



European and North  
Atlantic Office

EURASIA RVSM TF/1

## SUMMARY OF DISCUSSIONS OF THE FIRST MEETING ON THE IMPLEMENTATION OF REDUCED VERTICAL SEPARATION MINIMUM (RVSM) IN THE EASTERN PART OF THE EUROPEAN REGION

*(Moscow, 1 to 3 September 2009)*

### 1. Introduction

1.1 The Deputy Minister of Transport of the Russian Federation, Mr Valery Okulov, welcomed the participants to the first meeting of the Task Force for Reduced Vertical Separation Minimum (RVSM) implementation in the Eastern part of the ICAO European region. In his opening address, he stated the following:

"I'm glad to welcome you in Moscow at the opening of the first meeting of the Task Force for RVSM implementation in the Eastern part of the ICAO European region.

Since 1982, the Soviet Union and later the Russian Federation have been taking part in programs to study comprehensively the question of reducing the Vertical Separation Minimum (VSM) above FL 290.

Until recently, there was no urgent need for RVSM implementation in the Russian Federation as its ATM system provides services for about 25 million square kilometers of airspace with the route network capable to ensure required level of flight safety.

However, the recent increase in air traffic (in 2008, ATM system of Russia provided services to 1 094 754 flight, 251 604 of them were transit flights) and commitment of the Russian Federation to harmonization with air navigation systems of adjacent States gave new impetus to intensified efforts on RVSM implementation.

The Ministry of Transport of the Russian Federation and the Federal Air Navigation Authority (*Rosaeronavigatsia*) held a number of interdepartmental meetings on the development of RVSM implementation strategy.

To develop an unbiased approach towards the selection of VSM system the Federal Air Navigation Authority, the State Research Institute "Aeronavigatsia", the State ATM Corporation and industry representatives conducted real-time RVSM simulations of different flight level systems.

Based on the results obtained, the Ministry of Transport of the Russian Federation has developed a draft Government Decree which contains a description of the vertical separation system corresponding to the ICAO Table of Cruising Levels, an RVSM implementation Action plan and the date of RVSM implementation - 17 November 2011. Currently, this document is in the approval process according to the Russian legislation.

In conclusion, I would like to wish you a successful and fruitful work at the First meeting of the Task Force for RVSM implementation in the Eastern part of the ICAO European region and express confidence that our co-operative efforts will ensure the development of specific proposals on RVSM implementation in the airspace of the States concerned."

1.2 In addition, the Deputy Minister stressed the importance of clearly stating economical and environmental benefits of implementing RVSM.

1.3 Mr, Alexandr Neradko, Head of the Federal Air Navigation Authority (FANA), also addressed the Task Force and he stressed the importance of implementing RVSM in all of the airspace of the Eastern part of the ICAO European Region.

1.4 Mr Alexandr Vedernikov, the Deputy Head of FANA, stated the Russian Federation position regarding RVSM and its implementation. The material presented to the Task Force is shown in **Appendix A**. Mr Sergey Piatko, the Director the State Scientific Research Institute "Aeronavigatsia" of the Russian Federation provided the Task Force with the outcome of the study that they had carried out to support the position of the Russian Federation as presented by Mr Vedernikov and highlighted by the Deputy Minister in his opening remarks.

1.5 Mr Igor Alexandrov, from the Ministry of Transport of the Russian Federation, was unanimously elected Chairman of the Task Force. Mr Victor Kourenkov and Mr Jacques Vanier of the ICAO EUR/NAT Office acted as joint Secretaries. Nineteen (19) participants from seven States and one international organisation constituted the Task Force. Sixteen observers, including major Russian Federation air carriers and service provider organisations were also in attendance. The list of Task Force participants is at **Appendix B**.

1.6 ICAO expressed its appreciation to the Russian Federation for having agreed to host the first meeting of the Task Force. ICAO also stressed their willingness to provide full support to the EURASIAN RVSM Project.

1.7 The Task Force agreed that it should be referred to in the future as the EURASIA RVSM Task Force. The following agenda was then adopted:

- Agenda Item 1: Review of the present status of preparation
- Agenda Item 2: Assumptions of the RVSM model to be implemented
- Agenda Item 3: Overview of the RVSM implementation tasks
- Agenda Item 4: Key milestones dates and associated timescales of required activities
- Agenda Item 5: Fields and methods of future cooperation and relevant priorities
- Agenda Item 6: Guidance to the Programme Management Group
- Agenda Item 7: Any other business

## **2. Review of the present status of preparation**

2.1 The Task Force carried a round table review of the status of RVSM implementations in each of the States. This included operational procedures, training, simulations, system changes and aircraft approvals. As indicated in paragraph 1.4 above the Russian Federation had conducted detailed studies on the RVSM system to be implemented, including the Flight Level Allocation System (FLAS) to be used. All other States indicated that work had been initiated and was in various stages of progress.

