

**Agenda Item 3: Review of the issues related to RVSM Implementation in the CAR/SAM Regions****a) ATC Operations Working Group (ATC/WG)****3.1 ATC RVSM Simulations**

3.1.1 Following Conclusions AP/ATM/5/26 and AP/ATM/5/27 related to ATC simulations in an RVSM environment, Brazil, Chile, Colombia and Guyana informed the Meeting of the methodology and procedures used in their ATC simulations and the results of those simulations.

3.1.2 In carrying out these simulations the basic principles outlined in the CAR/SAM RVSM Concept of Operations (CONOPS) were considered. The main results of these experiences are summarized in the following paragraphs, while the most relevant aspects have been included, according to their importance, in **Appendix A** to this part of the report.

**3.2 Brazil's Experience**

3.2.1 In order to assess the impact of the application of RVSM in Brazilian continental airspace, three scenarios were developed and simulated in real time. In each scenario's data collection, parameters had to be defined to aid the analytical process.

3.2.2 The results of the Brazilian ATC simulation were categorized in different ways: by sector, by scenario, by status of RVSM approval of aircraft, etc., in order to identify all the factors which might have an impact on RVSM implementation in Brazilian airspace.

3.2.3 Collation of parameters by sector provided significant information for reaching conclusions on each of the Brazilian FIRs. These results were obtained from the average number of valid exercises. For valid exercises, Brazil considered the average and trend of data collected, in an attempt to give more consistency to the sample for subsequent analysis. This method allowed for the elimination of atypical sample results, due to contingencies such as data collection failures, below or above average air traffic controller performance, the natural familiarization process during the initial exercises, etc. Thus, the analysis covered the three exercises that obtained the most representative results, except for the "unfulfilled flight level requests" parameter, which was included in 5 exercises; and the "air traffic incidents" parameters and the questionnaire, which were included in all of the exercises.

**3.3 Chile's Experience**

3.3.1 The objectives of the simulations carried out in Chile was to determine the ability of Air Traffic Control Services to accommodate, in the control sectors' responsibility of the Unified Area Control Center (CCAU), civil and State non-RVSM approved aircraft in the domestic RVSM airspace between FL 290 and FL 410 inclusive, to identify situations and possible conflict points that may affect air operations safety regarding traffic flows in relation to current traffic and foreseen traffic; as well as controllers workload and, finally, to identify possible conflict situations.

3.3.2 The RVSM ATC simulation carried out in sectors 1, 2 and 4 of the CCAU allowed Chile to conclude that it is possible to "accommodate" non-RVSM approved aircraft in the continental RVSM airspace. However, this operational flexibility increases the controllers workload, In addition, the

indefinite application of this exception or the increment of users with non-RVSM approved aircraft may, also, decrease airspace capacity, especially in bi-directional routes, where it is necessary to increase vertical separation when aircraft with different approval status operate on opposite tracks.

### 3.4 **Colombia's Experience**

3.4.1 RVSM simulations were carried out during a span of 120 hours and took place under normal conditions as well as in bad weather, with upper winds, communication failures, lack of radar coverage, and aircraft in distress. The simulation had very precise objectives that will enable Colombia to determine the subsequent actions for RVSM implementation.

3.4.2 In general terms, the results revealed that under normal weather conditions, there are no traffic problems and airspace capacity increases however, under poor weather conditions, it was necessary to deviate aircraft from the route and provide radar control services to ensure separation. It was also determined that in the event of contingencies excellent communications systems for coordination with adjacent ACCs are required. In the case of deviation due to poor weather conditions and contingencies, excellent communications and radar coverage ensure compliance with the target level of safety. Colombia concluded that these experiences provide elements for inclusion into the operational letters of agreement with adjacent ACCs.

### 3.5 **Guyana's Experience**

3.5.1 The main objective of Guyana's simulation was to introduce the operational concept of RVSM to Air Traffic Controllers and to identify potential problems that they may encounter. All controllers and supervisors participated of this exercise. The scenario was developed from an operational day's traffic transiting Georgetown's FIR from FL290 to FL410 during peak periods, under no-radar procedures.

3.5.2 Guyana found the need to identify aircraft RVSM approval in the box corresponding to flight plan forms (FPL). Vertical separation of 1000ft was applied with little difficulty in the FIR; however, when a non-RVSM approved aircraft was included there were occasions when 2000ft separation was not assured throughout the airspace. The suspension of RVSM operations increased the workload and anxiety level of the controller. In summary, the objectives of this first RVSM simulation were met and Guyana is committed to the continuation of the RVSM simulation programme, as well as the development and enhancement of RVSM procedures.

