting, the ICAO Asia and Pacific Office, Bangkok arranged for an ICAO Special ATS Coordination Meeting with Myanmar, neighbouring States concerned and IATA in Yangon on 28-29 July 2003. The meeting was intended to update the Department of Civil Aviation, Myanmar on the status of the ICAO RVSM Implementation Plan, assess their readiness, and seek ways to provide assistance to implement the RVSM plan as appropriate. However, the meeting was cancelled by Myanmar at short notice. In view of the urgency of the situation, the Bangkok Office carried out a mission to Myanmar on 28-29 July to accomplish the objectives of the Task Force.

1.1.4 The ICAO mission met with the Director General of the Department of Civil Aviation, Myanmar and senior ATS personnel. ICAO was assured that Myanmar fully supported the ICAO RVSM programme, and they would meet all requirements to implement RVSM on 27 November 2003. In this regard, AIC A06/02 had been issued by the Myanmar on 15 June 2002 notifying their intent to operate RVSM in the Yangon FIR on 27 November 2003 and this was still valid.

1.1.5 The Director General requested ICAO to arrange assistance for RVSM training for their ATC personnel. Also, as a matter of priority, assistance was required to improve the ATC VHF radio communications for the Yangon FIR, which were being blocked by illegal mobile radios transmitting on the ATC frequency.

1.1.6 ICAO informed the 14<sup>th</sup> Asia Pacific Air Navigation Planning and Implementation Regional Group meeting (APANPIRG/14, 4-8 August 2003) of Myanmar's position, and States were requested to consider providing assistance to Myanmar. In this regard, the Civil Aviation Authority of Singapore (CAAS) offered to provide RVSM training for air traffic controllers to be coordinated by ICAO. The question of the VHF radio problems would be considered by ICAO and follow-up action taken.

1.1.7 The meeting noting the Myanmar situation, expressed concern that if RVSM was not implemented in the Yangon FIR, this would have serious consequences for adjacent FIRs and the traffic flow over the Bay of Bengal with possible impact on the Muscat FIR. In this regard, ICAO advised the meeting that, as APANPIRG/14 had been informed, Myanmar had given assurance they would implement RVSM on schedule and there was no indication that this would not be successfully implemented. This was further strengthened by the offer made by CAAS to train Myanmar controllers. India advised that in the unlikely event that RVSM was not implemented in the Yangon FIR, they would take appropriate measures to introduce transition procedures in the Kolkata and Chennai FIRs, which would lead to operational difficulties but should not have any impact on the Muscat FIR. Further, the Chairman of the APAC RVSM/TF advised the meeting that this was a matter for the Task Force to deal with.

#### Reports on Large Height Deviations

1.1.8 The APAC RVSM/TF/19 meeting expressed concern that some States had not submitted large height deviation (LHD) reports. As the incomplete data could have an impact on the estimation of operational risk and subsequent comparison to the target level of safety (TLS), the States concerned were strongly urged to submit their outstanding reports as soon as possible, but not later than 31 July 2003. In this regard, the meeting was informed that the ICAO Bangkok Office would be taking follow-up action to inform the individual States concerned to submit their reports as matter of priority to ensure that the safety assessment was completed prior to the RVSM/TF/20 meeting in October 2003.

#### Publication of AIP Supplement

1.1.9 The meeting recognized that some States would not be able to publish their AIP Supplement for RVSM implementation until the flight level allocation scheme for Indian RVSM airspace was agreed. The meeting agreed that the AIP Supplements should be published as soon as possible, but not later than 30 September 2003 following the Special ATS Coordination Meeting on the flight level allocation scheme in Kuala Lumpur. As reported below, the flight level allocation scheme was agreed at the Kuala Lumpur meeting, and States could now publish their AIP Supplement based on this scheme.

#### Issues Relating to Airworthiness and Operation of Aircraft

1.1.10 The RVSM/TF/19 meeting noted that more than 80 percent of aircraft in the international fleets operating in the RVSM designated airspace in the Asia Region were RVSM approved. Some domestic and regional airlines were in the process of obtaining RVSM approval, and it was expected that the 90 percent target would be reached.

1.1.11 In response to a question as to whether it was a requirement to achieve 90 percent approvals to implement RVSM, it was explained that this was not the case. The percentage of aircraft approval was established by RVSM Task Forces taking into account the impact on operations, if a large number of aircraft operating in the airspace were not RVSM approved, and thereby would be excluded from RVSM airspace. It was not desirable to operate a mixed environment with a high

percentage of non-approved aircraft, and non-approved aircraft would be excluded except in special cases where appropriate procedures were established.

