



INTERNATIONAL CIVIL AVIATION ORGANIZATION

**TWENTY-SECOND MEETING OF THE
ASIA/PACIFIC AIR NAVIGATION PLANNING AND
IMPLEMENTATION REGIONAL GROUP (APANPIRG/22)**
Bangkok, Thailand, 5-9 September 2011
**Agenda Item 3: Performance Framework for Regional Air Navigation Planning
and Implementation**
3.3 RASMAG
RVSM IMPLEMENTATION IN MONGOLIAN AIRSPACE

(Presented by Mongolia)

SUMMARY

This paper provides brief information on preparation of RVSM implementation in Mongolian airspace. It covers basic challenges including difficulties related to flight level allocation scheme and results of the safety assessment which have been introduced in Mongolia for the first time.

That our two neighbors use different RVSM FLAS creates certain problems related to ANS planning and air traffic management of these three countries, especially Mongolia.

Strategic Objectives:

*A: **Safety** – Enhance global civil aviation safety*

*C: **Environmental Protection and Sustainable Development of Air Transport** – Foster harmonized and economically viable development of international civil aviation that does not unduly harm the environment*

Global Plan Initiatives:

GPI-2 Reduced vertical separation minima

GPI-3 Harmonization of level systems

GPI-8 Collaborative airspace design and management

1. INTRODUCTION

1.1 The main challenge is to increase capacity of the upper airspace covering main route and to promote safety and efficiency of air traffic. Procedural separation of 10 minutes is currently applied to all over-flying traffic and to maintain the required separation, some aircraft may be required to change to or accept flight levels which may be less than desirable in terms of fuel economy, efficiency of aircraft operations, etc.

1.2 Therefore, Mongolia had set on course of policy for enhancing safety and increasing airspace capacity with the introduction of new concepts such as surveillance systems, RVSM, RNAV, multiple tracks etc.

1.3 Mongolia, along with 7 countries from Eurasia, has been preparing to implement RVSM concept starting from 17th November, this year.

2. DISCUSSION

2.1 The implementation of RVSM in Mongolian Airspace is considered to be one of the most cost effective means to meet the air traffic need in shorter term. The expected benefits to be derived from the implementation of RVSM result include:

- Additional airspace capacity – more operational flexibility for ATC that they have the potential up to 20% more aircraft in some areas;
- En-route sector capacity increase – reduced in-flight delay;
- Improved utilization of airspace for conflict resolution;
- Fuel savings for airlines and air operators; and
- Environmental benefits from reduced fuel burn

2.2. Initially, the Civil Aviation Authority of Mongolia has established the Working Group on RVSM study and Implementation in 2009. Accessing the interim progress report of this group, MCAA concluded to activate implementation process and renewed the RVSM WG by the DG order on 20th August 2010. Mongolian RVSM Implementation plan was being developed by the RVSM WG. As it is written in the plan, RVSM was intended to be implemented in Mongolian airspace by November 2011.

2.3. Major challenge of the RVSM implementation is FLAS choice. Mongolia is located between Russia and China, which have different Flight Level Allocation Systems. This situation required from Mongolia careful study on FLAS choice, which could affect strongly on a day-to-day ATS operations and demands close coordination with neighboring states and ICAO.

2.4. Currently Mongolia has FLAS same with Russia. ICAO RVSM Meters System has been implemented in neighboring Chinese airspace since 2007 and RVSM Feet system was chosen by Russia to be implemented in its airspace from November, 2011.

2.5. Mongolia studied thoroughly both Meters and Feet FLAS and concluded to implement RVSM in two phases. Major choice relies on ICAO Feet System as it is used globally with exception of China and DPRK. At the first stage, Mongolia will implement RVSM Meters system in 17th November 2011. After changing all related database, charts and maps, rules, procedures and systematic, adequate training of air traffic controllers and pilots, ICAO Feet system will be operational from the end of 2013.

2.6. Civil Aviation Authority of Mongolia had contacted with Monitoring Agency for Asia Region and sent the collected data for pre-implementation safety assessment to the agency. Results of safety assessment which have been received in July, 2011 are the following:

Source of Risk	Lower Bound Risk Estimation	TLS	Remarks
Technical Risk	0.51×10^{-9}	2.5×10^{-9}	Below Technical TLS
Operational Risk	10.69×10^{-9}	-	-
Total Risk	11.20×10^{-9}	5.0×10^{-9}	Exceeds Overall TLS

The report noted:

*To further assist in decision making process, another risk estimation is provided based on the assumption that Radar is an effective preventive measure for long duration LHD occurrences. In this regard, the risk estimate is based on the actual number of LHD occurrences during May 2010 – April 2011 with duration being capped at 3 minutes as an effect from radar target availability. **The adjusted risk estimate is calculated at 2.20×10^{-9} fatal accidents per flight hour due to all causes.***

2.7. RVSM Implementation Working Group and safety managers are making analysis on the results of the report and preparing plan of activities to reduce the operational risk before implementation date.

2.8. RVSM training for instructors and air traffic controllers were conducted throughout year in Civil Aviation University of Sankt-Petersburg, Russian Federation, Civil Aviation Training Center, Bangkok, Thailand and Civil Aviation Training Center, Ulaanbaatar. In total, more than 100 ATC-s were involved in these special courses. Operational training are planned to start within 2 months before the implementation date.

2.9. The letters of agreement of air traffic control coordination between Ulaanbaatar ACC and adjusting centers of two neighbors were signed in July in Beijing and in August in Novosibirsk. According to these letters of agreement, buffer zones are going to be created over border points between Russian Federation and Mongolia because of FLAS difference. Buffer zones will be established in Russian airspace over border points DARN0, LETBI, SERNA which Russian ATC will have responsibility of level change from feet to meter. In other hand, Mongolian ATC will have responsibility to change level from meter to feet in its airspace over remaining 6 border points, NOPUS, NIGOR, GINOM, AMUTA, SULOK, SARUL.

2.10. Using different flight level systems is originating additional risks at the border areas and it can only be solved with harmonizing the FLAS.

2.11. In connection with above, Mongolia calls for unified global flight level standards to be considered and implemented by China, Russia and Mongolia.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a. Note the materials presented in this paper; and
- b. Discuss benefits of common flight level standards in the sub-region.