3.5.3 In view of the above and the importance of the results of these simulations, the meeting decided to formulate the following conclusion:

#### **Conclusion AP/ATM/6/15**

#### **Reference material for ATC simulations**

That CAR/SAM States and International Organizations, in the development of ATC simulations in an RVSM environment, take as reference the simulation experiences carried out by Brazil, Chile, Colombia and Guyana, presented in **Appendix A** to this part of the report.

### 3.6 **Air Traffic Controllers Instruction and Training Program in Paraguay**

3.6.1 The meeting took note that in order for Paraguay to adhere to the schedule of activities and tasks to be carried out in the RVSM implementation in the CAR/SAM Regions, an information course

was prepared and implemented addressed to Air Traffic Controllers, who will be directly affected by RVSM implementation in Paraguay. The main objective of the course was to provide an introduction to air traffic controllers on the benefits and operational considerations associated with RVSM.

3.6.2 The contents of the introductory course to an RVSM environment, with the basic concepts and conditions, raised interesting concerns expressed by the Air Traffic Controllers and, at the same time, they also knowledge situations from an operational point of view. The meeting considered it appropriate to include the most relevant aspects of the document presented in **Appendix A** to this part of the report.

### 3.7 **RVSM Operational Requirements for ATC Automated Systems**

3.7.1 Mexico informed the Meeting of the RVSM operational requirements that it has planned to incorporate into its ATC automated system. An issue highlighted in this study was that the computer program will not accept flight plans with levels between FL 290 and FL 410 if a letter W does not appear in field 10 and/or the legend STS/NON RVSM (non-RVSM aircraft, not allowed to operate in an RVSM airspace) in field 18 of the ICAO flight plan form.

3.7.2 In this regard, the necessary modifications to the ATC automated system are planned, including the installation of ATS automated messages, radar display with altitude filter, reflection in the Flight Progress Strips of the aircraft RVSM approval status, conflict alerts to respond to the eventual reduction of the separation, change of RVSM status during the flight, FPL or CPL messages.

3.7.3 Likewise, it was noticed that the changes related to the automated ATC system should also be applied to the radar simulator with adequate time to permit carrying out more realistic simulations of RVSM environment and training of ATC personnel prior to implementation. In view of the importance of the matters discussed in this document, the meeting considered it appropriate to include the most relevant aspects in **Appendix A** to this part of the report.

### 3.8 **Costs of ATC Modifications in Chile**

3.8.1 Following **Conclusion AP/ATM/5/42**, Chile presented information regarding ATC modifications that will support RVSM implementation. The modifications include the installation of an RVSM software patch in the visual system that will enable Air Traffic Controllers, among other aspects, to maintain permanent information of the approval status of every aircraft operating not only in RVSM airspace, but also in the surrounding airspaces. Another characteristic to be included in this system is related to the handling of the information in the flight plans to allow the automatic updating of the electronic flight progress strips.

3.8.2 The system modification also considers the installation of the Medium Term Conflict Detection system (MTCD) that along with the Small Term Conflict Detection system (STCD), in use, will enhance the national RVSM airspace safety levels. This information, in further detail, is presented in **Appendix A** to this part of the report.

### 3.9 **Review of the National Plans to Accommodate Non-RVSM Approved Aircraft**

3.9.1 Regarding this matter, the meeting took note of the preparatory activities carried out so that Brazil, Colombia, Ecuador, Panama, Peru and Venezuela could hold a meeting in order to review flight level allocations in the FIR limits according to the Table of Cruising Levels of Appendix 3 to Annex 2 and include the allocations in the Operational Letters of Agreement. The meeting being organized by the aeronautical authority of Venezuela will include representation from Brazil, Curacao, French Guiana,

Guyana, Suriname, Trinidad and Tobago and United States. This meeting's purpose is to review, among other matters, issues related to ATC Operational Letters of Agreement.

### 3.10 **Status of Applicability and Effectiveness of the Conclusions Related to RVSM Implementation in the CAR/SAM Regions**

3.10.1 The meeting reviewed the list of RVSM Conclusions and Decisions adopted by GREPECAS 11 and the third, fourth and fifth Meeting/workshops of ATM authorities and planners for RVSM, RNAV routes and RNP implementation in the CAR/SAM Regions and proceeded to classify their application status. **Appendix B** to this part of the report presents the updated status of implementation of such Conclusions and Decisions.

### 3.11 **ATC Follow-up Table on RVSM Implementation Status**

3.11.1 The meeting adopted a follow-up table which addressed the most relevant activities of the RVSM program in the ATC area. The purpose of the table is to the advances reached by the CAR/SAM States and International Organizations as they work jointly towards a simultaneous and harmonious RVSM implementation.