#### Continuous Airworthiness Programme and Monitoring

1.1.12 The RVSM/TF/19 meeting agreed that the continuous airworthiness programme and monitoring should be included in State authority procedures and airline operations manuals, in order to assess that aircraft RVSM primary means were reliable and complied with the limits of RVSM system tolerances.

#### Future OPS/AIR Work Programme

1.1.13 The RVSM/TF/19 meeting reviewed the RVSM phraseologies for controller-pilot data link communication (CPDLC) and agreed that there should be standard application for all regions. The meeting requested ICAO to liaise with the FANS Interoperability Teams, with a view to including the phraseologies in the PANS-ATM (Doc. 4444).

1.1.14 The RVSM/TF/19 meeting noted that the implementation of ACAS II was a mandatory ICAO requirement since 1 January 2003. The meeting also noted that most international fleets of RVSM operators were equipped with ACAS II (TCAS II V.7). The meeting agreed to continue to coordinate the use of ACAS II (TCAS II V.7) for RVSM operations.

#### Transition Plan for the transfer of RVSM monitoring duties and responsibilities to MAAR

1.1.15 AEROTHAI of Thailand reported to RVSM/TF/19 that all the infrastructure was in place and arrangements completed for MAAR to assume full responsibility from the Asia Pacific Approval Registry and Monitoring Organization (APARMO) operated by the Federal Aviation Administration (FAA) of the United States as the regional monitoring agency (RMA) for the Asia Region. The proposed Transition Plan presented to the TF/19 meeting included the MAAR duties and responsibilities, MAAR geographical area, adoption of the agency's name, date of transfer, and coordination principles with the APARMO before and after the proposed transition date.

#### Review of safety assessment for the implementation of RVSM in Bay of Bengal

1.1.16 MAAR presented to RVSM/TF/19 a preliminary report of the safety assessment for the implementation of RVSM in the Bay of Bengal and Beyond. However, the report was not conclusive because the traffic sample data (TSD) and LHD reports was incomplete. As these reports would have a significant impact on the safety assessment for RVSM operations in Bay of Bengal area, States concerned were reminded to provide the information and reports as indicated above. The APARMO and MAAR would provide an update on the safety assessment at the RVSM/TF/20 Meeting.

#### Report on the Special ATS Coordination Meeting in Kuala Lumpur

1.1.17 A Special ATS Coordination Meeting of the RVSM Task Force was held in Kuala Lumpur, Malaysia from 11 to 13 August 2003 to consider the flight level allocation scheme proposed at the RVSM/TF/19 meeting for the Bay of Bengal and the Indian continental airspace.

1.1.18 The Special meeting was presented with four proposals for various options for flight level allocation arrangements over the Bay of Bengal and Indian continental airspace. In consideration of these options and the operational requirements of international traffic flows and domestic



operations over continental India, the meeting agreed to the assignment of levels to be adopted by States concerned. The detailed arrangements are shown in paragraph 1.4 below.

#### No Pre-Departure Coordination (No-PDC)

1.1.19 The Special meeting considered the No-PDC procedures for the assignment of levels for departures from Bangkok, Kuala Lumpur and Singapore to Europe, and agreed that the No-PDC flight levels for departures from Kuala Lumpur and Singapore would be FL 280, FL 320, FL 340, FL 380 and FL 400 for the parallel routes over the Bay of Bengal.

#### Publication of AIP Supplement

1.1.20 The Special meeting agreed that States concerned would publish their AIP Supplements on RVSM as soon as possible but not later than 30 September 2003. The AIP Supplement was required to be mailed to all responsible parties two weeks ahead of 30 September to allow for postage time to the chart makers in line with the AIRAC 56 day notification period recommended for major changes in Annex 15.

#### Letters of Agreement (LOA)

1.1.21 The Special meeting agreed that States concerned should finalize their LOAs with adjacent FIRs, as soon as possible. Details of the assignment of levels and No-PDC arrangements should be included in the respective LOAs. In addition, specific coordination procedures to facilitate the efficient management of traffic between the FIRs should be put in place. Further, it was agreed that all States involved in RVSM implementation in the Bay of Bengal and Beyond should complete the LOAs prior to RVSM/TF/20 in October 2003. Where necessary, the States should arrange for bi-lateral meetings to finalize their LOAs.

