



*International Civil Aviation Organization*

**Middle East Regional Monitoring Agency Board**

**Fifteenth Meeting (MIDRMA Board/15)**  
*(Muscat, Oman, 29 – 31 January 2018)*

---

**Agenda Item 4: RVSM Monitoring and related Technical Issues**

MID RVSM SCRUTINY GROUP  
EVALUATION OF LHD REPORTS 2016 & SMR 2017

*(Presented by MIDRMA)*

**SUMMARY**

The aim of this paper is to review, analyze and validate the LHD Reports provided by States to the MIDRMA as part of the Scrutiny Group Work programme.

Action by the meeting is at paragraph 3.

**REFERENCES**

- MID RVSM SMR 2015
- MID RVSM SMR 2016- Draft Version 0.1

**1. INTRODUCTION**

1.1 ICAO Doc. 9574, Manual on Implementation of 300 m (1000 ft.) Vertical Separation Minimum between FL 290 and FL 410 Inclusive calls for regional review of Large Height Deviation Reports (LHD) occurring in airspace in which Reduced Vertical Separation Minimum has been implemented.

1.2 The RVSM-related safety issues required to be examined by the Scrutiny Group that would specifically address matters relating to the MID RVSM operations. The group will essentially analyze and validate Large Height Deviation (LHD) reports from archives maintained by the MIDRMA Member States and the MIDRMA with the objective of determining which reports from those archives influence the risk of collision associated with application of RVSM, and where applicable propose remedial actions and procedures which will be taken up through the MIDRMA processes.

**2. DISCUSSION**

2.1 The Scrutiny Group will be required to examine all the reported LHD for every SMR reporting period and analyze events resulting of 300 ft. or greater within the band FL290-FL410 in the involved airspaces. The events are usually the result of ATC loop errors, flight crew errors in executing ATC clearances or controllers mistakes, instances wherein controllers fails to capture an inaccurate read-back of a clearance, level bust (overshoot or undershoot), turbulence situations, emergencies, errors in coordination, weather complications, responses to a TCAS resolution advisory.

2.2 The outputs of the MID RVSM Scrutiny Group is essential to the monitoring activities of the MIDRMA and will serve to provide validated Large Height Deviation Reports occurrences for assessment in the RVSM Safety Monitoring Report (SMR).

2.3 Since the MID RVSM Scrutiny Group convened during the MIDRMA Board meetings only, and because there was no Board meeting to allow the Scrutiny Group evaluate and asses the LHD reports for SMR 2016 reporting period (01<sup>st</sup> May 2016 until 31<sup>st</sup> august 2016), the MIDRMA decided to asses and valuate the LHD reports on behalf of the Scrutiny Group in order to calculate all safety parameters for the SMR and present it to the meeting, provided the Scrutiny Group briefed by the MIDRMA for the works carried out on their behalf and agree to endorse the evaluations carried out by the MIDRMA, or modify the outcome as necessary which might change the risk analysis results presented in the MID RVSM SMR 2016 Draft Version 0.1.

2.4 The Table in Appendix A to this working paper represent the evaluation carried out by the MIDRMA team for evaluating the LHD reports for SMR 2016 reporting period (01st May 2016 until 31st august 2016) and the table below reflect the LHD reports received from each Member State:

<b>MID FIRs</b>	<b>No. of Reported LHD</b>
Bahrain	<b>142</b>
Baghdad	<b>105</b>
Amman	<b>11</b>
Tehran	<b>154</b>
Cairo	<b>9</b>
Damascus	<b>1</b>
Khartoum	<b>3</b>
Kuwait	<b>186</b>
Muscat	<b>261</b>
Jeddah	<b>6</b>
Tripoli	-
Emirates	<b>38</b>
Sanaa	<b>Nil</b>

#### **LHD Reports Received from Member States for SMR 2016 Reporting Period**

2.5 The Scrutiny Group is invited to discuss all the validated LHD reports by the MIDRMA and assess the works carried out to endorse or modify the results as needed.

2.6 The MID Region map in Appendix A of this working paper with the LHD reports depicted as per their locations of occurrence can identify very clearly the concentration / frequency of the reports which required attention from the ATC Units concerned and the corrective measures required to be taken in order to reduce or eliminate these reports.

2.7 The table below presents a summary of operational risk associated with Large Height Deviation (LHD) reports by LHD category within the MID RVSM Airspace from 01<sup>st</sup> May 2016 until 31st August 2016:

Code	Large Height Deviation (LHD) Category	No. of LHDs	Duration (Sec.)
A	Flight crew fails to climb or descend the aircraft as cleared	1	20
B	Flight crew climbing or descending without ATC clearance	-	
C	Incorrect operation or interpretation of airborne equipment	-	
D	ATC system loop error	7	197
E	ATC transfer of control coordination errors due to human factors	902	400
F	ATC transfer of control coordination errors due to technical issues	-	
G	Aircraft contingency leading to sudden inability to maintain level	-	
H	Airborne equip. failure and unintentional or undetected FL change	2	40
I	Turbulence or other weather related cause	1	0
J	TCAS resolution advisory and flight crew correctly responds	-	
K	TCAS resolution advisory and flight crew incorrectly responds	-	
L	An aircraft being provided with RVSM sep. is not RVSM approved	-	
M	Other	-	
Total		913	657

#### Summary of operational risk associated with Large Height Deviation (LHD) reports

2.8 The MIDRMA noticed an increase in the LHD reports at the eastern FIR boundary of Muscat FIR, the reports filed from Muscat, Mumbai and Karachi ATCUs at their transfer of control points reached to a dangerous level and started to effect the ICAO TLS of RVSM implementation in the MID and APAC regions, therefore the MIDRMA request to open a Safety Protocol at the Eastern FIR boundary of Muscat FIR and request Oman ATM to present an action plan to close this critical safety issue as quickly as possible.

Note: A Safety Protocol is a critical safety issue effecting the implementation of RVSM operations which required the concerned authority an immediate action to rectify/resolve the problem in a certain period of time under the supervision of MIDRMA and ICAO MID Office.

### 3. ACTION BY THE MEETING

3.1 The meeting is invited to

- a) review, analyze and validate all LHD Reports received by the MIDRMA during the period 1 September 2013 - 28 February 2014.
- b) agree in opening the Safety Protocol at the eastern FIR boundary of Muscat FIR.

-----

APPENDIX A

---

MID RVSM SCRUTINY GROUP



- END -