3.11.2 In this respect, the States and International Organizations provided updated information on the implementation status of each one of the ATC elements of the RVSM implementation programme in the CAR/SAM Regions. **Appendix C** to this part of the report presents the Table with preliminary information provided by the States and International Organizations.

#### **General Survey on RVSM Implementation Status**

3.11.3 Likewise, it was considered appropriate to prepare a survey for the States/International Organizations that includes all of the issues related to RVSM, tasks related to airspace safety and monitoring, ATC operational issues, airworthiness and aircraft operations and other general requirements. The purpose of this survey is to allow every aeronautical administration of the CAR/SAM Regions to be aware of the progress reached by each of the parties involved, which will enable a general view of the status of completion of the tasks in order to reach a successful RVSM implementation. In this respect, the meeting formulated the following Conclusion:

#### **Conclusion AP/ATM/6/16**

#### **Survey on RVSM implementation status**

That the ICAO Secretariat take the appropriate actions in order to formally collect the information requested in the survey presented in **Appendix D** to this part of the report.

### 3.12 **ATS Points of Contact**

3.12.1 The meeting reviewed and updated the List of ATS and OPS/AIR Points of Contact of the States/Service Providers, presented in **Appendix E** to this part of the report. The States and International Organizations that have not yet provided such information are required to do so.

### 3.13 **CAR/SAM Concept of Operations (CONOPS)**

3.13.1 The meeting took note of the amendments included in the Concept of Operations (CONOPS) following **Conclusions AP/ATM/5/29** and **AP/ATM/530**. Likewise, editorial changes were included.

3.13.2 The meeting considered that as consequence of ATC simulations and their results, as well as the periodic revisions of the procedures included in the CONOPS, it may be appropriate to make some modifications to the Concept of Operations, for which the following decision was formulated:

**Decision AP/ATM/6/17 Amendments to CONOPS**

That the ICAO Secretariat amend the CONOPS in order to:

- a) reflect it as a dynamic document to be amended whenever considered appropriate;
- b) establish an amendment procedure to the document;
- c) include an illustrative RVSM Flight Level Allocation Scheme (FLAS) in paragraph 9; and
- d) update paragraph 4.6.1, Lateral Offset, according to the following text:

***LATERAL OFFSET***

4.6.1 *The increased accuracy of modern navigational equipment allows aircraft to fly route centerline with heightened fidelity. This higher level of accuracy is desirable from an operational standpoint. However, in certain circumstances, such increased accuracy has the potential to increase the risk of collision due to the loss of planned vertical separation above that which would otherwise pertain. Some examples of this possible increase are situations in which a pilot/ATC loop error results in two aircraft operating in opposite directions on the same route and flight level, climb or descent through a flight level without adequate longitudinal separation from aircraft operating at that level, and altitude deviations due to turbulence. One method of mitigating risk in such situations is use of lateral offsets from centerline. In addition to risk mitigation, lateral offsets can eliminate the effect on lower-flying aircraft of turbulence generated by an aircraft's wake vortex. A sample lateral offset procedure is described in Appendix xx to this document. At present, the concept of operation for the CAR/SAM Regions does not include use of a lateral offset procedure because pertinent ICAO guidance to date does not address the operational complexities of continental airspace. However, should ICAO provide guidance, which includes continental airspace, the possible use of lateral offsets in the Regions would be reconsidered.*

3.13.3 The CONOPS, including the amendments presented during this meeting, is presented in **Appendix F** to this part of the report and is also published on the ICAO SAM Office Website: [www.lima.icao.int](http://www.lima.icao.int).

3.14 **Draft Guidance Material on the Implementation of a 300 M (1000 ft) Vertical Separation Minimum (VSM) between FL290 and FL410 Inclusive for Application in the Airspace of the Caribbean and South American Regions (CAR/SAM RVSM Guidance Material)**

3.14.1 The meeting took note of the latest amendments introduced in the draft Guidance Material on RVSM implementation in the CAR/SAM Regions, including the changes proposed by Brazil and the

United States. Due to the importance of this material, the meeting decided to propose its adoption by GREPECAS through the appropriate mechanisms, taking into account that it is a dynamic document and that the necessary amendments will have to be introduced in order to keep it duly updated. In this regard, the meeting expressed the need to include in the document an adequate amendment procedure. In view of the above, the meeting approved the following decision and conclusion:

**Decision AP/ATM/6/18                      Amendments to the Guidance Material for RVSM Implementation**

That ICAO Secretariat take the appropriate actions in order to:

- a) include in the Guidance Material for RVSM Implementation a text that reflects that it is a dynamic document and will be amended whenever considered appropriate; and
- b) develop and include an amendment procedure for this document.

