



**CAR/SAM Regional Planning and Implementation Group (GREPECAS)  
Twenty-First Scrutiny Working Group Meeting  
GTE21  
Zoom Meeting, 23-26 August 2021**

**Agenda Item 4: Other business**

**FOLLOW-UP TO INCURSIONS OF AIRCRAFT INTO RVSM AIRSPACE, WITHOUT COMMUNICATION OR  
PRIOR COORDINATION, AND THE RISK ASSESSMENT APPROACH**

(Presented by Venezuela)

<b>EXECUTIVE SUMMARY</b>	
This working paper presents an analysis based on the safety management system (SMS), of the risk value of recurrent entry of aircraft into RVSM airspace of the Maiquetia FIR without any communication or prior coordination, and proposes that such aircraft incursions be analysed by the GTE and the risk assessment approach be defined, as agreed at the GTE/20 meeting.	
<b>Action:</b>	To urge States to keep a record of incursions into RVSM to study these statistics at the regional level and assess their impact on the target level of safety.
<i>Strategic objectives:</i>	<ul style="list-style-type: none"><li>• Safety</li></ul>
<i>References:</i>	<ul style="list-style-type: none"><li>• Doc 9426 - Air traffic services planning manual</li><li>• Doc 9574 - Manual on a 300m (1000 ft) vertical separation minimum between FL 290 and FL 410 inclusive</li><li>• Guidance manual on the assessment of large height deviations (LHDs)</li><li>• Annex 11 - Air Traffic Services</li><li>• Annex 2 - Rules of the Air</li><li>• Doc 4444 - Air traffic management</li></ul>

**1. Introduction**

1.1. Since 2016, Venezuela has noted the recurrent irregular entry of different aircraft into the Maiquetia flight information region (Maiquetia FIR). Initially, only CVSM airspace was affected but since 2019 some of these incursions are occurring in RVSM airspace.

1.2. These aircraft remain for an extended period in the RVSM airspace of the Maiquetia FIR, compromising safety since there is no communication or prior coordination from the adjacent FIRs to

make an accurate projection of the route to be flown by these aircraft and thus establish an appropriate separation with the controlled traffic.

1.3. It is important to note that, when consulting the FIR involved, most of the times the answer is that they ignored the data and intentions of the aircraft since it entered the FIR without prior coordination.

1.4. The number of incursions by unknown aircraft in 2019 was fifty-seven (57), and as shown at the GTE/20, eleven (11) of them were in RVSM airspace. From January to October 2020, a total of twenty-six (26) incursions were recorded, seven (7) of which affected RVSM airspace.

1.5. Since the GTE/20 meeting (held in November 2020) until July 2021, 31 incursions of unknown aircraft were recorded in the Maiquetia FIR, two of which entered RVSM airspace and two others were detected at flight level 285, infringing the minimum separation between RVSM airspace and Non-RVSM airspace. It should be noted that although the frequency of occurrence has decreased, it continues to occur and could be compromising the safety of aircraft using RVSM airspace.

## 2. Risk value analysis using a safety management system (SMS) approach

2.1. Venezuela has worked hard to monitor these incursions in the Maiquetia airspace and considers that they should be subject to assessment based on the risk they represent for RVSM airspace.

2.2. In this sense, Doc 9574 - Manual on a 300m (1000 ft) vertical separation minimum between FL 290 and FL 410 inclusive, in chapter 2 paragraph 2.1.5. stipulates that overall risk is the "risk of collision due to all causes, which includes the technical error, and all risk due to operational errors and in-flight contingencies...", *i.e.*, any risk of collision must be considered and certainly an aircraft without communication or prior coordination constitutes such risk.

2.3. Similarly, paragraph 2.1.8. of that chapter states: "Regional authorities should take into account all possible means of quantifying and reducing the level of risk of a collision resulting from operational errors and in-flight contingencies in RVSM airspace. While the frequency of occurrence of these events is not considered to be a function of the separation minimum applied; it will be essential for RPGs to institute measures to ensure that the risk due to operational errors and in-flight contingencies does not increase." Since such events do not occur sporadically, the levels of risk of collision should be analysed.

2.4. Calculation of the value of the risk of incursions by the LHD method and analysis, as described in the LHD manual.

Severity of hazard: E

Likelihood: 4

Duration: Long

Likelihood (P)	Duration (D)	Severity (G)
5 Frequent		5 Catastrophic
4 Occasional		4 Hazardous

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3 Remote	3 Long	3 Major
2 Unlikely	2 Medium	2 Minor
1 Extremely unlikely	1 Short	1 Insignificant

Surveillance system	Meteorological conditions	Other traffic
YES = 5	VMC = 0	With surveillance = 10
NO = 10	IMC = 5	Without surveillance = 10

$$VR = (Px DxG) + R + W + T$$

$$VR = (4 \times 3 \times 2) + 5 + 0 + 0 \quad RV = 29$$

RV	Risk level	Control
76-100	HIGH	Unacceptable risk, RVSM airspace must be cancelled until the hazard is mitigated and the risk is reduced to the medium or low level.
21-75	MEDIUM	Acceptable risk, but monitoring and management are mandatory.
01-20	LOW	Acceptable without restriction or limitation, hazards do not require active management, but must be documented.

2.5. Once these incursions have been analysed, the risk matrix places them in the mean risk level, indicating which means that these events must be monitored and mitigation plans implemented as necessary.

### 3. Suggested action

3.1 The Meeting is invited to:

- a) take note of the information presented in this working paper;
- b) urge States to monitor incursions by unknown aircraft within RVSM airspace, to conduct the region-wide study and determine the impact on the target level of safety; and
- c) urge States to coordinate accordingly, alerting about traffic projected to enter adjacent FIRs so that they can make provision for the trajectory of such flights.

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