#### EMARSSH route operations

1.1.22 The Special meeting also considered matters arising from the operation of the EMARSSH routes that had led to congestion as discussed at the ATS/AIS/SAR/SG/13 Meeting (23-27 June 2003). The outstanding items that had to be resolved were as follows:

- a) bottlenecks over Delhi, India causing significant delays for Delhi westbound departures;
- b) restrictions on flight levels on ATS route L333 over India due to military considerations – require additional FL 280;
- c) requirement for new ATS route joining ASOPO to Rahim Yar Khan (RK) within Indian airspace, which at present is unable to be used due to military considerations;
- d) effective use of mach number technique (MNT) procedures as application by some Bay of Bengal States was inconsistent and not in accordance with the ICAO *Air Traffic Services Planning Manual* (Doc 9426), causing unnecessary delays to long-haul international aircraft; and,
- e) a Traffic Orientation Scheme for flights transiting the Kabul FIR.

1.1.23 The meeting noted the substantial progress made at the Special meeting to resolve these issues which were not related to RVSM implementation but would affect the efficient operation of the airspace where RVSM was being implemented. These issues would be pursued in future ATS coordination meetings in the Asia Region.

1.1.24 The meeting was advised that one of the major problems that would directly impact on the efficiency of RVSM operations was related to the provision of air traffic services in the Kabul FIR. Airspace restrictions imposed by the Coalition Forces who was the control authority for Afghanistan airspace, resulted in insufficient flight levels and routes being available to cater for the nightly peak westbound traffic flow from Asia to Europe. The main problem was that FL 280 was not available and due to the heavy weight of the majority of flights on these routes, only FL 310 and FL 350 were operationally viable, and a significant number of aircraft could not reach FL 350 by the Kabul FIR where no flight level changes were permitted. Without FL 280, serious flight delays occur at all the major airports concerned, in particular at Delhi, Islamabad and Lahore, as well as airports in Southeast Asia. Ground delays of up to one hour were typical, and increasingly, flights were required to reroute to avoid the Kabul FIR when route congestion became excessive.

1.1.25 ICAO, IATA and States concerned have continuously pressed the Coalition Forces to release FL 280 for international overflights, even if this was limited to a four hour window to accommodate the night time peak traffic flow. However, to date, no progress has been made and efforts continue to resolve this problem.

1.1.26 The introduction of RVSM in the Kabul FIR and the FIRs in the Commonwealth of Independent States and the Russian Federation that were involved in the major traffic flows, was urgently required to enable RVSM benefits to be fully realized along the entire route network. Until progress was made to implement RVSM in the remaining FIRs, the westbound traffic flow from Asia to Europe via the Kabul FIR would continue to suffer ongoing constraints.

1.1.27 The meeting was requested that, as Afghanistan was in the area of accreditation of the ICAO Middle East Office, the implementation of RVSM and improvements to the provision ATS by the Ministry of Civil Aviation, Afghanistan should be addressed in the Middle East planning process as a matter of urgency. The meeting noted that due to resource constraints within ICAO, the Bangkok Office provided technical cooperation support to Afghanistan in respect to ICAO Technical Cooperation projects but all other matters fall under the purview of the Middle East Office. The meeting noted the concerns and consideration would be given to address these matters.

#### **Update on Middle East RVSM Implementation Plan**

1.2 The meeting was informed of progress made by the Middle East RVSM Task Force to complete its RVSM implementation Plan. At the MID/RVSM/TF/9 meeting 24-27 August 2003, the "Go" decision was taken based on the outcomes from the Safety and Monitoring Work Group (SAM/WG), the ATC Work Group (ATC/WG) and the Operations/Airworthiness Work Group (OPS/AIR/WG). The \*MID Region States will implement RVSM on 27 November 2003 and the rationale for the decision was based on the following:

- a) operator readiness is considered sufficient for the safe implementation of RVSM;
- b) safety objectives for technical risk (\*\*TLS of  $1.25 \times 10^{-9}$  fatal accidents per flight hour) have been met;

- c) safety objectives for operational risk are satisfied through evaluation and mitigation measures associated with functional hazard assessments (FHA) and National Safety Plans (NSP);
- d) appropriate procedures have been put in place; and
- e) States have committed to complete all outstanding issues prior to 27 November 2003.