**Conclusion AP/ATM/6/19                      Guidance Material for RVSM Implementation in the CAR/SAM Regions**

That the Guidance Material for RVSM implementation in the CAR/SAM Regions be presented to GREPECAS for adoption and application in the CAR/SAM Regions.

3.14.2        The draft of this document, without its appendices, is presented in **Appendix G** to this part of the report and is also published completely with all its appendices on the ICAO SAM Office Website: [www.lima.icao.int](http://www.lima.icao.int).

**3.15                      RVSM Phraseology to be Applied in the CAR/SAM Regions**

3.15.1        The meeting recalled that the aeronautical phraseology related to RVSM operations used in other ICAO Regions, where RVSM is already applied was reviewed during the Second Meeting of the RVSM Task Force (Sao Jose dos Campos, Sao Paulo, Brazil, 8 to 12 July 2002) and that Decision 2/4 recommended its use in the CAR/SAM Regions.

3.15.2        The meeting also took note that the RVSM aeronautical phraseology is not yet included in the Air Navigation Services Procedures– Air Traffic Management (PANS ATM, Doc. 4444 ATM/501, 2001 edition) and that, according to the plans of ICAO Headquarters ATM section, it is expected that such phraseology be included in the PANS ATM becoming the standardized ICAO phraseology for RVSM operations for the end of 2004, prior to RVSM implementation in the CAR/SAM Regions.

3.15.3        Based on the above, considering that RVSM phraseology should be part of the RVSM regional documentation and as the date of its inclusion in the PANS ATM is not definite, the meeting agreed on the following decision:

**Decision AP/ATM/6/20                      Inclusion of RVSM Phraseology in the Guidance Material for RVSM implementation in the CAR/SAM Regions**

That the ICAO Secretariat take the appropriate actions to include RVSM Aeronautical Phraseology, presented in **Appendix H** to this part of the report, as Appendix G to the *Guidance Material on the Implementation of a 300 M (1000 ft) Vertical Separation*

*Minimum (VSM) between FL290 and FL410 Inclusive for Application in the Airspace of the Caribbean and South American Regions*

### 3.16 Use of RVSM Phraseology

3.16.1 As a result of its ATC simulations, Brazil noticing the lack of adequate phraseology to indicate to a non-RVSM aircraft to operating in a non-exclusionary RVSM airspace that it must wait for a specific time or fix to enter the RVSM airspace, proposed the following:

***“EXPECT CLEARANCE TO ENTER RVSM AIRSPACE AT (TIME OR FIX)”***

3.16.2 The meeting reviewed this proposal and taking into account the work already being carried out by ICAO Headquarters ATM Section, requested that the Secretariat make an inquiry on this matter in order to establish the appropriateness of its use, and formulated the following decision:

#### **Decision AP/ATM/6/21**

#### **Proposal of RVSM additional phraseology**

That the ICAO Secretariat inquire of ICAO Headquarters about the appropriateness of using the following RVSM phraseology:

***“EXPECT CLEARANCE TO ENTER RVSM AIRSPACE AT (TIME OR FIX)”***

### 3.17 Communications Failure Procedures in RVSM Operations

3.17.1 The RVSM Task Force Rapporteur (RVSM/TF) informed the meeting that in the Regional Supplementary Procedures, ICAO Doc. 7030, contingency procedures established for an RVSM scenario do not consider the procedures to follow in case of communications failure.

3.17.2 The European Region has established an RVSM communications failure procedure, shown in ICAO Doc. 7030, Regional Supplementary Procedures, SUPPS, which establishes that the “ATC shall provide a minimum vertical separation of 600 m (2000 ft) between an aircraft experiencing a communications failure in flight and any other aircraft when both aircraft are operating within the EUR RVSM airspace.”

3.17.3 For that reason, considering that RVSM procedures should be globally established and harmonized and taking into account that ICAO Headquarters, Montreal is working toward that end, the meeting formulated the following conclusion:

#### **Conclusion AP/ATM/6/22**

#### **Consultation on Communications Failure Procedures in RVSM Operations**

That the ICAO Secretariat query ICAO Headquarters on the need to include in the amendment to Doc 7030, Regional Supplementary Procedures, CAR and SAM Parts, Communications failure procedures, the following text:

***“The ATC will arrange a minimum vertical separation of 600 m (2000 feet) between an aircraft with flight communications failure and any other aircraft, when both aircraft are operating within the CAR/SAM RVSM airspace, unless the horizontal separation between the aircraft is considered adequate.”***

### 3.18 **ATC Operational Letters of Agreement**

3.18.1 Taking into account that, in order to achieve a successful CAR/SAM RVSM Implementation, it is necessary that the States/International Organizations carry out tasks, inter alia the updating of ATC Operational Letters of Agreement, the Meeting formulated the following Conclusion:

#### **Conclusion AP/ATM/6/23                      Table to Follow-up ATC Operational Letters of Agreement**

That the Table presented in **Appendix I** to this part of the report be adopted to track the status of ATC Operational Letters of Agreement between adjacent States/International Organizations.

