



International Civil Aviation Organization

**The Twelfth Meeting of the South East Asia ATS Coordination Group
(SEACG/12)**

Bangkok, Thailand, 3 – 6 May 2005

Agenda Item 3: Review current operations across South-East Asia and identify problem areas

**REVIEW OF THE OUTCOMES IN REGARD TO
THE OPERATION OF DIFFERENT RVSM FLIGHT LEVEL ORIENTATION SCHEMES
IN THE ASIA/PACIFIC REGION**

(Presented by the Secretariat)

SUMMARY

This paper presents a summary of the report of the Twenty-Second Meeting of the RVSM Task Force (RVSM/TF/22, September 2004). RVSM/TF/22 undertook a review of the modified single alternate flight level orientation scheme (FLOS) operating in the Western Pacific and South China Sea (WPAC/SCS) airspaces, in consideration of the single alternate FLOS being applied in the Bay of Bengal and North-East Asia areas.

The paper highlights the postponement until September 2005 of the RVSM Task Force FLOS Review meeting originally scheduled for April 2005. This meeting, which would progress the RVSM FLOS issues for the Western Pacific and South China Sea airspaces, was delayed as a result of the non provision by some SCS States of Large Height Deviation (LHD) and traffic sample data for July 2004 to MAAR to enable suitable safety assessment activities to be undertaken in support of the proposed changes.

1 INTRODUCTION

1.1 The RVSM/TF/22 meeting was held on 24-28 September 2004 at the Asia/Pacific Regional Office, Bangkok to review the operation of two different regional FLOS, i.e. the modified single alternate FLOS used in the WPAC/SCS area and the single alternate FLOS used in adjacent airspaces of the Bay of Bengal area.

1.2 The adoption of the modified single alternate FLOS for the WPAC/SCS areas was agreed at the RVSM/TF/9 meeting (January 2001) for the implementation of RVSM on the revised ATS route structure for the South China Sea area. Under the modified arrangement, the six parallel uni-directional routes would operate the EVEN flight levels. The bi-directional crossing tracks utilized the ODD levels, using eastbound levels FL330, FL370 and FL410 and westbound levels FL310, FL350 and FL390.

1.3 At the time, the selection of the RVSM modified single alternate FLOS for the WPAC/SCS airspace provided for the optimum arrangement of flight levels for the South China Sea uni-directional parallel route structure. The modified single alternate FLOS provided for a high level of safety of operations with the crossing routes by using a combination of ODD flight levels, which were vertically separated from the parallel routes using EVEN levels. This arrangement was compatible with the conventional flight level orientation scheme (CVSM) then in use in adjacent non-RVSM airspaces. Transition areas were established to change between the flight level orientation schemes.

1.4 The RVSM/TF/20 meeting (October 2003), in making the decision to go ahead with RVSM implementation in the Bay of Bengal and Beyond area on 27 November 2003, recognized that transition issues would arise between the Bay of Bengal and adjacent WPAC/SCS areas as a result of the implementation of RVSM using single alternate FLOS arrangements in the Bay of Bengal airspace, and made provision to hold the RVSM/TF/22 meeting to review the RVSM FLOS for the WPAC/SCS area.

2 DISCUSSION

2.1 RVSM/TF/22 agreed that before any change was made to the current flight level schemes, any replacement system would be required to demonstrate that it was equally safe and efficient. This would be subject to the full ICAO process of a safety analysis in order to demonstrate that the change would meet the established target level of safety (TLS). The meeting also agreed that sub-regional modeling and/or simulation exercises should be carried out to support any change to the WPAC/SCS FLOS.

2.2 MAAR provided an update to RVSM/TF/22 of reported LHD occurrences in the RVSM airspaces submitted by States in both the WPAC/SCS and Bay of Bengal and Beyond areas. Based on the information submitted, MAAR had found that the LHD occurrences were more significant in the WPAC/SCS transition areas. RVSM/TF/22 requested MAAR to examine the LHDs in greater detail with a view to establishing the primary cause of the operational errors.

2.3 RVSM/TF/22 agreed that any modification to the FLOS for the WPAC/SCS area should be planned to coincide with the implementation of RVSM in Japan and the Republic of Korea, which at that time was scheduled for November 2005, in order to avoid too many separate changes to operations in the region. This implementation is now scheduled to occur on the 29th September 2005.