\* *Except Afghanistan and Iraq*

\*\* *This value of technical risk takes into account projected traffic growths in the MID Region for at least 10 years and ensures that a TLS of  $2.5 \times 10^{-9}$  fatal accidents per flight hour would still not be infringed.*

1.2.1 The meeting recognized that the “Go” decision made by the MID/RVSM/TF/9 was a significant milestone in completing the RVSM Implementation Plan. The meeting expressed its appreciation to the MID Task Force members for this achievement.

### **Joint Work Groups**

1.3 The meeting broke up into the Joint Work Groups under the Rapporteurs of the MID/ASIA RVSM Work Groups to review and harmonize issues related to the MID/ASIA RVSM Implementation Plans.

### **Report of the Joint ATC/WG**

#### Airspace where RVSM would be applied

1.4 The joint ATC/WG reviewed the proposed areas where RVSM would be implemented on 27 November 2003, and noted the areas where RVSM/CVSM transitional arrangements would be required, including Afghanistan and portions of the Arabian Sea and Indian Ocean.

#### Assignment of RVSM levels (FL290 to FL410)

1.4.1 The meeting noted the outcomes of the Asia/Pacific Special ATS Coordination Meeting on the proposed flight level allocation arrangements for the Bay of Bengal and India, which was held in Kuala Lumpur, Malaysia on 11-13 August 2003.

1.4.2 As a result of more recent discussions between India and other key stakeholders, the table of proposed flight levels to be allocated for the Bay of Bengal oceanic airspace and continental India, as agreed at the Special ATS Coordination meeting at Kuala Lumpur had been slightly amended to remove some ambiguity and the revised version is shown in the table below.

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

**WESTBOUND**

<b>Bay of Bengal</b>	<b>Flight Level Allocation</b>
N877, P628, L759, M770, P570, M300, N563, N571, P574	FL 280, 320, 340, 360 (FL 360 subject to coordination) 380, 400
P646 and L507	All westbound levels available
P762, L301, N895, L645, A327	FL 300, 360 (FL 360 subject to coordination)

**EASTBOUND**

<b>Bay of Bengal</b>	<b>Flight Level Allocation</b>
N877, P628, L759, M770, P570, M300, N563, N571, P574	All eastbound Flight Levels available (Except for FL 290)
P762, L645, A327	All eastbound Flight Levels available. FL 290 No PDC
L301, N895	All eastbound Flight Levels available.

**PROPOSED FLIGHT LEVEL ALLOCATION 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**

<b>Indian Continental Airspace</b>	<b>Flight Level Allocation</b>
A791/A791W, N877	FL 300, 340, 360, 400 available (See note below)

**EASTBOUND**

<b>Indian Continental Airspace</b>	<b>Flight Level Allocation</b>
A791/A791E, N877	FL 310, 350, 390, 410 available

*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) *To meet flight level requirements for the domestic traffic flow over continental India, international overflights may be subjected to flight level changes by the appropriate Indian ACCs.*

Transition areas and transition procedures

1.4.3 India and Pakistan provided the meeting with an update on transitional arrangements for aircraft transiting westbound from Indian airspace into Pakistan and to Afghanistan and beyond.

1.4.4 For westbound traffic departing Indian airspace, there were two primary exit points, TIGER and SAMAR, and for the purposes of transition from RVSM to CVSM prior to entering the Kabul FIR, it was agreed between India and Pakistan that FL 300/FL 320 should be treated as one CVSM level (FL 310) and that FL 340/FL 360 should be treated as another CVSM level (FL 350). In both cases, the minimum longitudinal separation standard shall be 10 minutes MNT.

1.4.5 Pakistan informed the meeting that it would accept responsibility for the tactical control of aircraft to ensure the change from RVSM to CVSM was completed prior to aircraft entering the Kabul FIR. In this regard, a series of transitional areas for Westbound RVSM/CVSM levels had been established as follows:

A466	DIKHAN	–	SANAM
N644	DIKHAN	–	PAVLO
M881	DIKHAN	–	LAJAK
XX	ZB	–	ROSIE
B466	NH	–	KALAT – BABI – SERKA

1.4.6 In all of the above cases, aircraft are to be transitioned to FL 310, FL 350, and FL 390 before the respective transfer of control points (TCPs).

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

1.4.8 India also reported regular occurrences where Delhi departures westbound were being delayed on the ground, due to the unavailability of levels, which were being occupied by long-haul international flights, en-route from Southeast Asia to Europe, which were being sequenced into the Kabul FIR at FL 310, FL 350 and where possible FL 390.