### 3. Assumptions of the RVSM model to be implemented

3.1 The Task Force acknowledged with appreciation the work carried out by the Russian Federation to determine the FLAS to be used to implement RVSM. The proposal by the Russian Federation to use the flight level system corresponding to the ICAO Table of Cruising Levels, as currently published (2 September 2009) in Annex 2, Appendix 3. Altitudes would be expressed in metres with equivalent feet. This was the flight level system used in Belarus. The Task Force supported the Russian Federation's position; however, it was highlighted that some issues needed to be resolved within National Administrations before a final commitment could be made. It was therefore agreed that all States would provide the Task Force Chairman and the ICAO EUR/NAT Office with their States' position before 15 October 2009 so that the European Air Navigation Planning Group (EANPG) Coordinating Group (COG) could be informed of developments at their October 2009 meeting.

### 4. Overview of the RVSM implementation tasks

4.1 To assist the Task Force with the planning, it was presented with a draft Master Plan for the Eastern European RVSM Implementation Programme. The Task Force accepted the Master Plan as the basic planning tool; however, it was recognized that national administrations would have to carefully review the plan to ensure that their requirements were captured. With this in mind, it was agreed that all States would provide the Task Force Chairman and the ICAO EUR/NAT Office with their States' position before 15 October 2009 so that the Master Plan could be updated.

4.2 The Task Force agreed that the following issues needed to be clearly brought out in the Master Plan:

- a) the need to capture military requirements;
- b) the need to carry out the safety assessment for the change in flight level system from the current National models to the current ICAO Annex 2 provisions; and
- c) the establishment of a Regional Monitoring Agency (RMA) in the Russian Federation.

4.3 In addition, the representative from Turkmenistan stressed the importance of including Afghanistan in the implementation plan. It was recognized that this matter was not within the remit of the Task Force but ICAO stated that they would raise the matter and initiate coordination with the ICAO ASIA/PAC Office and the Coalition Forces. The Chairman would be provided with an update by 15 October 2009 so that it can be brought to the attention of the COG if necessary.

4.4 In order to advance the work of the Task Force, based on the Master Plan, two expert groups were established. An ATM working group, under the Chairmanship of Mr Vladimir Karpov of the State ATM Corporation of the Russian Federation and composed of experts from all EURASIAN RVSM States, ICAO and Eurocontrol was set up. It would be responsible to advance work related to Sub-Programme 3, "ATM Preparations" which identified tasks which should allow States to make required airspace changes, introduce RVSM related ATC procedures, modify ATC systems, provide ATC training and to develop the required proposals for amendment to the *Regional Supplementary Procedures (SUPPs)* - (Doc 7030).

4.5 The Task Force agreed that all States should provide the name of their member of the ATM working group to the Chairman and to the ICAO EUR/NAT Office no later than 15 October 2009.

4.6 The Task Force agreed that this part of the Master Plan needed to be advanced with haste. Therefore, it was agreed that the ATM Expert Group should meet in the Russian Federation or Kazakhstan from 16 to 20 November 2009. The ICAO EUR/NAT Office would send an invitation letter to all concerned.

4.7 In addition, a monitoring group was established under the Chairmanship of Mr Evgeny Shcherbakov, from the State Scientific Research Institute "Aeronavigatsia" of the Russian Federation. It was understood that the monitoring group would also be responsible for the oversight of the required safety assessments. The group should be composed of representatives from all EURASIAN RVSM States, ICAO and the European Regional Monitoring Agency (RMA) (Eurocontrol). Considering that a shortage of monitoring expertise existed within the States concerned, ICAO was requested to organise a workshop together with the EUR RMA. This workshop would be held coincidentally with the first meeting of the monitoring group. It was stressed that the workshop was open to all stakeholders but that the working group meeting was for the members. The ICAO EUR/NAT Office would coordinate with the EUR RMA the date and venue of the workshop/meeting and send the convening letter as soon as the details have been agreed.