### 3.19 **Lateral Offset Procedures**

3.19.1 The meeting reviewed the issues related to the lateral offset procedure in the continental airspace of the CAR/SAM Regions and determined that at this time there are no en route areas that meet the criteria for the use of such a procedure. However, the meeting established that lateral offsets could be a valuable asset in the future and, consequently, agreed on the following conclusion:

#### **Conclusion AP/ATM/6/24                      Lateral Offset Procedures**

That the SAM/WG, through their contacts with the Separation and Airspace Safety Panel (SASP), relay the interest of the States/International Organizations of the CAR/SAM Region in the utilization of a lateral offset procedure at such time in the future if a suitable procedure is developed for application in the Region's continental airspace.

### 3.20 **Operational Readiness Target**

3.20.1 The meeting discussed the issues related to the Operational Readiness Target and acknowledged the unique situation of the CAR/SAM Regions, in which some States may choose to accommodate non-RVSM approved aircraft in the RVSM stratum, if they are operating entirely within the domestic airspace of the State, in addition to those aircraft specifically identified in the Regional Supplementary Procedures, ICAO Doc. 7030, i.e. state, humanitarian, ferry and maintenance aircraft, as established in the CONOPS, paragraph 4.2.1. At the same time, the meeting recognized the need to communicate to the airspace users the need to achieve a high percentage of RVSM approved aircraft in both the domestic and international fleets. It also acknowledged that this number is indeed a "target" number, which may change in the future as other aspects of RVSM implementation are developed. In this regard, the following conclusion was agreed upon:

#### **Conclusion AP/ATM/6/25                      Operational Readiness Target**

That GREPECAS endorse the RVSM Operational Readiness Target of 90%, understanding that this number may be adjusted due to the further evolution of the RVSM implementation effort.

### 3.21 **Aeronautical Information Circular (AIC) to Provide Updated Information to Airspace Users**

3.21.1 The meeting addressed the need for a new Aeronautical Information Circular (AIC) to provide updated information to airspace users, while at the same time better defining the intent of the States concerning the accommodation of all types of non-RVSM approved aircraft in RVSM airspace. An updated AIC was drafted and reviewed by the group, and is attached as **Appendix J** to this part of the report. The sample AIC allows States to insert information that is specific to their planned RVSM implementation. In light of the above, the following conclusion was adopted:

**Conclusion AP/ATM/6/26 Interim RVSM AIC**

That States use the sample AIC shown in **Appendix J** to this part of the report, to develop an interim RVSM AIC that is specific to their RVSM implementation plans, and then publish this new AIC on November 27, 2003.

**3.22 RVSM Switchover**

3.22.1 The ATC/WG discussed the assigned task of developing the procedures for the switchover to an RVSM operational environment. The Meeting acknowledged the work of previous regional RVSM implementation processes and reviewed the current plans of Mexico, the United States, and Canada, which call for transition to RVSM at 0901Z on 20 January 2005. However, several States expressed concern that the traffic scenarios within their airspace at 0901Z may not be conducive to RVSM implementation, and that an earlier time may be more appropriate. Some delegates suggested that a phased implementation over a two or three hour timeframe could be more suitable for the Region. The meeting acknowledged the need to protect those States that are centrally located in the en route traffic flows. In view of the above, the following decision was formulated:

**Decision AP/ATM/6/27 Scenarios for the Transition to RVSM on 20 January 2005**

That the Chairman of the ATC Working Group, working with the ICAO Regional Offices, develop several scenarios for the transition to RVSM on 20 January 2005, including the option of a phased sub-regional implementation and present these options for review at the next meeting of the RVSM/TF ATC Working Group.

**3.23 Regional Table Top Exercises**

3.23.1 The meeting considered that a regional Table Top simulation should be conducted at a future meeting in order to closely study the RVSM operational environment and identify specific issues and problems that may require resolution. Several members of the group expressed concern that such an exercise may be difficult to develop and run in a meeting environment, and suggested that it may be more beneficial to identify a laboratory facility in the region where such an exercise could be conducted more efficiently. The group did acknowledge the potential value of a Table Top exercise and requested that additional study into the feasibility of such an exercise be conducted. In view of the above, the following decision was formulated:

**Decision AP/ATM/6/28 Regional Table Top Exercises**

That the Chairman of the ATC Working Group explores the feasibility of conducting a regional Table Top exercises at a future meeting of the RVSM/TF ATC Working Group.

