وزارة الطيران المدني
Ministry of Civil Aviation

ECAA
Egyptian Civil Aviation Authority

ICAO

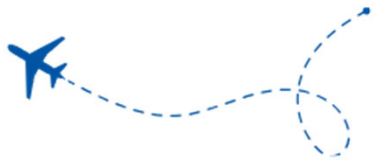
MIDANPIRG/23 & RASG-MID/13

CAIRO - EGYPT

14 -18 JUNE 2026

PPT/16:
Safety Issues identified in the RVSM SMR-2025

Presented by: the Secretariat



Presentation overview

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02 RVSM Safety Protocols

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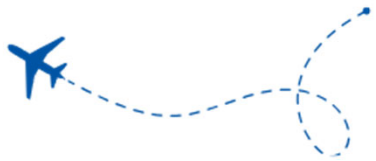


01

Results of SMR2025

Introduction:

The Safety Monitoring Report (SMR) aims to present evidence that all safety objectives outlined in the MID RVSM Safety Policy, in accordance with ICAO Doc 9574 (2nd Edition), continue to be met in operational services.

Scope: all RMA member States, providing the correct data. Based on a traffic sample month for a cycle of one year.

Additionally, In accordance with ICAO Documents 9574 and 9937, the MIDRMA continues to perform systematic monitoring of RVSM operational compliance to ensure that aircraft operating within the MID RVSM airspace hold valid State RVSM approvals.

The detailed results of the SMR2025 are discussed in MIDANPIRG/23, WP/41.

01

Results of SMR2025

Discussion:

Objective 1 : *The results confirm that the technical risk associated with aircraft height-keeping performance is* $\boldsymbol{8.932 \times 10^{-11}}$ *fatal accidents per flight hour, remaining well below the ICAO Target Level of Safety (TLS) of* $\boldsymbol{2.5 \times 10^{-9}}$.

Objective 2 : *The overall risk, which includes both technical and operational factors, was assessed at* $\boldsymbol{9.278 \times 10^{-10}}$, *also significantly below the ICAO TLS of* $\boldsymbol{5 \times 10^{-9}}$.

Objective 3 : *Address any safety-related issues raised in the SMR by recommending improved procedures and practices and propose safety level improvements to ensure that any identified serious or risk-bearing situations do not increase and, where possible, that they decrease. This should set the basis for a continuous assurance that the operation of RVSM will not adversely affect the risk of en-route mid-air collision over the years.*

01

Results of SMR2025

SMR2025 Cycle:

- from 1 January 2025 to 31 December 2025,
- Traffic Data Sample (TDS) period was 01 May – 31 May 2025
- while the LHD reporting was for the whole Cycle.

MMR:

- ICAO RVSM Minimum Monitoring Requirements:

98/2198

4%

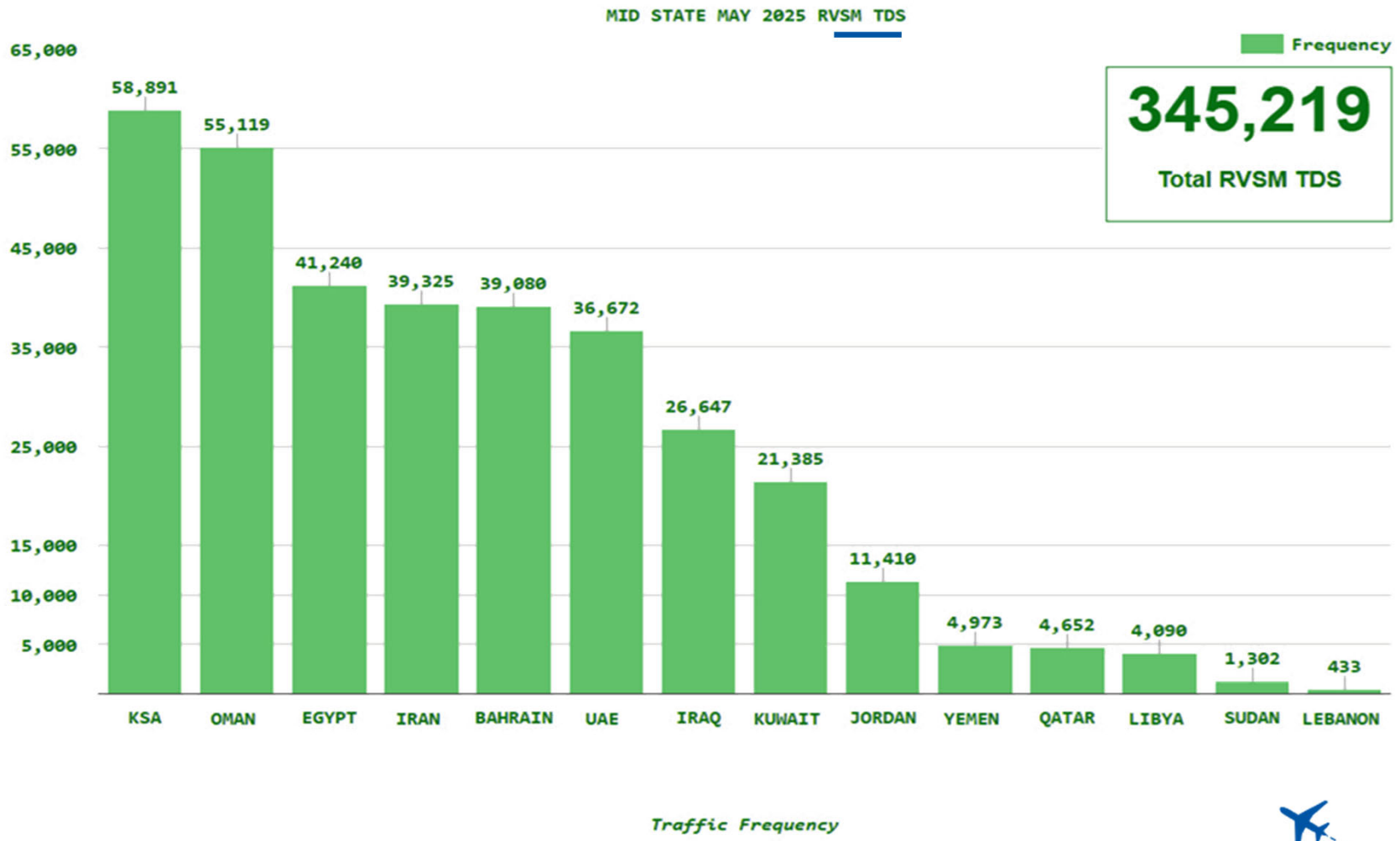
- **FIRs**

Amman	Bahrain	Beirut
Baghdad	Cairo	Damascus
Doha	Emirates	Jeddah
Kuwait	Khartoum	Muscat
Sana'a	Tehran	Tripoli