4.8 The Task Force agreed that the workshop/working group meeting should be held before the next meeting of the Task Force (paragraph 8.1 refers). It was further agreed that all States should provide the name of their member of the monitoring group to the Chairman and to the ICAO EUR/NAT Office no later than 15 October 2009.

## **5. Key milestones dates and associated timescales of required activities**

5.1 The Task Force agreed that RVSM should be implemented simultaneously in Kazakhstan, Kyrgyzstan, Mongolia, Russian Federation, Tajikistan, Turkmenistan and Uzbekistan on 17 November 2011. As regards Afghanistan (paragraph 4.3 refers), the Task Force indicated that it would be desirable that implementation took place in that State on 17 November 2011 as well. The Task Force recognized that this date was subject to changes but any modifications must be done in a coordinated manner amongst all States concerned.

5.2 A major milestone identified by the task force was the go/no go date. This date must be four AIRAC cycles prior to implementation, which is 28 July 2011. This was based on the requirement to provide two full AIRAC cycles prior notification, one AIRAC cycle for the Aeronautical Services to prepare the material for publication and one month to take action on the go/no go decision. Another major milestone was the date for the availability of the pre-implementation safety assessment. This should be presented to the decision makers two months prior to the go/no go decision, that is 2 June 2011.

5.3 Finally, the first milestone was 15 October 2009, as specified in paragraphs 3.1, 4.1, 4.3, 4.5 and 4.8 above as well as paragraph 8.1.

## **6. Fields and methods of future cooperation and relevant priorities**

6.1 The Task Force agreed that the implementation of RVSM would be conducted in full cooperation amongst and in coordination with the States concerned. The Task Force also agreed that, as indicated in paragraph 7.1 below, the structure for the management of the implementation of the EURASIA RVSM Programme would be a mechanism that could ensure that the cooperation and coordination was carried out effectively.

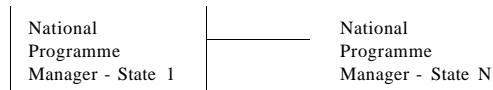
## **7. Guidance to the Programme Management Group**

7.1 The Task Force agreed to recommend that the following structure for the management of the implementation of the EURASIA RVSM Programme be accepted by the States concerned:

**RVSM Programme Management Board**

**Programme Manager**

**ICAO**



7.2 The Task Force acknowledged that it had put in place a mechanism to advance the work but that this would need additional substance; therefore, it was agreed that the structure, including names and/or functions would be included on the agenda of its next meeting.

**8. Any other business**

*Next meeting*

8.1 The Task Force noted that, based on the key milestones identified in paragraph 5.2 above, approximately 20 months were available to complete all of the tasks. It was therefore agreed that the second meeting of the task force would have to be held after the expert groups have met but not later than the week of 14 December 2009. The Task Force agreed that the meeting should be held in one of the EURASIAN RVSM States or the ICAO EUR/NAT Office of ICAO and that the Chairman should coordinate the venue as soon as possible and inform the ICAO EUR/NAT Office. The convening letter would then be sent by ICAO not later than 15 October 2009.

*Report to COG/45*

8.2 The Task Force agreed that the Secretary should provide COG/45, in October 2009, with a progress report.



**APPENDIX A - Statement of the Russian Federation position on the Agenda Items of the First meeting of the Task Force for the implementation of RVSM in the Eastern part of the ICAO European Region**

*(Paragraph 1.4 refers)*

**1. Review of the current preparatory status.**

The vertical separation system which has been in use in the Russian Federation since 1985 is different from the ICAO Table of cruising levels (Annex 2 to the Chicago Convention of 1944). This system has a number of advantages, but pursuing the goal of a phased integration into the global air traffic service system, the Russian Federation is conducting activities to implement RVSM in its airspace in accordance with ICAO Standards and Recommended Practices.

A major step in this process was Government Decree # 683 issued in September 2001 on RVSM implementation in the airspace of Kaliningrad FIR (over the Baltic Sea) and partly of Rostov -on -Don FIR (over the Black sea). It is necessary to note that the ICAO Table of Cruising Levels is applied in Kaliningrad and Rostov -on -Don FIRs.

In 2006, the Russian Federal Air Navigation Authority (FANA) issued Decree # 23-r dated 13.07.2006 to establish an Interdepartmental Working Group (IWG) on RVSM implementation in the airspace of the Russian Federation. The IWG drafted proposals for the flight level system and reviewed draft program and guiding materials on RVSM implementation in the Russian Federation airspace which had been developed by the State Research Institute "Aeronavigatsia" in the framework of its R&D program. The IWG also developed RVSM specifications for ATM systems.

