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International Civil Aviation Organization
UNDP/ICAO Regional Project RLA/98/003
Transition to CNS/Atm Systems in the CAR and SAM Regions

Sixth Meeting/Workshop of ATM authorities and planners in the CAR/SAM Regions for RVSM, RNAV routes and RNP Implementation (AP/ATM/6 RVSM-RNAV-RNP)

(San Jose, Costa Rica, 29 September to 3 October 2003)

Agenda Item 3: Review of the issues related with RVSM Implementation in the CAR/SAM Regions

a) ATC Operations Working Group (ATC/WG)

RVSM operational requirements for ATC Automated Systems

(Working Paper presented by Mexico)

Summary

This working paper informs on RVSM operational requirements that Mexico has planned to incorporate into its ATC automated system.

1. Introduction

1.1 RVSM implementation in ICAO NAM, CAR and SAM Regions requires an anticipated and detailed planning of the different actions to be carried out, to achieve its objectives, highlighting among these the necessary changes in ATC automation, which will efficiently support the Air Traffic Controllers' work.

2. Flight Plan Forms

2.1 In order to reduce human errors during the transmission of flight plans through AFTN towards the ATC automated system, it has been considered a new version of the flight plan forms, installed in ATS units.

2.2 The computer programme 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) in field 18 of the ICAO flight plan form.

3. **Flight Plans Processing**

3.1 The necessary modifications are planned to be made to the ATC automated system, so that flight plans that might erroneously arrive are not processed and sent to the window of rejected messages.

3.2 The specifications for the ATC automated system, shall enable the ATCO to ascend/descend within RVSM airspace, to non-RVSM aircraft (STS/NONRVSM) or those not approved that upon judgment of the ATCO, might be authorized in a determined moment.

4. **ATS automated messages**

4.1 The installation of an automated modification message (CHG) is foreseen, because it is useful for users and controllers that must notify a change to RVSM status in aircraft.

4.2 It is convenient to analyze the operational needs of ATS automated messages to attend a future CNS/ATM environment, as well as the message exchange among adjacent FIRs.

5. **Radar display**

5.1 In order that the ATCO may apply 2000 ft separation at every moment to non-RVSM approved aircraft, it is necessary that the position symbol and corresponding aircraft label non-RVSM approved appear in a color (yellow) showing that it is different from other RVSM approved aircraft, as of a level that could be FL 290 or any other level below the aforementioned.

5.2 An altitude filter, for example, at FL200 (lower limit from Mexico upper airspace) would enable to observe with enough time in advance the movement of non-RVSM approved aircraft that could request entrance to non-exclusive RVSM airspace.

6. **Flight Progress stripes**

6.1 It is foreseen that in field 8 of printed stripes (corresponding to flight level or any other field), the abbreviation STSNONRVSM or NONRVSM be written down, to indicate the non-radar and radar controller that the aircraft is non-RVSM approved.

6.2 In case of electronic stripes of RCP (radar control position), it is convenient to observe in the same color of non-RVSM air traffic in screen. The field should be any one that the controller visualizes easily.

7. **Conflict alert**

7.1 The conflict alert (SCTA) should respond to the eventual reduction of the separation in cases of 1000 ft and 2000 ft within RVSM airspace, in the following cases:

- **RVSM vs. RVSM (1000 ft)**
- **RVSM vs. STS/NONVRVSM (2000 ft); and**
- **RVSM vs. NONRVSM (2000 ft).**

7.2 Likewise, the visual alert Mode C is recommended, when it does not comply with the parameter of 200 ft as maximum reference to the authorized aircraft flight level.

8. **Change of RVSM status during the flight**

8.1 Controllers must have the facility to manually change the RVSM status of the aircraft in flight, due to possible failures or contingencies that might arise (RVSM to NON-RVSM). Also, the presentation of in-flight plans (AFIL) and its creation by the controller must be taken into consideration.

8.2 The suppression of letter W in field 10 may cause an automatic process to modify the color of the symbol of position and label. Additionally, the controller could write down in field 18 any additional information related to the aircraft status, as the entering of AFIL flight plans presented by the pilot.

9. **FPL or CPL messages**

9.1 The exchange of information of field 18, ATC adjacent units, facilitates the coordination of the updated RVSM status of the aircraft.

9.2 CPL messages transmitted to the adjacent ACC from which the logic message acknowledging receipt (LAM message) may only be modified through oral coordination between controllers.

10. **Modifications to radar simulator**

10.1 It is recommendable that the changes related with the automated ATC system, be also applied to radar simulator with enough time in advance. This will permit more real simulations of RVSM environment foreseen and to the training of ATC personnel in a time close to the implementation.

11. **Other aspects**

11.1 It is convenient to study the modification of the ICAO Repetitive Flight Plan form (RPL), to include specifically and permanently a similar field to field 10 of the individual flight plan form (FPL), given the importance to know in a formal and anticipated manner by the ATC, the data of COM/NAV/SSR Mode and RVSM capacity. Currently, the use of field Q of the repetitive flight plan does not show in practice the stability of the necessary flight information for the ATC.

12. **Suggested action**

12.1 The meeting is invited to:

a) Take note of the information provided; and

b) Take other actions deemed pertinent for the updating of ATC automated systems, in RVSM implementation.