Scope 93%

Number of RVSM movements 345'219

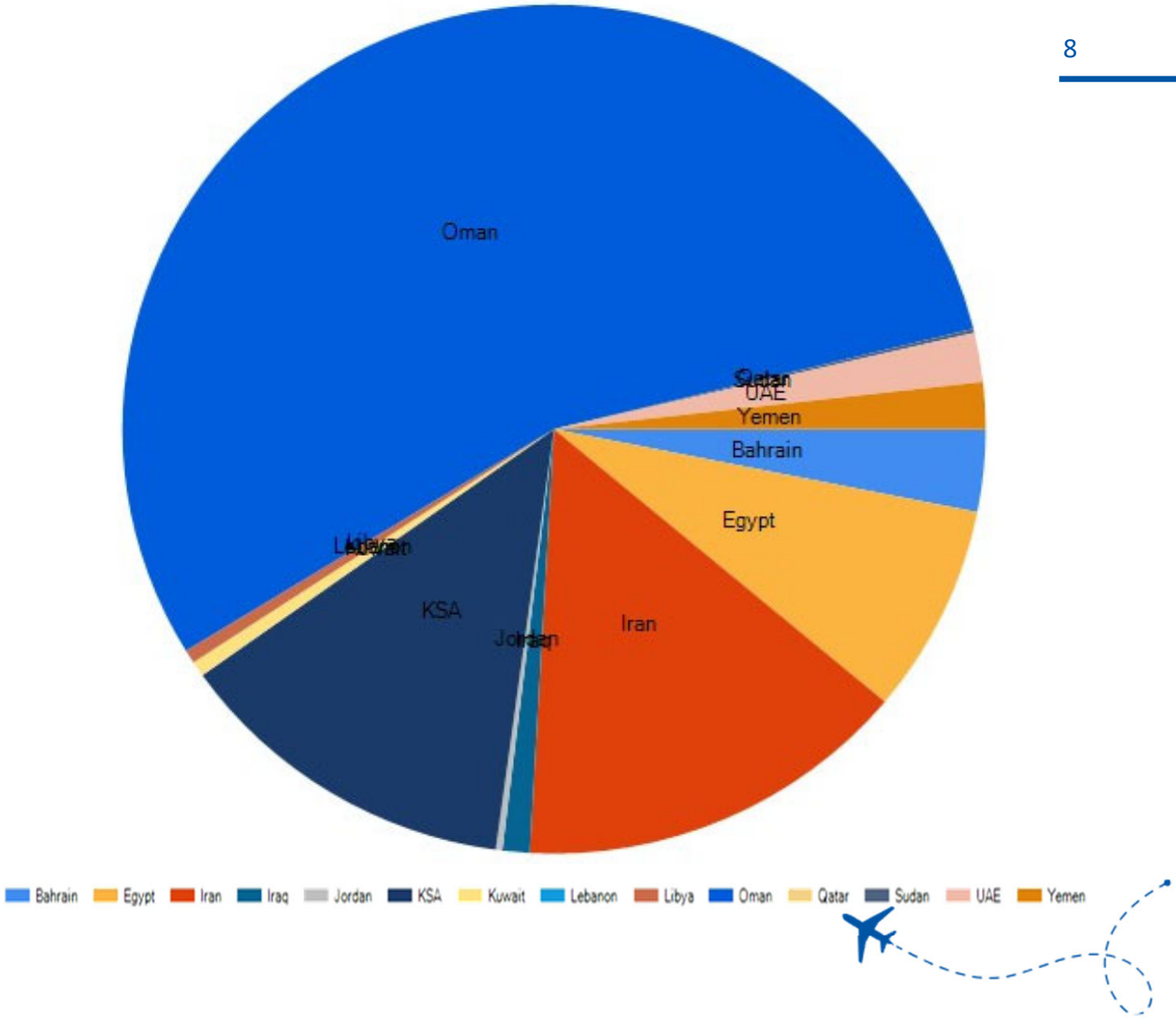
Additional 7.5% compared to 2024


MID STATE MAY 2025 RVSM TDS
Frequency
345,219
Total RVSM TDS
65,000
55,000
45,000
35,000
25,000
15,000
10,000
5,000
58,891
55,119
41,240
39,325
39,080
36,672
26,647
21,385
11,410
4,973
4,652
4,090
1,302
433
KSA
OMAN
EGYPT
IRAN
BAHRAIN
UAE
IRAQ
KUWAIT
JORDAN
YEMEN
QATAR
LIBYA
SUDAN
LEBANON
Traffic Frequency

Busiest (most used) Routes

#	Route	Frequency	FIR
1	DAVUS-TASMI	9799	Kuwait
2	RATVO-SIDAD	8383	Baghdad
3	TUMAK-DAVUS	6756	Bahrain
4	TASMI-NINVA	6576	Baghdad
5	ALPOB-ULADA	5947	Bahrain
6	RABAP-OBNET	5444	Bahrain
7	ULINA-DEESA	4577	Amman
8	SIDAD-RABAP	4576	Kuwait
9	DAROR-NALPO	4546	Bahrain
10	SIDAD-LONOS	3893	Kuwait
11	RASKI-MENSA	3507	Muscat
12	TASMI-KABAN	3466	Baghdad
13	LONOS-GIRMO	2762	Bahrain
14	TONVO-RASKI	2693	Muscat
15	HECA-ULINA	2506	Cairo
16	RASKI-PASOV	2351	Muscat
17	KUPRO-TONVO	2268	Emirates
18	PARAR-MENSA	2180	Muscat
19	TONVO-PARAR	2164	Muscat
20	OEJN-OERK	1985	Jeddah