## **b) Aircraft Operations and Airworthiness Working Group (OPS/AIR/WG)**

### **3.24 Appointment of the Rapporteur of the OPS/AIR/WG**

3.24.1 The OPS/AIR Working Group appointed Mr. Andrés Prado Grez as rapporteur for this meeting, who developed his tasks with the assistance of ICAO SAM Office Safety Oversight Regional Officer (RO/SO).

### **3.25 Status of Applicability and Effectiveness of the Conclusions Related to RVSM Implementation in the CAR/SAM Regions**

3.25.1 The OPS/AIR Working Group reviewed the Conclusions and Decisions adopted in GREPECAS and in the AP/ATM meetings carried out thus far, according to the contents of Appendix A to working paper WP/02 and agreed to inform the meeting on the following matters:

- a) Conclusion AP/ATM/4/18 – Reference Documentation for aircraft approval and operation in an RVSM airspace is still valid and that the reference documentation in Spanish reviewed during the meeting will yield an approved version by the end of January 2004; and
- b) Conclusions AP/ATM/5/35 and AP/ATM/5/43 – Minimum Monitoring Requirements are valid until the appropriate form is included in the reference documentation to be published in Spanish by January 2004.

### **3.26 State Survey for Aircraft Operations and Airworthiness (OPS/AIR)**

3.26.1 The Working Group took note of the contents of the general Survey on RVSM Implementation status and proposed modifications in the OPS/AIR areas that were included in the referred survey, which is presented in **Appendix D** to this part of the report.

### **3.27 OPS/AIR Points of Contact of the States/Services Providers**

3.27.1 The members of the OPS/AIR Working Group considered that, since the list of points of contact was not duly completed and part of the information is no longer valid, it is necessary to update it, adding at the same time more accurate information. In this respect, the following was concluded:

#### **Conclusion AP/ATM/6/29                      Updating of the OPS/AIR Points of Contact of the States/Service Providers**

That through the ICAO Regional Offices CAR/SAM States are required:

- a) to submit again, on behalf of civil aviation authorities, the necessary information to update the list of contacts; and
- b) that such information also includes the name of the person designated as point of contact, the official address of the Civil Aviation Authority and the corresponding e-mail address.

### 3.28 **List of Commercial Aircraft Registered in the CAR/SAM Regions**

3.28.1 The OPS/AIR Working Group considered that, due to the time elapsed since the distribution of the initial list presented by IATA, an update of the information provided is required, therefore the following conclusion was formulated:

#### **Conclusion AP/ATM/6/30                      Updating of the List of Commercial Aircraft Registered in the CAR/SAM Regions**

That the organization that developed the list of commercial aircraft registered in the CAR/SAM Regions carry out its updating identifying the actual status of the operators' fleet in the Region and that, additionally, each OPS/AIR point of contact, once designated, review and validate the information on the list.

### 3.29 **RVSM Task List**

3.29.1 The OPS/AIR Working Group, when considering the contents of WP/21 and WP/40, agreed to update their work programme in order to reflect the activities of the RVSM Task List, presented in **Appendix K** to this part of the report, and establishing a new date to carry out the remaining pending tasks. The OPS/AIR/WG work programme is presented in **Appendix L** to this part of the report.

### 3.30 **Information to CARSAMMA on the Approval Status of CAR/SAM Aircraft**

3.30.1 The members of the OPS/AIR Working Group, after reviewing the contents of F2 and F3 forms of the CARSAMMA, carried out the amendments before approving them, and having currently available the corresponding formats so that the States may communicate with the Regional Monitoring Agency on the RVSM approval or withdrawal status of the registered aircraft, the following conclusion was proposed:

#### **Conclusion AP/ATM/6/31                      Use of the Forms F2 and F3 of the CARSAMMA**

That, the States of the CAR/SAM Regions adopt F2 and F3 forms proposed by the CARSAMMA in order to communicate to them the RVSM approval or withdrawal status of the aircraft and that the information so far submitted by the States on aircraft RVSM approved, be sent once more filling in the information required in F2 and F3 forms.

### 3.31 **Strategic Procedure of Lateral Offset for the CAR/SAM Regions**

3.31.1 The OPS/AIR Working Group considered the contents of working paper WP/19 presented during the initial plenary meeting, in order to evaluate applicability of procedures applied in other regions for use in the CAR/SAM Regions, agreeing that the lateral offset could be applied in some defined areas where there are not enough ground based navigation aids and where a lateral spacing between airways of 50 nautical miles (50 NM) exists.