1.4.9 The meeting was informed that, as widely reported in the media, India and Pakistan were currently holding bi-lateral discussions on air service arrangements between their two countries and accordingly, there was a possibility that traffic levels may increase, which would place additional demand on ATS routes and capacity.

1.4.10 It was suggested that in order to strongly make the case for further airspace usage within the Kabul FIR, it may be prudent for India and Pakistan to quantify the delays and peak periods for aircraft planning to depart India and Pakistan via Afghanistan. It was further suggested that this information should be collated and forwarded to the ICAO Asia and Pacific Office.

1.4.11 The meeting was informed that the proposed IATA Traffic Orientation Scheme (TOS) for flights transiting the Kabul FIR was supported by all concerned, and in light of information provided at this meeting by India and Pakistan, should be expanded to include India and Pakistan departures. The meeting was also informed that the proposed TOS was currently under review by the IATA Route Coordinating Group (Asia/Pacific), and that the TOS would be included on the agenda of the forthcoming 13<sup>th</sup> Bay of Bengal ATS Coordination Group (BBACG) meeting to be held on 8-12 September 2003 at Bangkok.

1.4.12 The meeting also noted that in addition to the Kabul FIR, there were several other RVSM transition areas and these included Pakistan/China, Pakistan/Tajikistan and several FIRs bordering the Arabian Sea and Indian Ocean areas, including the Mumbai/Male and Sana'a FIRs.

Large scale weather deviation procedures

1.4.13 In consideration of this item, the meeting was referred to Section 4 of the MID/ASIA *Regional Supplementary Procedures* (Doc 7030), noting that the procedures were valid for both the MID and ASIA/PAC Regions.

Suspension of RVSM operations

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

Special procedures for in-flight contingencies for continental and oceanic airspaces  
(harmonization of procedures for RNP 5 and RNP 10 environments)

1.4.15 The meeting reviewed the requirements for RNP 5 and RNP 10 operations and agreed that ATSUs would coordinate with adjoining Units on any advice received from aircraft which would preclude continued operation within RNP or RVSM airspace.

Coordination procedures between adjacent FIRs

1.4.16 Arrangements for coordination procedures between adjacent FIRs would be included in LOAs between ATSUs. Several States informed the meeting that they had exchanged draft LOAs ahead of the implementation of RVSM and in relation to the Kabul FIR and the special transitional arrangements, India and Pakistan informed the meeting that they had exchanged draft LOAs and that these documents were under final consideration.

SLOA or LOA to facilitate RVSM implementation

1.4.17 The meeting noted that States were currently finalizing SLOAs and/or LOAs to reflect the changes necessary for the implementation of RVSM on 27 November 2003. The meeting recognized the good progress made by States to complete the LOAs, and it was incumbent upon States to ensure these were signed before the implementation date. The RVSM Task Forces would closely monitor progress. As far as this meeting was concerned, the main issue was to ensure that the LOAs between States at the interface between the Middle East and Asia Regions were completed. To track progress, the following LOAs would be included on the MID/RVSM/TF list: Pakistan/Iran, Oman/Pakistan, Oman/India and Yemen/India.

1.4.18 As with other major airspace changes, the meeting recalled the absolute necessity for States to issue their respective AIP SUPP amendments in accordance with the 56 day AIRAC cycle requirements. The recommended target date for AIP SUPP issue is 2 October 2003.

Procedures for change over to RVSM

1.4.19 The meeting agreed to adopt **0200 UTC** as the switch over time for RVSM on 27 November 2003, and noted that this was the same time used for the implementation of the EMARSSH route structure on 28 November 2002.

1.4.20 The MID Region informed the meeting that Saudi Arabia had developed an RVSM Transition Plan and this would be used as the model (see **Appendix B**) for other States in the MID Region, and could be adopted by States in the Asia Region.

1.4.21 The meeting was informed that the Asia/Pacific Region would make their RVSM “Go/No Go” decision at the RVSM Task Force/20 meeting, which was scheduled to be held in India during October, and the final date would be confirmed by India with the ICAO Asia and Pacific Office, Bangkok. Transition plans and other arrangements would also be finalized at that meeting.

1.4.22 IATA fully supported the 0200 UTC implementation time, but informed the meeting that this was usually a time when flight plans would already have been filed for flight operations after 0200, and that some ATS Flight Plans may not contain RVSM levels within the relevant Fields of the FPL. Under such circumstances, IATA urged the ATS Providers to include some special/localized arrangements, which would ensure that ATS flight plans would not be rejected by the various automated flight data processors, as it would be very difficult for airlines to re-generate ATS flight plans after the event.