Traffic crossing / FIR



Distribution of Reported LHDs within MID FIRs

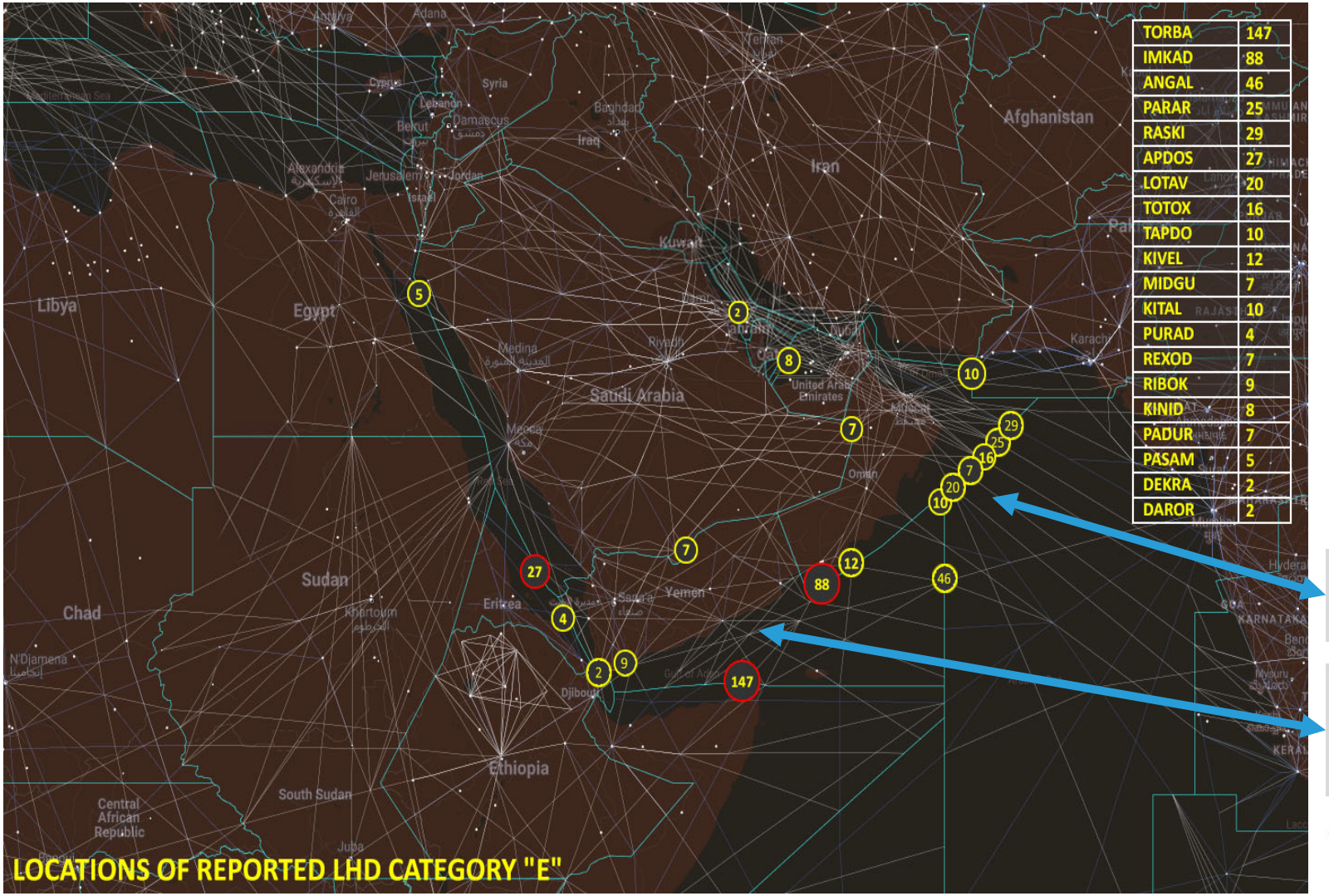
MID FIRs	No. of Reported LHDs	No. of Related LHDs
Bahrain	8	5
Baghdad	2	-
Amman	-	2
Tehran	-	3
Cairo	9	3
Damascus	-	2
Khartoum	-	-
Kuwait	-	1
Muscat	83	95
Jeddah/ Riyadh	11	59
Qatar	14	-
Tripoli	-	-
Emirates	2	5
Sana'a	337	8

Distribution of Reported LHDs at the Regional interface

MID FIRs	Related to other Adjacent FIRs	No. of Related LHDs
Sana'a	Addis Ababa	148
Sana'a	Asmara	6
Sana'a	Djibouti	0
Sana'a	Mumbai	46
Muscat	Karachi	10
Muscat	Mumbai	60

validated LHD reports

LHD Cat. Code	Large Height Deviation (LHD) Categories	No. of LHDs	LHD Duration (Sec.)
A	The flight crew fails to climb or descend the aircraft as cleared.	1	7
B	Flight crew climbing or descending without ATC clearance.	-	-
C	Incorrect operation or interpretation of airborne equipment	-	-
D	ATC system loop error	-	-
E	ATC transfer of control coordination errors due to human factors	-	-
F	ATC transfer of control coordination errors due to technical issues	-	-
G	Aircraft contingency leading to a sudden inability to maintain level	-	-
H	Airborne equip. Failure and unintentional or undetected FL change	1	28
I	Turbulence or other weather-related cause	-	-
J	TCAS resolution advisory and flight crew correctly responds	-	-
K	TCAS resolution advisory and flight crew incorrectly responds	-	-
L	ACFT being provided with RVSM separation is not RVSM-approved	-	-
M	Other	1	60
	Total	**3**	**95**



TORBA	147
IMKAD	88
ANGAL	46
PARAR	25
RASKI	29
APDOS	27
LOTAV	20
TOTOX	16
TAPDO	10
KIVEL	12
MIDGU	7
KITAL	10
PURAD	4
REXOD	7
RIBOK	9
KINID	8
PADUR	7
PASAM	5
DEKRA	2
DAROR	2

Muscat <> Karachi and Mumbai = 70

Sana'a <> Horn of Africa and Mumbai= 200

02

RVSM Safety Protocol (Mumbai Muscat)

EASTERN BOUNDARIES OF MUSCAT FIR WITH KARACHI AND MUMBAI FIRS

- The most recent review of RVSM safety at the eastern boundaries of Muscat FIR confirms that concerns related to Large Height Deviations between Muscat and Mumbai ATC units persist throughout 2025.

- Although several corrective and preventive measures have been implemented since the introduction of the RVSM safety protocol, the number of exchanged LHD reports remains unacceptably high.