2.4 Recognizing the need to maintain the safety, efficiency and regularity of operations in the WPAC/SCS area, RVSM/TF/22 developed a provisional revised plan for the assignment of levels and corresponding No-PDC procedures. The WPAC/SCS proposed flight allocation and No-PDC levels for each route category agreed by the Task Force are reflected in the chart included as the **Appendix** to this paper and are described as follows:

- Class I – Both ways: FL310, FL320, FL350, FL360, FL390, FL400
- Class II – Eastbound: FL290, FL330, FL370, FL410
Westbound: FL280, FL300, FL340, FL380
- Class III – Eastbound: FL310, FL350, FL390
Westbound: FL320, FL360, FL400
- Class IV – All flight levels in the RVSM flight level band subject to bilateral agreement between FIRs to avoid ‘bunching effect’

2.5 The proposed assignment of levels for the large scale weather deviation on the parallel routes agreed were as follows:

Northbound: FL310, FL350, FL390
 Southbound: FL320, FL360, FL400

2.6 The RVSM/TF/22 meeting agreed that key issues relating to the FLOS for the WPAC/SCS area would have to be addressed before any change could be made. It was emphasized that in accordance with the ICAO safety management provisions in Annex 11, detailed safety assessments would need to be carried out by the States concerned. Also, MAAR would be required to undertake a safety assessment of the proposed FLOS for RVSM operations. In this regard, it was agreed that the traffic sample data previously requested for the month of July 2004 in connection with the updating of the overall safety assessment for RVSM operations in the WPAC/SCS area would be used for this purpose.

RVSM/TF/22 Action Plan

2.7 The Task Force developed an Action Plan of critical activities that had to be completed to facilitate the changes in the FLOS. This would encompass the following:

- Review of operational factors relating to the FLOS
- Review of traffic movement data for the WPAC/SCS area
- Revised assignment of cruising levels
- Revised No-PDC procedures
- Identification of transition areas
- Development of transition procedures
- Completion of simulation trials
- Completion of safety assessments by ATS providers as part of SMS
- Completion of safety assessments by MAAR
- Completion of modeling of traffic flows
- Completion of controller training
- Publication of relevant documents
- Completion of amendments to Letters of Agreement

MAAR Safety Assessment

2.8 In accordance with the action plan, the Monitoring Agency for Asia Region (MAAR) was tasked with undertaking the sub-regional safety assessments required to support the proposed change. At that time, it was expected that the required MAAR safety assessment activities could be completed in time for review by a further meeting of the RVSM/TF scheduled in late April 2005 for this purpose.

2.9 Consequently, MAAR was required to carry out a safety assessment for the Western Pacific/South China Sea that included, among others, consideration of the revised level assignments proposed and resulting transition areas and associated procedures. In order to undertake these activities, MAAR required the provision by States of complete traffic sample data (TSD) for the month of July 2004, and RVSM Large Height Deviation (LHD) data for a continuous 12 month period.

2.10 Although many affected States were able to provide data to MAAR as requested, some States with significant airspace in the South China Sea area have not yet provided suitable data to MAAR for analysis. As a result, the MAAR safety analysis has been unable to be completed and will not be able to be completed until appropriate data has been provided by the States concerned. In

the absence of the MAAR safety assessment, no change to the existing FLOS arrangements can be authorized.

2.11 Without suitable MAAR safety assessments being available for review, the Regional Office recognized that very little could be achieved by continuing with the scheduled April 2005 FLOS review meeting. Accordingly, and in recognition of the existing Regional Office meeting schedule and the MAAR responsibilities resulting from the implementation of RVSM in Japan (domestic) and Republic of Korea FIRs on 29 September 2005, the FLOS review meeting has been tentatively rescheduled during 5 – 9 September 2005, as RVSM/TF/27.