The working group consisting of the experts from the FANA, the State ATM Corporation and the State Research Institute "Aeronavigatsia", conducted consultations with the colleagues from Belarus in the ICAO European/North Atlantic Office and took part in the meetings on RVSM implementation in China held in the ICAO Asia/Pacific Office.

As a result of this, the Ministry of Transport of the Russian Federation and the Federal Air Navigation Authority made a decision to develop a draft Government Decree on approving a set of actions to implement RVSM in the airspace of the Russian Federation and a new flight level system consistent with ICAO Standards to become effective on 17 November 2011.

Currently the following actions are being undertaken by the Russian Federation:

- a) approval of a draft Government Decree On Implementation of RVSM in the airspace of the Russian Federation;
- b) upgrading the ATM systems in the framework of the Federal Target Program "Modernization of the Joint ATM system of the Russian Federation for 2009 - 2015" pursuant to Government Decree # 652 dated 1 September 2008;
- c) personnel training for RVSM based on internationally approved training syllabi;
- d) out of total 968 aircraft registered in the Federal Register of civil aircraft of the Russian Federation which are capable to operate in RVSM environment, 481 aircraft have obtained RVSM approval; and
- e) implementing aircraft modifications to meet the MASPS required for RVSM approval.

## **2. Proposed RVSM model for implementation.**

In December 2008, pursuant to the resolution of the Interdepartmental group on RVSM implementation in the Russian Federation (Minutes of 1<sup>st</sup> meeting, 11 June 2006), the State Research Institute "Aeronavigatsia" and the State ATM Corporation performed simulations of different flight level systems in RVSM environment.

The comparison of the following VSM systems has been done during the simulation exercises:

"Option I" - flight level system corresponds the ICAO Table of Cruising Levels published as the ICAO standard in Annex 2 Appendix 3 to the Chicago Convention. Altitudes are expressed in feet with equivalents in meters. This flight level system is used by the majority of States worldwide;

"Option II" - flight level system with altitudes expressed both in meters and feet. Flights in RVSM airspace are operated at flight levels expressed in feet and located 100 feet higher than the flight levels stipulated by the ICAO standard ( the flight level system applied in China);

"Option III" - flight level system with altitudes expressed only in meters (300-meter vertical separation up to flight level of 8400 meters; 500-meter separation between flight level of 8400 meters to 8900 meters; 300-meter separation between 8 900 meters to 12 500 meters, and 600-meter separation above 12 500 meters);

" Option IV" - flight level system corresponds to the ICAO Table of Cruising Levels. Altitudes are expressed in meters with equivalents in feet. This flight level system is used in Belarus and Ukraine;

"Option V" - flight level system with altitudes expressed in meters up to 8 850 meters and above 12 500 meters (with vertical separation of 300 and 600 meters accordingly). Separation minimum below flight level of 8 850 meters is divisible by 100 meters, and in RVSM airspace with altitudes expressed in meters (divisible by 50 meters) and in feet corresponds the ICAO Table Cruising Levels.

The simulations were carried out based on the models of air traffic flows of Saint -Petersburg ACC at the peak period of the day. Furthermore, the following additional scenarios were used to simulate a complicated ATS environment: increased traffic (up to 40 aircraft per hour); near misses, assigned altitude deviations, non-compliance with RVSM due to equipment failure.

The following specialists were involved in the simulations:

- a) operational air traffic controllers experienced in ATS in RVSM environment;
- b) operational air traffic controllers not experienced in ATS in RVSM environment;
- c) representatives of an ATC unit experienced in ATM systems implementation and RVSM operations;
- d) representatives of Moscow Air Traffic Control Centre to evaluate possible negative impact of RVSM implementation on ATM/ATS in the most complex airspace of the Joint ATM System of the Russian Federation; and
- e) pilots experienced in RVSM operations and flight training.

The simulations were performed on the premises of Saint-Petersburg State Civil Aviation University. An updated version of ATC simulator "Expert 3" was used as a basis for simulations. The practical exercises



were performed by air traffic controllers from Saint -Petersburg ACC. Scientific support, post-simulation analysis and evaluation were provided by the experts from the State Research Institute "Aeronavigatsia".

Based on the simulations results, experts from the Ministry of Transport of the Russian Federation and the Federal Air Navigation Authority (FANA) consider it feasible to implement the RVSM system as per the ICAO Table of Cruising Levels, (see Attachment 1).

