



ASSEMBLY — 41ST SESSION

TECHNICAL COMMISSION

Agenda Item 33: Other issues to be considered by the Technical Commission

**MONITORING OF INCURSIONS BY AIRCRAFT WITHOUT ANY COMMUNICATIONS OR
PRIOR COORDINATION, WITHIN RVSM AIRSPACE, USING A RISK ASSESSMENT
APPROACH**

(Presented by Venezuela (Bolivarian Republic of))

EXECUTIVE SUMMARY

This working paper presents an analysis of the risk value, based on the Operational Safety Management System (SMS), of the recurrent entry of aircraft into reduced vertical separation minimum (RVSM) airspace, without any communications or prior coordination in the Maiquetia flight information region (FIR), and at the same time proposes that such aircraft incursions be analysed in order to assess their impact on operational safety.

Action: The Assembly is invited to:

- a) take note of the information set out in this working paper;
- b) request States to monitor these incursions by unknown aircraft, thus enabling a worldwide study to be made and to determine the impact at the desired safety level;
- c) request States to carry out the necessary coordination and provide traffic alerts with projections of entry into adjacent FIRs, together with estimates of flight paths.

<i>Strategic Objectives:</i>	This working paper relates to the Strategic Objective of Air Navigation Capacity and Efficiency.
<i>Financial implications:</i>	
<i>References:</i>	Doc 9426, <i>Air Traffic Services Planning Manual</i> Doc 9574, <i>Manual on a 300 m (1000 ft) Vertical Separation Minimum Between FL 290 and FL 410 Inclusive</i> Doc 4444, <i>Procedures for Air Navigation Services — Air Traffic Management (PANS-ATM)</i> Annex 11 – <i>Air Traffic Services</i> Annex 2 – <i>Rules of the Air</i> Guidance Manual on the evaluation of large height deviations (LHD)

¹ Spanish version provided by Venezuela (Bolivarian Republic of).

1. INTRODUCTION

1.1 Since 2016, the Maiquetia Flight Information Region has been subject to the unauthorized entry of different aircraft. The Venezuelan State has observed with deep concern the irregular recurrent entry of such aircraft, which initially occurred in the CVSM airspace; however, since 2019, as reported at meetings in previous years, some of those incursions have been taking place in RVSM airspace.

1.2 These aircraft remain for long period of time within the RVSM airspace of the Maiquetia FIR, and jeopardize operational safety, since there is no type of communication or prior coordination by the adjacent FIRs, whereby an accurate estimate could be made of the flight path to be followed by these aircraft, so as to establish appropriate separation from controlled traffic.

1.3 It is important that, when questioned, more often than not the FIRs concerned state that they have no knowledge of the aircraft's data, since entry took place without prior coordination with the FIR.

1.4 There were 74 incursions by unknown aircraft in 2019 and, as reported at the Twentieth Scrutiny Working Group Meeting of the CAR/SAM Planning and Implementation Regional Group (GREPECAS); of those, 11 occurred in the RVSM airspace. A total of 32 incursions were recorded in 2020, and RVSM airspace encroachment was detected in eight of them. In 2021 a total of 61 incursions were recorded, and in four cases there was entry into RVSM airspace. To date in 2022, at the time of preparation of this working paper, there have been seven incursions, three of them within RVSM airspace.

1.5 ICAO took a position on our concerns early this year and we are particularly gratified to note a decline in the frequency of these incursions; however, they continue to take place, albeit less frequently, but still jeopardize the operational safety of aircraft using RVSM airspace.

2. ANALYSIS OF RISK VALUE USING AN APPROACH BASED ON THE OPERATIONAL SAFETY MANAGEMENT SYSTEM (SMS)

2.1 The Venezuelan State continues working hard to monitor these incursions within the Maiquetia FIR and considers that they should be assessed in terms of the risk to RVSM airspace.

2.2 In this connection, chapter 2, section 2.1.5 of Manual on a 300 m (1000 ft) Vertical Separation Minimum Between FL 290 and FL 410 Inclusive (Doc 9574), defines the overall risk as "risk of collision due to any possible cause, including technical error and any risk due to operational errors and flight contingencies..."; in other words, any risk of collision must be considered, and an aircraft without any communications or prior coordination certainly meets this definition.

2.3 Similarly, section 2.1.8 of the same chapter states the following: "Regional authorities should take into account all possible means of quantifying and reducing the level of risk of collision resulting from operational errors and in-flight contingencies in RVSM airspace. Whilst 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 (Regional Planning Groups) to institute measures to ensure that the risk due to operational errors and in-flight contingencies does not increase." As these events do not occur sporadically, the levels of risk of collision should be analysed.

2.4 Calculation of the incursion risk value using the LHD methodology and analysis described in the LHD Manual

Severity of danger: E2 (lack of coordination between ATC units)

Probability: 4

Duration: Long

Probability (P)	Duration (D)	Severity (S)
5 Frequent		5 Catastrophic
4 Occasional		4 Dangerous
3 Remote	3 Long	3 Major
2 Improbable	2 Medium	2 Minor
1 Extremely improbable	1 Short	1 Insignificant

Codes for associated LHD Severity according to safety impact

5	4	3	2	1
J, K	AB,D,F,G,H,I	A,C;E2,L	EI	M

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

$$VR = (P \times D \times G) + R + W + T$$

$$VR = (4 \times 3 \times 3) + 5 + 0 + 10 \quad VR = 51$$

VR	Level of risk	Control
76-100	HIGH	Unacceptable risk, RVSM space must be closed until the danger is mitigated, and the risk is reduced to medium or low
21-75	MEDIUM	Acceptable risk, but monitoring and management are compulsory
01-20	LOW	Acceptable without restriction or limitation, the dangers do not require active management, but must be documented

2.5 In calculating the risk value of incursions, the risk matrix is placed at **Medium**, and this indicates that these events have to be monitored and mitigation plans implemented where necessary

3. **CONCLUSION**

3.1 In view of the foregoing and as illustrated in the table “Calculation of the incursion risk value using the LHD methodology and analysis”, we suggest that the International Civil Aviation Organization should again call on all States to develop such measures as they may consider necessary and thus prevent the further perpetration of these irregularities, which infringe on the sovereignty of all States, in order to guarantee the operational safety of air navigation in all regions of the world, as well as to carry out investigations which they would do well to envisage in order to deal with all incursions in the different flight information regions.

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