3.31.2 Likewise, it was considered that the applicability of lateral offset procedures, most of the CAR/SAM Regions would require a safety analysis in respect to the route structure, airspace design and considering the capacity of aircraft to keep their trajectory, which is required by the aircraft equipage with non up- to-date technologies, as some of the fleets operating in the CAR/SAM Regions. In this respect, the members of the Group agreed to formulate the following decision:

**Decision AP/ATM/6/32****Lateral Offset Procedure for the CAR/SAM Regions**

That, in order to consider the need to adopt lateral offset procedures, from zero (0 NM), one (1 NM) of two (2 NM) nautical miles in some defined areas, it is performed taking into account the following conditions:

- a) that the offset procedure should be exclusively performed by aircraft using GNSS navigation systems and those that enable automatic offset control;
- b) that the offset procedure should be made to the right of the centreline of the airway in relation to the flight direction;
- c) that the offset procedure should be exclusively performed in the airspace of the area defined, where there are not enough ground based navigation aids and where there is a minimum separation of fifty nautical miles (50 NM) between airways;
- d) that the procedures be adopted at pilots' discretion; and
- e) that it should be communicated to the corresponding air traffic control unit, once the communication with the ATC is possible.

**3.32 Review of the RVSM Letter of Authorization for General Aviation (LOA)**

3.32.1 The Working Group considered Appendix A to WP/42, and the contents of a Letter of Authorization (LOA) for the use of special airspace and after reviewing its contents agreed that an amended version should be included in the guidance material for RVSM approval of aircraft and operators, which will be available to the States of the CAR/SAM Regions.

**3.33 Status of Development of RVSM Approval of Aircraft and Operators of the CAR/SAM Regions**

3.33.1 Under this agenda item, the participants of the OPS/AIR Working Group were informed of the activities developed by Chile regarding aircraft and operators RVSM approval. The information provided corresponded to Information papers IP/05 and IP/06.

**3.34 Aeronautical Phraseology Related to RVSM Operations**

3.34.1 The OPS/AIR Working Group reviewed the contents of WP/12, where the aeronautical phraseology related to RVSM operations was presented and, after verifying its contents with the material of the same characteristics to be included in Appendix LAR RVSM, agreed that before to its publication, this should be harmonized with the one used in other ICAO Regions.

**3.35 Review of the Requirements for RVSM Approval of Aircraft and Air Operators**

3.35.1 The OPS/AIR WG reviewed the Spanish version of the document that includes the requirements for airworthiness and operational RVSM approval of aircraft and air operators. Following the comments formulated on the contents of the draft document presented at the AP/ATM/5 Meeting, several amendments were made, including a complete review of the requirements for airworthiness certification, in order to harmonize it with the provisional guidance material included in the FAA 91-RVSM and JAA TGL No. 6 – Review 1.

3.35.2 In addition, participants were informed that the final document containing the requirements for RVSM approval of aircraft and air operators, in its Spanish version, is included as Appendix to the Latin American Regulations – LAR OPS, Aeronautical Operations, which has been harmonized and will be submitted to a consultation process estimated to end by 2004. This will allow it to be applied by SRVSOP participant States; for which the previous acceptance of the document by the civil aviation authorities of the nine (9) States integrating the RLA/99/901 Regional Project is necessary.

3.35.3 The SRVSOP General Board will hold its ninth ordinary meeting next 4 November 2003, in Buenos Aires, Argentina. During that meeting, the referred Board will be requested to approve the guidance material developed under the auspices of the RLA/99/901 Regional Project, in order that it may be distributed and be available for use as guidance material by the CAR/SAM States when developing their own national regulations.

### c) Safety and Airspace Monitoring Working Group (SAM/WG)

3.36 The SAM/WG discussed the intention of one state to change the Minimum Monitoring Requirements (MMR) applicable to its operators. In addition, they remarked that the MMR are already established for all ICAO Regions and States that want to apply different requirements may do so; however, they must follow the MMR already approved as a minimum.

3.37 The WG discussed the definition of *RVSM readiness assessment* in a non-exclusionary airspace. It was remarked that the difference between the definition of accommodation of non-RVSM approved aircraft in the NAM Region and in the CAR/SAM Regions could lead to confusion in the interpretation of the concept of readiness. This situation makes it difficult to answer one of the three main questions that must be answered before RVSM implementation: Are the operators ready for implementation?

3.38 To answer this question it is necessary to know what percentage of operations will be used as the basis for the Operational Readiness Target. In the Guidance material it has been established that 90% of operations in the CAR/SAM Regions must be conducted by RVSM approved aircraft, but this percentage may not be applicable in non-exclusionary airspace.