**Report of the Joint OPS/AIR Work Group**Monitoring Programme for Height-Keeping Performance

1.4.23 The meeting reviewed the readiness of aircraft and airlines for RVSM operations, and noted that some domestic and regional airlines were progressing their RVSM approvals. The meeting reported that some States had difficulties to perform the RVSM monitoring programme for height-keeping performance due to the non-availability of GMU units. I.R. Iran delayed monitoring for 20 aircraft such as Boeing 737, Fokker 100 and Tupolev for this reason.

Continuous Airworthiness Programme and Monitoring

1.4.24 The meeting considered that the continuous airworthiness programme and monitoring should be included on the State Authority Procedures and in airline operation manuals to assess that aircraft RVSM primary means was reliable for maintaining height-keeping performance. The meeting

considered that a post RVSM implementation monitoring system of height-keeping performance should be established for the MID/ASIA Regions. The meeting proposed that the MID/ASIA Regions should have a ground based height-keeping performance system with automated system units such as HMU.

#### Future OPS/AIR Work Programme

1.4.25 The meeting reviewed the MID/ASIA/JCM/2-RVSM-WP/4, Appendix A containing the draft proposal for amendment of the MID/ASIA *Regional Supplementary Procedures* for procedures for air-ground communications failure and special procedures for in-flight contingencies. The meeting considered that States in the Asia Region should review this proposal in more detail during the RVSM/TF/20 meeting before adopting it for the Asia Region.

### **Agenda Item 2: Development of a common amendment proposal for the Regional Supplementary Procedures**

2.1 The meeting noted that the proposed amendment to the MID/ASIA and PAC SUPPs for FIRs in the Asia/Pacific Region for special in-flight contingency procedures, which included revised weather deviation procedures for RVSM operations had been circulated to States and international organizations. A proposed amendment for special in-flight contingency procedures for FIRs in the MID Region was also being circulated. A further amendment to the MID/ASIA SUPPs was required to include the FIRs in the Asia Region where RVSM would be implemented on 27 November 2003.

### **Agenda Item 3: Safety and airspace management**

#### **Transfer of RMA Duties and Responsibilities from APARMO to MAAR**

3.1 The meeting was updated on progress to transfer the duties and responsibilities of the RVSM RMA for the Asia Region from the APARMO to MAAR. The meeting was also informed of progress on the readiness and safety assessments for the RVSM implementation in Bay of Bengal, and coordination arrangements between the Middle East Central Monitoring Agency (MECMA) operated by the General Civil Aviation Authority (GCAA) of the United Arab Emirates, MAAR, and other RMAs.

3.1.1 As endorsed by APANPIRG, AEROTHAI established MAAR to assume the duties and responsibilities of the Asia Region RMA based on the transfer of knowledge from the APARMO. The principal role of MAAR was to assist ICAO in the continuation of the safety assessment programme for RVSM implementation as determined by the APANPIRG.

3.1.2 At APANPIRG/14, the FAA and AEROTHAI jointly presented the final transition plan on the transfer of the duties and responsibilities of the RMA from the APARMO to MAAR, which was approved by the meeting. Accordingly, MAAR would assume the full RMA duties and responsibilities for the Asia Region on 2 September 2003. The duties and responsibilities of MAAR are the same as those established for the APARMO.

#### Geographical Area of MAAR

3.1.3 The geographical area in the Asia Region that MAAR was responsibility for included the Western Pacific/South China Sea and Bay of Bengal areas.



Readiness Assessment for the RVSM Implementation in Bay of Bengal

3.1.4 At the Asia/Pacific RVSM/TF/15 meeting, it was agreed that the TSD of aircraft operating on the EMARSSH routes would be collected by the States involved from 15 December 2002 to 15 February 2003. This time period was chosen to capture the higher traffic movements that were expected during the Hajj and Lunar New Year in the respective FIRs.

3.1.5 Based on collected traffic sample, 84.23 percent of operations in the Bay of Bengal area had been conducted by State-approved operators and aircraft. MAAR would provide an update on the readiness assessment of operators and aircraft at the Asia/Pacific RVSM/TF/20 meeting in October.

