



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 6TH RVSM SEMINAR AND THE 25TH MEETING
OF THE RVSM TASK FORCE IN REGARD TO THE JAPAN (Domestic)
AND REPUBLIC OF KOREA RVSM IMPLEMENTATION**

(Presented by the Secretariat)

SUMMARY

The paper presents a broad summary of the 6th RVSM Seminar and 25th Meeting of the ICAO RVSM Implementation Task Force, held in Incheon, Republic of Korea during March 2005 in preparation for the implementation of RVSM in the Incheon FIR and the domestic portions of the Tokyo and Naha FIRs scheduled for 29 September 2005.

1 INTRODUCTION

1.1 The Sixth RVSM Seminar and the Twenty Fifth Meeting of the ICAO RVSM Implementation Task Force were held consecutively during 21 to 25 March 2005 in Incheon, Republic of Korea. The Seminar and meeting were held progress preparations for the implementation of RVSM in the Incheon FIR and the domestic portions of the Tokyo and Naha FIRs.

1.2 The seminar was attended by 128 participants from Indonesia, Japan, Republic of Korea, Russian Federation, Singapore, Thailand, United States and IATA. The RVSM/TF/25 meeting was attended by 35 participants from China, Indonesia, Japan, Philippines, Republic of Korea, Russian Federation, Singapore, Thailand, United States, IATA and IFALPA.

2 DISCUSSION

The Sixth RVSM Seminar (RVSM Seminar/6)

2.1 The seminar programme covered the main topics in the ICAO guidance material on RVSM implementation and operation as set out in the ICAO *Manual on Implementation of a 300 M (1000 ft) Vertical Separation Minimum Between FL 290 and FL 410 Inclusive* (Doc 9574), and a wide range of subjects related to RVSM. The subjects presented were as shown below.

*RVSM Overview, Implementation Planning and Requirements
ATS Operational Procedures and ATC Training*

Benefits of RVSM in Bay of Bengal and South China Sea

Aircraft and Operator Approval Process
Aircraft and Operator Approval Documentation
Pacific Approvals Registry and Monitoring Agency (PARMO) and Minimum Monitoring Requirements

Commercial Aircraft Operations
Airline Training Issues

Regional Monitoring Agency (RMA) Duties and Responsibilities

Safety Monitoring Goals for RVSM Implementation
Safety Assessment Requirements

ATM and Regional Safety Considerations

State Aircraft Issues
Coordination with Military Agencies

Operation of RVSM in Japan

RVSM Safety Assessment

RVSM Implementation in Korea

2.2 An important safety aspect of RVSM highlighted by the seminar was the attention given to ensuring that aircraft operations and air traffic management conformed to high safety standards, and that these were in place prior to implementation. The seminar drew attention to the importance of States giving due diligence to the safety management requirements established by ICAO for RVSM, to fully participate in the regional monitoring programme, and to cooperate fully with the regional monitoring agency.

The 25th RVSM Task Force Meeting (RVSM/TF/25)

Operational Considerations for ROK and Japan

Republic of Korea (ROK)

2.3 The ROK had agreed to implement RVSM simultaneously with Japan and the date had been revised from 9 June 2005, previously reported to RVSM/TF/18 (June/July 2003) and the Special Coordination Meeting (July 2004), to 29 September 2005. The ICAO Asia and Pacific Office advised the meeting that a proposed amendment to the *Regional Supplementary Procedures* (Doc 7030), MID/ASIA/RAC, paragraph 6.5.1.1 to incorporate the Incheon FIR in the list of RVSM applicable airspace was being processed and would be circulated shortly to States and international organizations for comment.

2.4 The meeting was provided with a thorough briefing on the Republic of Korea's airspace structure and restrictions necessary to accommodate military operations. RVSM would be implemented in all controlled airspace in the Incheon FIR between FL 290 and FL 410 (inclusive) except for Special Use Airspace (SUAs) and the some airway segments to be used as transition areas. The transition areas would be established on ATS route segments adjoining the Pyongyang and Shanghai FIRs (Non-RVSM airspaces) to facilitate the safe and efficient transition of aircraft.

2.5 In accordance with the safety assessment requirements, ROK had submitted large height deviation (LHD) reports collected during 12 months from March 2004 to February 2005 to

MAAR. The Traffic Sample Data (TSD) as requested by the RVSM/TF/23 meeting (18-22 October 2004) for 2 months from 1 August to 30 September 2004 had been collected, and provided to MAAR on 25 October 2004.

2.6 The meeting was informed that all aircraft (100 %) that were expected to operate in RVSM airspace within the Incheon FIR by the national carriers (Korean and Asiana Airlines) had obtained RVSM operational approval from CASA.

2.7 The meeting sought more details of the flight level allocation scheme to be used on busy routes in the Incheon FIR in particular for A593 and crossing route B576. The meeting also requested ROK to finalize details of the transition arrangements with the Shanghai and Pyongyang FIRs where metric level systems were being used. This matter was considered by the ATC Work Group during the meeting, see paragraph 2.12.

Japan

2.8 JCAB confirmed that the single alternate FLOS would be used for domestic RVSM operations and non-standard levels would not be used due to traffic density and the traffic flow patterns

Review of the application of the RVSM FLOS for the Western Pacific and South China Sea (WPAC/SCS) Airspace

2.9 The modified single alternate FLOS had provided an optimum flight level arrangement that simplified ATC and flight operations and was successfully operating without delays since RVSM was implemented in October 2001. With the introduction of RVSM in the Bay of Bengal area in November 2003 and the proposed implementation in the Incheon, Naha and Tokyo FIRs in late September 2005, where the single alternate FLOS would be used, some States responsible for the WPAC/SCS airspaces had expressed concern at RVSM/TF/18 (June/July 2003) of additional difficulties controllers would face carrying out transition procedures between the two RVSM FLOS systems.