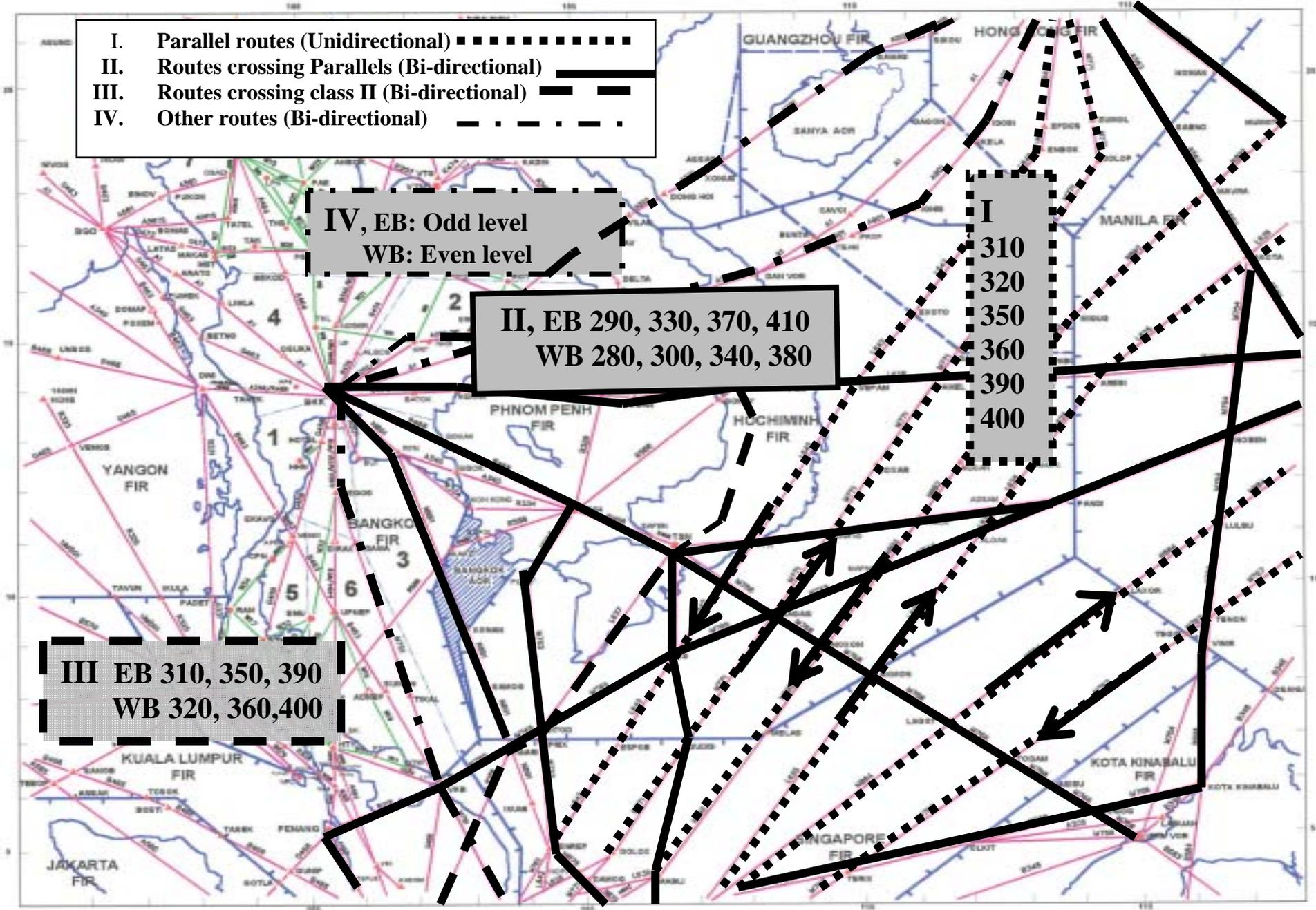
3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the proposed change to the flight level assignment to the modified single alternate FLOS for the WPAC/SCS area;
- b) note, and ensure progress in regard to, the action plan activities - including simulations of airspace operations - to be completed by affected States and MAAR prior to any change being made to the modified single alternate FLOS for the WPAC/SCS area; and
- c) ensure the immediate provision of the LHD and July 2004 traffic sample data to MAAR, in accordance with the MAAR requirements and proformas available at <http://www.aerothai.co.th/maar/dl.php>

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SEACE/12 - Appendix to WP/2
Provisional Revised Plan for Assignment of RVSM Levels for WPAC/SCS



- I. Parallel routes (Unidirectional) - - - - -
- II. Routes crossing Parallels (Bi-directional) —————
- III. Routes crossing class II (Bi-directional) - - - - -
- IV. Other routes (Bi-directional) - . - . - .

IV, EB: Odd level
WB: Even level

II, EB 290, 330, 370, 410
WB 280, 300, 340, 380

I
310
320
350
360
390
400

III EB 310, 350, 390
WB 320, 360, 400