3.39 The WG took note of **Conclusion 6/25 Operational Readiness Target**, formulated by the ATC/WG, in which the operational readiness target of 90% of operations being conducted by RVSM approved aircraft was adopted. The WG discussed the importance of having information concerning the approval status of the aircraft fleet operating in the CAR/SAM Regions, formulating the following conclusion.

#### **Conclusion AP/ATM/6/33**

#### **Status of RVSM Approval**

That the States/International Organizations take note of Conclusion AP/ATM/5/39 related to RVSM approval status and inform CARSAMMA of any approval updates.

3.40 The amount of work and coordination that must be done by the SAM/WG was analyzed, and it was decided that, in addition to those meetings already scheduled by the RVSM/TF, it will be necessary to have at least one more meeting prior to the implementation. Accordingly, the group adopted the following decision:

#### **Decision AP/ATM/6/34**

#### **Additional SAM/WG Meeting**

That the SAM/WG carry out a meeting prior to March 2004.

3.41 When reviewing the Task List for RVSM Implementation in the CAR/SAM Regions, the FAA informed the WG that it is in the process of obtaining 20 new GMU's, therefore, additional GMU's will not be necessary. In an effort to determine the monitoring load, the SAM/WG formulated the following conclusion and decision:

**Conclusion AP/ATM/6/35****Monitoring load evaluation**

That CARSAMMA, using the traffic sample collected by the States in September 2003, determine the minimum number of aircraft that will require monitoring.

**Decision AP/ATM/6/36****Task 16**

That the termination date of task 16 be changed to March 2004.

3.42 Considering the amount of ASE data already available to CARSAMMA to perform the initial safety analysis, the SAM/WG reached the following conclusion:

**Conclusion AP/ATM/6/37****Task 55**

*Completed*

3.43 The WG discussed the application of lateral offset procedures. It was remarked that those procedures were first developed for the NAT Region and are applied by the aircraft, which have automatic offset capability. The experience of the NAT Region shows that the application of lateral offset procedure reduces the problem of wake turbulence between aircraft flying in an environment where 1000 ft vertical separation is applied. The application also reduces the negative effect of pilot/ATC loop errors as well as the risk of collision due to loss of vertical separation.

3.44 Considering the ATC and airworthiness aspects involved, the ATC/WG and OP/AIR/WG analyzed this matter and established that the CAR/SAM Concept of Operations will not include the use of the lateral offset procedures, until such time as pertinent ICAO guidance addressing the operational complexities of continental airspace is developed. The SAM/WG took note of **Conclusion AP/ATM/6/24** of the ATC/WG and **Decision AP/ATM/6/32** of the OPS/AIR/WG, regarding lateral offset procedures in the CAR/SAM Regions and committed to raise the issue with ICAO's Separation and Airspace Safety Panel (SASP) for comments.

3.45 The SAM/WG discussed the importance of Large Height Deviation (LHD) reports in the safety assessment process and formulated the following conclusions:

**Conclusion AP/ATM/6/38****Large Height Deviation Reports (LHD)**

That States take note of Conclusion AP/ATM/5/38, related to Large Height Deviation (LHD) reports and send those reports by the 10<sup>th</sup> of each month to CARSAMMA.

**Conclusion AP/ATM/6/39****Report by CARSAMMA**

That CARSAMMA prepare a working paper for the next meeting with the status of Large Height Deviations (LHD) reported by the States, so that the SAM/WG can assess those reports.

3.45 The proposed strategy for the preliminary safety assessment to be carried out by the CARSAMMA and the SAM/WG was also analysed, and the following decisions were formulated:

**Decision AP/ATM/6/40****Relative Vertical Speed**

That the relative vertical speed of 1.5 Kt be adopted in the safety assessment for the CAR/SAM Regions.

**Decision AP/ATM/6/41****Typical Aircraft**

That the B747 – 400 be adopted as the typical aircraft in the preliminary safety assessment for the CAR/SAM Regions to generate the average values for aircraft dimensions.

**Decision AP/ATM/6/42****Safety Assessment Strategy**

That the preliminary safety assessment for the CAR/SAM Regions be carried out considering the main flows identified in the traffic samples sent by the States.

**d) Review of the Task List for RVSM Implementation in the CAR/SAM Regions**

3.46 With the contribution of the ATC/WG, OPS/AIR/WG and SAM/WG, the meeting reviewed and updated the Task List for RVSM Implementation in the CAR/SAM Regions, which is presented in **Appendix K** to this part of the report.

**Terms of Reference of the RVSM Task Force and its Contributory Bodies**

3.47 **Appendix L** to this part of the report presents the terms of reference of the RVSM Task Force (RVSM/TF) and its Working Groups ATC/WG, OPS/AIR/WG and SAM/WG; as well as the OPS/AIR/WG work program.