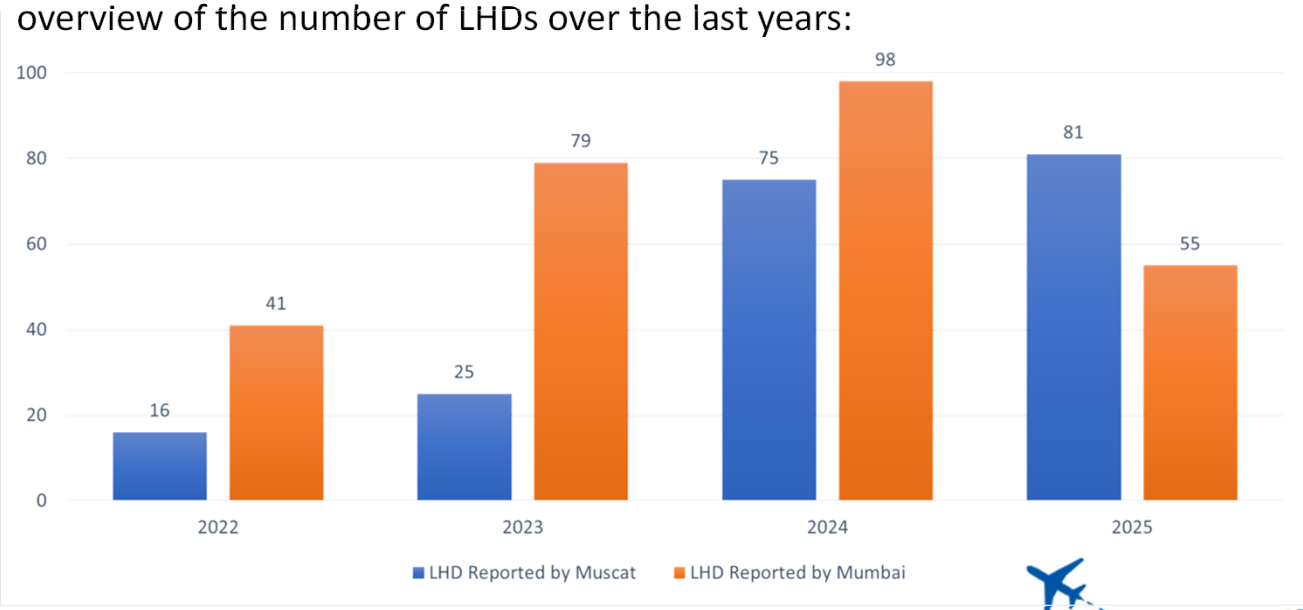
- This sustained trend indicates that the issue is systemic rather than sporadic, suggesting that existing mitigation measures have not yet achieved their intended safety outcomes. Without the implementation of more robust and sustained corrective actions, the situation will continue to pose a significant safety risk to RVSM operations at this critical FIR interface.

02

RVSM Safety Protocol (Mumbai Muscat)

EASTERN BOUNDARIES OF MUSCAT FIR WITH KARACHI AND MUMBAI FIRS

Enhanced coordination procedures, improved data-sharing mechanisms, and strengthened monitoring and investigation processes are urgently required to ensure that corrective actions result in measurable and lasting safety improvements. Further details related to Muscat–Mumbai LHD reports exchanges are provided in the SMR2025 report. And here is an overview of the number of LHDs over the last years:



EASTERN BOUNDARIES OF MUSCAT FIR WITH KARACHI AND MUMBAI FIRS

02

RVSM Safety Protocol (Mumbai Muscat)

There is ongoing efforts led by the relevant regional offices (APA and MID) to organize a special coordination meeting between India and Oman to address the issue of the increase number of LHDs and the implementation of mitigation measures. Invitation letter for the meeting was issued for a meeting in APAC Office.

- ICAO Conducted Special Coordination meeting in Muscat, Oman, 1 – 5 February 2026 to address the issues and challenges at interface between MID and APAC region. Unfortunately, India couldn't participate in this meeting.
- ICAO and Oman conducted virtual meeting on 30 April 2026 to review the progress of coordination between Oman and India to address the challenges at interface of Muscat and Mumbai FIRs take into consideration of growth of the traffic at interface of MID and APAC regions.
- ICAO coordinated with Oman and India to conduct Special Coordination Meeting on 3-4 June 2026, Bangkok, Thailand to establish joint inter-regional task force between APAC and MID to address all challenges at interface of two regions including optimization of airspace structure, reduction of longitudinal separation (Project 30/10) and AIDC/OLDI connection (LHD).

02

RVSM Safety Protocol (Sana'a)

SANA'A FIR

- A comparative analysis of 2024 and 2025 indicates a continued and concerning increase in LHD reports involving Sana'a FIR and its adjacent FIRs. During 2024, 218 LHDs were reported, compared with 265 LHDs in 2025, representing an increase of approximately 21.6%.

- The most significant increases were observed in coordination with Addis Ababa FIR and Muscat FIR, while a reduction was noted with Jeddah FIR.