Safety Assessment for the RVSM Implementation in Bay of Bengal

3.1.6 In order to conduct the safety assessment of the RVSM implementation in the Bay of Bengal area, two pieces of information was required:

- Collected TSD from 15 December 2002 and 15 February 2003, and
- Monthly LHD reports, starting January 2002

Coordination between MECMA and MAAR

3.1.7 In line with the guidelines provided in the draft ICAO RMA handbook for coordination with all other RMAs, which MAAR would adopt, two basic sets of information would be coordination by MAAR:

- 1) transfer of point of contact data; and
- 2) transfer of RVSM approval data of aircraft registered by States under MAAR's responsibility.

3.1.8 The point of contact for MAAR is as follows:

Contact Person: Paisit Herabat  
Telephone: +66-2-287-8154  
Fax: +662-287-8155  
E-mail: [mailto: maar@aerothai.co.th](mailto:maar@aerothai.co.th)  
Website: <http://www.aerothai.or.th/maar>  
Address: Monitoring Agency for Asia Region (MAAR)  
ATS Operations Bureau  
Aeronautical Radio of Thailand  
102 Ngamduplee Tungmahamek, Sathorn  
Bangkok 10120 Thailand

**Report of the Joint SAM/WG**

3.2 The Joint SAM/WG reviewed the safety assessment and monitoring issues.

3.2.1 MECMA and MAAR agreed to exchange the approval data on the 15<sup>th</sup> of each month. In the beginning of the approval data transfer, MECMA will receive two files from MAAR, including:

- a) approval data transferred from the APARMO to MAAR; and
- b) new approval data collected by MAAR from the States in the Asia Region.

3.2.2 From MECMA, MAAR will receive the list of aircraft registered in or operated by operators from the States cognizant to MECMA. In addition, both MECMA and MAAR agreed that the data would be transferred in the format of Excel Spreadsheet.

3.2.3 The meeting noted that in the draft RMA handbook, Pakistan had been listed as being cognizant to MECMA. However, this was an oversight and Pakistan was cognizant to MAAR, and a correction to the draft RMA handbook had already been made. Hence, all of the approval data and other requested data (e.g., traffic sample data, large height deviation reports, etc) would be sent to MAAR.

3.2.4 MECMA provided the meeting with the point of contact as follows:

Contact Person:	Riis Johanson
Telephone:	+971-2-405-4216
Fax:	+971-2-405-4316
Email:	<a href="mailto:riis.johansen@mecma.com">riis.johansen@mecma.com</a> <a href="mailto:dean.fernandes@mecma.com">dean.fernandes@mecma.com</a>
Website:	<a href="http://www.mecma.com">www.mecma.com</a>
Address:	P.O.Box 666 Abu Dhabi UAE

3.3 In regard to the draft RMA handbook being developed by the ICAO Separation and Airspace Safety Panel (SASP, ICAO informed the meeting that at the 3<sup>rd</sup> Working Group of the Whole meeting of SASP, held at London, United Kingdom, on 12-23 May 2003, an update on the status of the handbook was provided. SASP had agreed that only by publishing the RMA handbook as an ICAO manual would give the level of authority considered necessary for the document. However, it was recognized that the length of the ICAO publication cycle, and the relatively low priority accorded to manuals, meant that publication could not be achieved in the short term. It was therefore agreed by SASP that the handbook should be distributed to existing and planned RMAs prior to publication.

3.3.1 ICAO was considering how the handbook could be distributed to all ICAO regions prior to publication, with a request that it be adopted by them as the document defining requirements and procedures for height monitoring in RVSM airspace. This would ensure that any future RMAs would also adopt the agreed procedures.

3.3.2 The meeting agreed with the action proposed by SASP for the distribution and use of the handbook, and that the procedures contained therein should be followed by the RMAs in the Middle East and Asia/Pacific Regions.

3.3.3 The view was expressed by MECMA that during the development of the handbook, consideration had been given to new RMAs being selected on the basis that they were assigned a tutor RMA from one of the experienced RMAs. It was felt that this would not work due to the uncertainty that long established RMAs may not be in a position to provide this service. Further, it was noted that the PIRGs were responsible to approve an RMA, and it was up to the PIRG to decide how an RMA would be selected. In the case of the Asia/Pacific Region, the meeting was informed that APANPIRG/14 had established the Regional Airspace Safety Monitoring Advisory Group

(RASMAG), and it was envisaged that this group made up of experts from the regional RMAs, would be in a position to advise APANPIRG on the selection of an RMA.