### **3. Review of RVSM implementation tasks.**

The Ministry of Transport and the FANA have developed an Action plan of the key activities to implement RVSM in the airspace of the Russian Federation to be approved by the Government of the Russian Federation. The draft action plan is of a general character.

It is intended to establish an interdepartmental working group to provide and coordinate RVSM implementation, develop and approve a detailed RVSM implementation program.

This program shall provide the follow ups on the ICAO requirements stipulated in the Manual for the RVSM application at 300 M(1000 feet) between flight level 290 and flight level 410 inclusive. This program will be aligned with the ICAO Regional Office. Pursuant to the established international procedure the work in progress to prepare for the RVSM implementation shall be broadly presented to the aviation community. Various media resources, including Internet, will be used to accomplish this task. Information of the current work progress will be posted on an Internet site specifically arranged for this purpose. The planned document updates and amendments will be posted there for review.

Preparation for the transition will require accomplishing a whole variety of work to modernize the ATM equipment. Priority in this respect goes to ATM automation means as far as operational functions are concerned. A proper review of this issue was accomplished in the State ATM Corporation. The modernization of the equipment to implement RVSM is planned to be accomplished through:

- a) Introduction of three consolidated centers (Moscow, Irkutsk, Khabarovsk);
- b) Modernization of the existing equipment in 37 ATC centers; and
- c) Complete equipment replacement in four ATC centers.

In addition to that it is planned to upgrade the air traffic controller's simulators to provide hands-on training for the ATC personnel.

A lot of work will need to be done to approve aircraft to operate in RVSM airspace. At the time of RVSM implementation, the number of non-approved aircraft airborne at any one time shall not exceed 10%.

The main prerequisite of RVSM implementation is flight safety. Reduction of vertical separation minima shall by no means increase the accident risk. Thus, the pre-implementation risk assessment based on air traffic data and a mathematical model approach is essential. A similar assessment shall be performed on a regular basis after RVSM implementation. RVSM safety monitoring stipulates the whole range of activities. Establishment of a proper monitoring system shall be initiated in the pre-implementation phase. This system shall function in accordance with the established international requirements. The main objective is to identify safety risks associated with transition to RVSM and demonstrate their acceptable level, where appropriate.

The relevant amendments will be introduced into national and international documentation (e.g. Doc 7030). Letters of Agreement with adjacent ATS units will be signed after appropriate coordination.

RVSM training will be provided to pilots and air traffic controllers based on approved training syllabi.

Actions for the safe and efficient RVSM transition shall be properly planned. Detailed information on the intended activities will be provided in appropriate documentation including RVSM implementation program.

In March 2008, at its meeting in Samarkand (Uzbekistan) the "Eurasia" Coordination Council RVSM working group suggested that "Eurasia" Coordination Council recommend the aviation authorities of the Member States to identify common timeframe and vertical separation system for RVSM implementation and develop a common action plan for a simultaneous transition to RVSM.

**4. Key dates and related timeframes of the actions needed.**

The action plan of RVSM implementation in the Russian Federation airspace provides quarterly schedule of the RVSM Program with the implementation date of 17 November 2011 (see Attachment 2).

**5. Areas and mechanisms of future cooperation and related priorities.**

Within the framework of the current meeting the Russian Federation intends to develop a common approach to RVSM implementation in the Eastern part of ICAO European region and gather support of ICAO and Eurocontrol in this matter.

**6. Guidance material for the program management group.**

The Russian Federation considers it appropriate to study the possibility of developing a guidance material on RVSM implementation and operation in the airspace of the Eastern part of European region. "Guidance material on the Implementation of a 300 m (1 000 ft) Vertical Separation Minimum in the European RVSM airspace" (EUR Doc 009) could be used as a basis for such a document.

**7. Any other business.**

At the first meeting of the Task Force for RVSM implementation in the Eastern part of the ICAO European region, the Russian Federation proposes to elect a Chairman and a Secretary of the Task force and determine frequency and venue of the future Task Force meetings.