- This uneven distribution suggests that while localized improvements have been achieved in some interfaces, systemic coordination challenges persist in others.

02

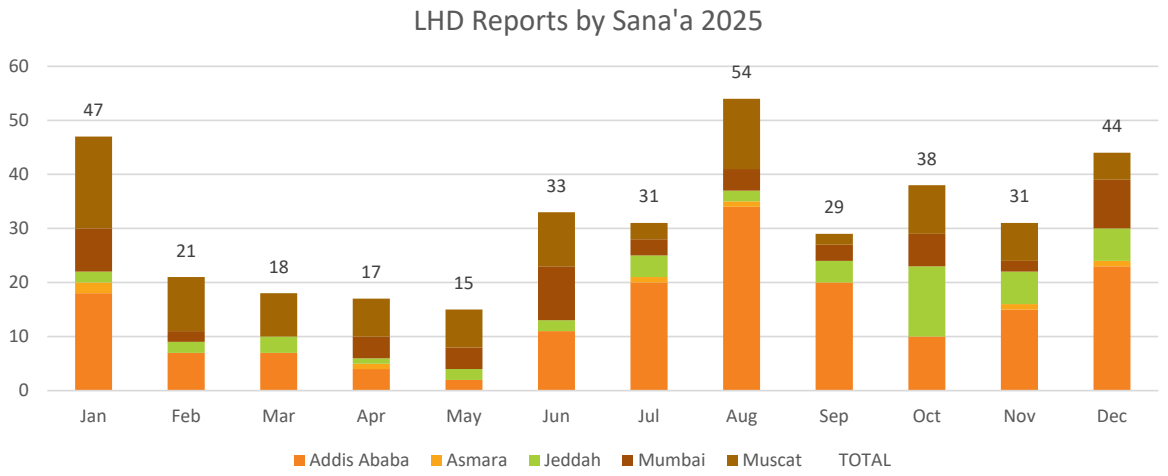
RVSM Safety Protocol (Sana'a)

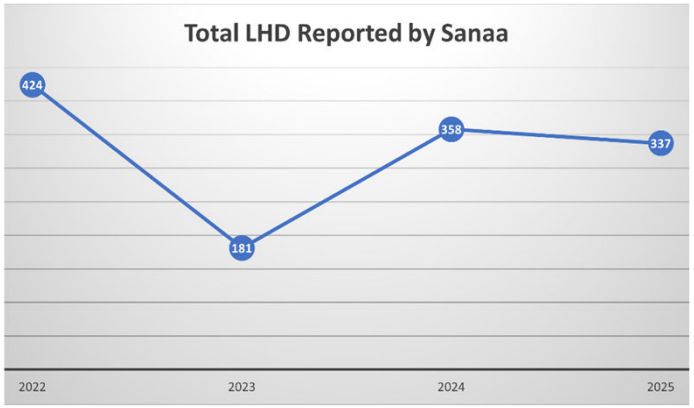
SANA'A FIR

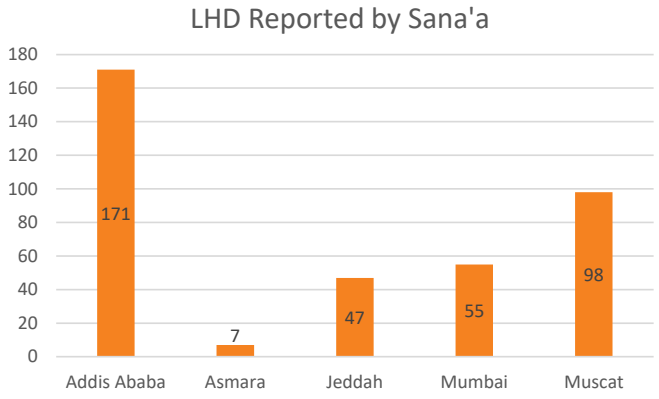
- The continuing rise in LHD occurrences, particularly between Sana'a and Muscat FIRs, reflects unresolved deficiencies in handover coordination, flight level verification, and real-time communication procedures. Unless decisive corrective actions are implemented, these deviations may compromise the long-term safety of RVSM operations within the affected airspace.

02

RVSM Safety Protocol (Sana’a)







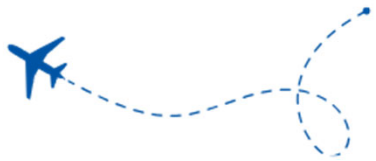
03

List of Non RVSM Aircraft

Due to limitations in obtaining comprehensive traffic data from all Member States, compliance monitoring is primarily conducted using monthly RVSM traffic data provided by Bahrain, Baghdad, and Emirates FIRs. The MIDRMA expresses its sincere appreciation to the Civil Aviation Authorities of Bahrain, Iraq, and the United Arab Emirates for their consistent and high-quality data submissions, which remain essential for effective regional safety oversight.