3.3.4 In regard to the mathematical model used for RVSM safety assessment, MECMA was of the view that, because this was a core element of conducting the safety assessment, ICAO should make this information available to RMAs. The meeting agreed that if ICAO had this model available, it would be appropriate to include it in the handbook.

3.3.5 The Asia and Pacific Office agreed to coordinate with SASP on the views expressed above, and the meetings position on the use of the handbook.

#### **Agenda Item 4: Other business**

##### **Proposed Flight Level Allocation Scheme for the Arabian Sea Area - Mumbai FIR - India**

4.1 The States adjoining the Arabian Sea/Indian Ocean RVSM/CVSM interface area informed the meeting that following discussions held out of session, the arrangements below were proposed for use between the RVSM and CVSM areas of the Arabian Sea and Indian Ocean.

4.1.1 The proposed flight level allocation scheme for the Arabian Sea area in the Mumbai FIR (India) had been designed keeping in consonance with the traffic flow on the Bay of Bengal and continental Indian airspace. In this flight level allocation scheme, due consideration had been given to both the west and eastbound traffic on EMARSSH routes over the Arabian Sea.

4.1.2 In view of the crossing routes in this area, the flight level allocation scheme had incorporated inbuilt vertical separation for traffic at the crossing points.

##### **FLIGHT LEVEL ALLOCATION SCHEME OVER ARABIAN SEA**

<b>SL. NO</b>	<b>ATS ROUTE</b>	<b>WESTBOUND</b>	<b>EASTBOUND</b>	<b>REMARKS</b>
1	L301 P574 N571	All RVSM levels are available:  F300, F320, F340, F360, F380, F400	All RVSM Levels are available:  F290, F310, F330, F350, F370, F390, F410	
2	N563	F320, F340, F360, F380, F400 Are available	F290, F310, F350, F370, F390, F410 are available	F300 and F330 are blocked for crossing routes
3	M300	F320, F340, F360, F380, F400 Are available	F290, F310, F350, F370, F390, F410 are available	F300 and F330 are blocked for crossing routes
4	P570	F320, F340, F360, F380, F400 Are available	F290, F310, F350, F370, F390, F410 are available	F300 and F330 are blocked for crossing routes

SL. NO	ATS ROUTE	WESTBOUND	EASTBOUND	REMARKS
5	R456	F280  Other levels may be authorized subject to availability in view of the converging traffic	F350, F370, F390 are available.  Other levels may be authorized subject to availability in view of the converging traffic	F300 and F330 are blocked for crossing routes
6	UL425	F320, F340, F360, F380, F400 are available.  Other levels may be authorized subject to availability in view of the converging traffic	F290, F310, F410 are available.  Other levels may be authorized subject to availability in view of the converging traffic	F300 and F330 are blocked for crossing routes
7	A451	F300	F330	Other levels may be available subject to availability
8	G450 B459 A474	F300	F330	Other levels may be available subject to availability.  These routes are going into FIRs which are NON-RVSM
9	A452, G465, A214, G424	F280 and below	F270 and below	NON-RVSM Routes

#### Asia Region “Go/No Go” Decision

4.2 The meeting noted that the MID/RVSM/TF/9 meeting had made a “Go” decision to implement RVSM, and the final meeting of the Asia/Pacific RVSM Task Force was scheduled in late October at Delhi, India when the “Go/No Go” decision would be made. The meeting expressed its satisfaction with the progress made by the MID and ASIA RVSM Task Forces to meet the scheduled implementation date of 27 November 2003. The outstanding issues reported above concerning the Asia Region were not considered to be significant and implementation should not be affected.

#### 5. **Closing of the Meeting**

5.1 Mr. Sydney Maniam, Chairman of the Asia/Pacific RVSM Task Force, on behalf of his colleagues from Asia/Pacific, expressed his sincere appreciation to the Director General of the GCAA and in particular to Mr. Riis Johansen, Director, Air Navigation Services and staff of the GCAA for their excellent support and warm hospitality extended to the participants during the meeting.

5.2 Mr. Sabri Al Busaidy, Chairman of the Middle East RVSM Task Force in closing the meeting thanked participants for the professional manner in which the meeting was conducted. The harmonization was now well established, and will significantly contribute to the successful implementation of RVSM between Asia, the Middle East and Europe. On behalf of his colleagues from the Middle East, he appreciated being able to work with colleagues from Asia/Pacific and the strong ties that have been established. He also thanked the staff of GCAA who had supported this meeting, as well as the preceding MID RVSM Task Force meeting.

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