2.10 RVSM/TF/22 (September 2004) developed a revised plan for the flight level assignment and corresponding no pre-departure coordination (No-PDC) procedures. To progress this matter further, RVSM/TF/22 requested the States concerned to study the proposed change in detail and MAAR to undertake a safety assessment.

2.11 To conduct the safety assessment, States had been requested by RVSM/TF/22 to collect traffic sample data for July 2004 and submit this to MAAR along with the monthly LHD reports, essential to completing the safety assessment. It was anticipated that the safety assessment would be reviewed by the RVSM/TF/26 meeting scheduled on 25-29 April 2005. However, in spite of frequent reminders by MAAR and a State letter issued by the ICAO Asia and Pacific Office, several States responsible for significant portions of the airspace concerned failed to submit the required data in time for MAAR to complete the safety assessment to be reviewed at the RVSM/TF/26 meeting. Consequently, the RVSM/TF/26 meeting had to be postponed and rescheduled as RVSM/TF/27 on 5-9 September 2005 (tentatively).

2.12 The meeting reiterated that RVSM implementation and ongoing operations were contingent upon RVSM airspaces in the region meeting the TLS (5×10^{-9} fatal accidents per aircraft flight hour due to all causes of risk in the vertical dimension) established by APANPIRG for the Asia/Pacific Region (Doc 7030 MID/ASIA/PAC).

ATC Work Group

2.13 The ATC/WG considered the tasks assigned by the plenary and agreed that the first priority was to decide on the flight level allocation scheme to be used on A593 (east/west) and B576 (north/south) in the Incheon FIR. As the Shanghai FIR operated under the China metric system of levels and was non-RVSM airspace, transition was presently necessary from CVSM to China metric for westbound flights.

2.14 In regard to the transition procedures on A593, the meeting requested that China, ROK and Japan review the procedures with a view to simplifying the level changes by adopting a transition from RVSM to China metric without first having to change to a CVSM level.

2.15 The flight level allocation scheme proposed by ROK was reviewed by the meeting and several alternative proposals were considered. IATA also developed several alternative level schemes that would be acceptable to operators that were taken into account.

2.16 The meeting was updated on progress by the ATC/WG to determine the flight level allocation scheme for A593 and B576. However, there was insufficient time to complete discussions at the Work Group meeting, and Japan and the Republic of Korea agreed to continue discussion outside the meeting to progress this matter.

2.17 Following further discussions on the flight level allocation for A593 and B576, Japan, and the Republic of Korea reached agreement to implement RVSM on 29 September 2005 based on the current flight level allocation system and included RVSM levels on A593 and B576.

2.18 The meeting recognized that operation of A593 and B576 presented operational difficulties that could not be resolved at this meeting; however, the measures agreed to at this meeting for the flight level assignment provided a basis for implementing RVSM.

Airworthiness and Approval of Aircraft Work Group

2.19 The Work Group reviewed the readiness of aircraft and airlines for RVSM operations on the domestic and international routes in Naha, Tokyo and Incheon FIRs, and noted that almost 90 percent were RVSM-approved, and in the case of Korean fleets, they were 100 percent RVSM approved. There were some aircraft of airlines in Japan that were progressing RVSM approval and these would be finalized before implementation of RVSM. The meeting noted that most non-commercial jet aircraft operated by Japanese and Korean companies were already RVSM compliant.

2.20 The meeting considered a need to expand the RVSM level band up to FL 430 in order to accommodate the future operational needs of the new generation aircraft for long range and ultra-long range operations. The meeting recommended that this issue should be reviewed by the ICAO Separation and Airspace Safety Panel (SASP).

Safety and Airspace Monitoring Work Group (SAM/WG)

2.21 The SAM/WG reviewed the summary of the KYA analyses presented by MAAR regarding the collected traffic sample data between 1 August to 30 September 2004 submitted by JCAB and CASA. In this regard, the following issues were discussed:

- The average daily flights for Japan and ROK
- Predominant traffic flows by State and City pairs
- Major airlines and aircraft types
- Current flight level utilization

2.22 Due to the incomplete set of LHD data before July 2004, the Group agreed to revise the months of data collection to start from July 2004 instead of January 2004. This would still give

adequate LHD data for conducting the safety assessment for the Go/No-Go decision, which would be made at RVSM/TF/26 scheduled on 4-8 July 2005.

2.23 The SAM/WG noted that 71 percent of the aircraft that operated in the planned RVSM airspace were RVSM-approved, based on the RVSM approval records provided to MAAR from JCAB and CASA on 4 October 2004 and 2 March 2005, respectively. States were urged to continue to update MAAR in respect of aircraft which were RVSM approved.

2.24 MAAR reported that the preliminary estimates of technical, operational, and total risks for the RVSM implementation in the Japan/ROK airspace are as shown in the table below.

Source of Risk	Lower Bound Risk Estimation	TLS	Remarks
Technical Risk	1.19×10^{-9}	2.5×10^{-9}	Below Technical TLS
Operational Risk	1.90×10^{-9}	-	
Total Risk	3.09×10^{-9}	5.0×10^{-9}	Below Overall TLS

3 ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information in regard to the progress of Japan and Republic of Korea towards RVSM implementation, and
- b) identify and discuss issues arising from the postponement of the SCS FLOS review meeting from April until September, 2005.

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