A limited number of non-RVSM-approved aircraft were identified during the 2025 monitoring cycle. These cases were generally attributed to administrative delays or temporary lapses in approval validity, rather than intentional non-compliance. Member States are therefore urged to ensure that RVSM approval databases are maintained accurately and updated promptly.

Detailed results related to non-RVSM-approved aircraft are presented in **SMR2025** report:



03

List of Non RVSM Aircraft

#	Registration of Violating ACFT	ICAO Type	First Observed on	RMA Observed	STATE/RMA Responsible
1	PKLSW	B739	08-03-23	MIDRMA	AAMA
2	PKLVF	B739	20-01-23	MIDRMA	AAMA
3	PKSTD	A320	19-01-23	MIDRMA	AAMA
4	PKLSV	B739	21-12-22	MIDRMA	AAMA
5	PKBGZ	B738	13-12-22	MIDRMA	AAMA
6	PKBKM	A320	30-11-22	MIDRMA	AAMA
7	PKLSU	B739	27-11-22	MIDRMA	AAMA
8	PKSTH	A320	27-11-22	MIDRMA	AAMA
9	PKSJH	A320	06-11-22	MIDRMA	AAMA
10	60208A	C17	30-03-20	MIDRMA	AAMA
11	40001A	C17	25-01-20	MIDRMA	AAMA
12	9SPRR	IL76	09-06-24	MIDRMA	AFIRMA
13	XTEBO	IL76	07-06-24	MIDRMA	AFIRMA
14	5NBYJ	E290	06-06-24	MIDRMA	AFIRMA
15	TTDAB	H25B	31-05-24	MIDRMA	AFIRMA
16	5NADM	B744	28-05-24	MIDRMA	AFIRMA
17	5YFQC	B734	20-05-24	MIDRMA	AFIRMA
18	5HTCP	B39M	19-05-24	MIDRMA	AFIRMA
19	5NBBN	B772	18-05-24	MIDRMA	AFIRMA
20	5HONE	GLF5	15-05-24	MIDRMA	AFIRMA
21	5HTCQ	B39M	15-05-24	MIDRMA	AFIRMA
22	5NHMM	B744	15-05-24	MIDRMA	AFIRMA
23	5YFQA	B734	15-05-24	MIDRMA	AFIRMA

03

List of Non RVSM Aircraft

#	Registration of Violating ACFT	ICAO Type	First Observed on	RMA Observed	STATE/RMA Responsible
24	5NBOD	GLF4	28-01-22	MIDRMA	AFIRMA
25	5YFAN	CRJ2	15-07-20	MIDRMA	AFIRMA
26	5YWBH	C56X	14-07-20	MIDRMA	AFIRMA
27	ETATF	B350	08-07-20	MIDRMA	AFIRMA
28	ZSCQP	CRJ9	07-07-20	MIDRMA	AFIRMA
29	CCBGV	B789	08-06-22	MIDRMA	CARSAM
30	FAB2857	KC39	22-05-22	MIDRMA	CARSAM
31	21140	IL76	19-06-22	MIDRMA	CHINARMA
32	ICJSN	C25C	15-05-23	MIDRMA	EURRMA
33	URFSE	IL76	11-12-22	MIDRMA	EURRMA
34	URAZR	B77W	03-02-22	MIDRMA	EURRMA
35	URAZN	B753	01-02-22	MIDRMA	EURRMA
36	URAZO	B753	01-02-22	MIDRMA	EURRMA
37	URFSD	IL76	24-12-21	MIDRMA	EURRMA
38	URFSC	IL76	05-12-21	MIDRMA	EURRMA
39	EW550TH	IL76	04-12-21	MIDRMA	EURRMA
40	URSQO	B738	02-12-21	MIDRMA	EURRMA
41	URFSA	IL76	09-05-21	MIDRMA	EURRMA
42	UR11316	AN12	22-07-20	MIDRMA	EURRMA
43	IN307	IL38	03-12-20	MIDRMA	MAAR
44	KJ3452	IL76	03-08-20	MIDRMA	MAAR
45	CB8001	C17	29-07-20	MIDRMA	MAAR