Attachment 1  
To the Position Statement

**RVSM in the Airspace of the Russian Federation\***

True Track Angle from 000° to 179°						True Track Angle from 180° to 359°					
IFR			VFR			IFR			VFR		
FL	Altitude		FL	Altitude		FL	Altitude		FL	Altitude	
	Meters	Feet		Meters	Feet		Meters	Feet		Meters	Feet
50	1500	5000	55	1700	5500	60	1850	6000	65	2000	6500
70	2150	7000	75	2300	7500	80	2450	8000	85	2600	8500
90	2750	9000	95	2900	9500	100	3050	10000	105	3200	10500
110	3350	11000	115	3500	11500	120	3650	12000	125	3800	12500
130	3950	13000	135	4100	13500	140	4250	14000	145	4400	14500
150	4550	15000	155	4700	15500	160	4900	16000	165	5050	16500
170	5200	17000	175	5350	17500	180	5500	18000	185	5650	18500
190	5800	19000	195	5950	19500	200	6100	20000	205	6250	20500
210	6400	21000	215	6550	21500	220	6700	22000	225	6850	22500
230	7000	23000	235	7150	23500	240	7300	24000	245	7450	24500

## EURASIA RVSM TF/1 - Summary of Discussions

True Track Angle from 000° to 179°						True Track Angle from 180° to 359°					
IFR			VFR			IFR			VFR		
FL	Altitude		FL Meters	Altitude		FL	Altitude		FL Meters	Altitude	
	Meters	футы		Meters	Meters		Meters	футы		Meters	
250	7600	25000	255	7750	25500	260	7900	26000	265	8100	26500
270	8250	27000	275	8400	27500	280	8550	28000	285	8700	28500
290	8850	29000	-	-	-	300	9150	30000	-	-	-
310	9450	31000	-	-	-	320	9750	32000	-	-	-
330	10050	33000	-	-	-	340	10350	34000	-	-	-
350	10650	35000	-	-	-	360	10950	36000	-	-	-
370	11300	37000	-	-	-	380	11600	38000	-	-	-
390	11900	39000	-	-	-	400	12200	40000	-	-	-
410	12500	41000	-	-	-	430	13100	43000	-	-	-
450	13700	45000	-	-	-	470	14350	47000	-	-	-
490	14950	49000	-	-	-	510	15550	51000	-	-	-
			-	-	-				-	-	-

\* The System is effective starting from 17 November 2011 after the amendment of the Federal Airspace Utilization Rules of the Russian Federation.

Attachment 2  
To the Position Statement

### RVSM Implementation Plan

	<b>Activity</b>	<b>Timeline</b>
<b>1</b>	Establishment of interdepartmental group to develop, coordinate and support the implementation	4th quarter of 2009
<b>2</b>	Development and approval of the interdepartmental RVSM implementation plan	4th quarter of 2009
<b>3</b>	Information support of the implementation	4th quarter of 2009
<b>4</b>	Development, approval and implementation of requirements to ATS equipment	1st quarter of 2010
<b>5</b>	Development, approval and implementation of requirements to RVSM approved aircraft	2nd quarter of 2010
<b>6</b>	Issue of RVSM approval to aircraft and operators	4th quarter of 2010
<b>7</b>	Development and implementation of the RVSM safety monitoring system	4th quarter of 2010
<b>8</b>	Development and approval of ATS procedures, rules of the air in RVSM airspace. Drafting of amendments to the aviation law of the Russian Federation	1st quarter of 2011
<b>9</b>	Personnel RVSM training	2nd quarter of 2011
<b>10</b>	Safety assessment of transition and operations in RVSM environment	3rd quarter of 2011
<b>11</b>	Transition to RVSM	17 November 2011
<b>12</b>	Confirmation of RVSM operations safety (RMA establishment)	1st quarter of 2012

**APPENDIX B - LIST OF PARTICIPANTS**

*(Paragraph 1.5 refers)*

**LIST OF PARTICIPANTS**

**BELARUS**

Alexander SHOSTAK  
Genadzy REUTOVICH

**KAZAKHSTAN**

Faat BOGDASHKIN  
Yuri TISHKIN

**KYRGYZSTAN**

Gennadiy SIZINTSEV  
Tagir ATAKUEV

**MONGOLIA**

Erendereg BATBOLD

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Igor ALEXANDROV  
Vladimir KARPOV  
Dmitry STEPANKO  
Evgeny SHCHERBAKOV  
Vadim KRAVTSOV  
Marina MOTORNAYA  
Elena GRACHEVA

**TURKMENISTAN**

Akhmet MYRADOV  
Ergesh MURADOV  
Altybay TORAYEV

**UZBEKISTAN**

Oleg MOSIENKO

**IAC**

Nikolay ZOBOV

**ICAO**

Jacques VANIER  
Victor KOURENKOV

**END**