03

List of Non RVSM Aircraft

#	Registration of Violating ACFT	ICAO Type	First Observed on	RMA Observed	STATE/RMA Responsible
47	80002A	C17	23-07-20	MIDRMA	MAAR
48	K3604	E35L	17-07-20	MIDRMA	MAAR
49	KJ3454	IL76	16-03-20	MIDRMA	MAAR
50	STPSA	F900	18-10-23	EURRMA	MIDRMA
51	5ALEX	BE200	09-07-22	EURRMA	MIDRMA
52	STALL	CRJ1	11-06-22	MIDRMA	MIDRMA
53	N993JA	A333	18-03-25	MIDRMA	NAARMO
54	N993JA	A333	18-03-25	MIDRMA	NAARMO
55	N882RR	PC12	10-03-25	MIDRMA	NAARMO
56	N505MS	C55B	03-06-24	MIDRMA	NAARMO
57	N788DP	B737	25-02-24	MIDRMA	NAARMO
58	N890DA	GLF5	25-02-23	MIDRMA	NAARMO
59	N800AJ	CL60	10-02-23	MIDRMA	NAARMO
60	N651CV	C650	21-11-22	MIDRMA	NAARMO
61	N320MK	GLF3	24-09-22	MIDRMA	NAARMO
62	N46HB	F9000	22-08-22	MIDRMA	NAARMO
63	N411VP	EA50	01-05-22	MIDRMA	NAARMO
64	N605AS	PC12	11-04-22	MIDRMA	NAARMO
65	N981DB	H25B	05-04-22	MIDRMA	NAARMO
66	N981DB	H25B	05-04-22	MIDRMA	NAARMO
67	N145DB	E35L	22-01-22	MIDRMA	NAARMO
68	N685MF	GLF4	08-12-21	MIDRMA	NAARMO
69	N298RB	GLF4	14-05-21	MIDRMA	NAARMO
70	N1112B	B350	16-07-20	MIDRMA	NAARMO
71	N44UA	CL60	07-06-20	MIDRMA	NAARMO

04 MMR

All Member States should ensure that aircraft operators comply with the Minimum Monitoring Requirements (MMRs) issued by MIDRMA. States are encouraged to regularly review their national RVSM oversight processes to ensure that aircraft subject to monitoring obligations are tracked, monitored, and followed up in a timely manner.

Note 1: MIDRMA continues to distribute the Minimum Monitoring Requirements (MMRs) using its automated MMR software. This software is designed to provide member states with updated monitoring requirements based on the most recent RVSM approvals.

Note 2: All member states must review and adhere to their MMRs, which are accessible on the MIDRMA website (*www.midrma.com*).

04 MMR

Seq	MID States	RVSM APPROVED A/C	HAVE RESULTS OR COVERED	NOT COVERED	NOT COVERED IN %	A/C MMR
1	Bahrain	76	73	3	4%	2
2	Egypt	172	161	11	6%	10
3	Iran	240	228	12	5%	6
4	**Iraq**	56	49	7	13%	4
5	Jordan	51	49	2	4%	2
6	KSA	377	377	0	0%	0
7	Kuwait	71	68	3	4%	1
8	Lebanon	29	29	0	0%	0
9	**Libya**	48	39	9	19%	9
10	Oman	62	61	1	2%	1
11	Qatar	329	328	1	0%	1
12	**Sudan**	16	2	14	88%	10
13	**Syria**	18	13	5	28%	4
14	UAE	645	622	23	4%	13
15	Yemen	8	0	8	100%	4
Totals		**2198**	**2099**	**98**	**4%**	**67**

04

MMR

Based on the above, the meeting is invited to review and agree on the following conclusion:

DRAFT CONCLUSION 21/5: MAINTAIN COMPLIANCE WITH MINIMUM MONITORING REQUIREMENTS (MMRS)

That Iraq, Libya, Sudan, and Syria be urged to ensure that all aircraft subject to monitoring obligations are complying with the RVSM minimum monitoring requirements in timely manner.

05

SMR2025

Recommendation

- The MIDRMA recommends that Member States continue to actively support the regional safety improvement process by maintaining close coordination with the MIDRMA on all RVSM-related safety matters. Particular emphasis should be placed on timely and effective follow-up of safety observations and recommendations arising from the RVSM Safety Monitoring Report.

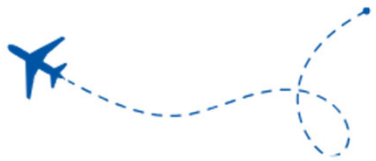
- Member States are encouraged to ensure that operational procedures at FIR boundaries remain clearly defined, regularly reviewed, and effectively implemented, with special attention given to coordination practices that have the potential to generate Large Height Deviations (LHDs). Continued awareness and reinforcement of proper LHD reporting practices are essential to support accurate safety oversight and the identification of emerging safety trends.

05

SMR2025

Recommendation

- States should also continue to support initiatives aimed at enhancing regional risk analysis capabilities, including the development and future implementation of advanced analytical tools such as MIDRAS-AIR. Active participation in system briefings, training activities, and consultations related to new tools and system upgrades, including the online LHD reporting platform, will be essential to ensure their effective and consistent use across the region.



06

Action by the meeting

The meeting is invited to:

a) Note the results of the RVSM Safety Monitoring Report (SMR) 2025,
b) Note the status of the opened safety protocols at the MID Region interfaces, and discuss a way forward; and
c) Agree that the Draft Conclusion 21/5 in slide 23 be endorsed by MIDANPIRG as part of the review of the outcome of the MIDRMA Board/21.

Thank You