



ICAO

الهيئة العامة للطيران المدني
GENERAL CIVIL AVIATION AUTHORITY



MIDANPIRG 21 and RASG-MID 11

ABU DHABI, UAE | MARCH 4-8, 2024

Agenda Item 3.3: Air Navigation Subjects of interest to RASG-MID
PPT/12: Summary of RVSM Operations and Monitoring Activities in the MID Region

Presented by the Secretariat





Presentation overview

01 SMR2023

02 Safety protocols

03 List of Non RVSM Aircraft

04 List of MMR



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01 SMR2023

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.

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01

SMR2023

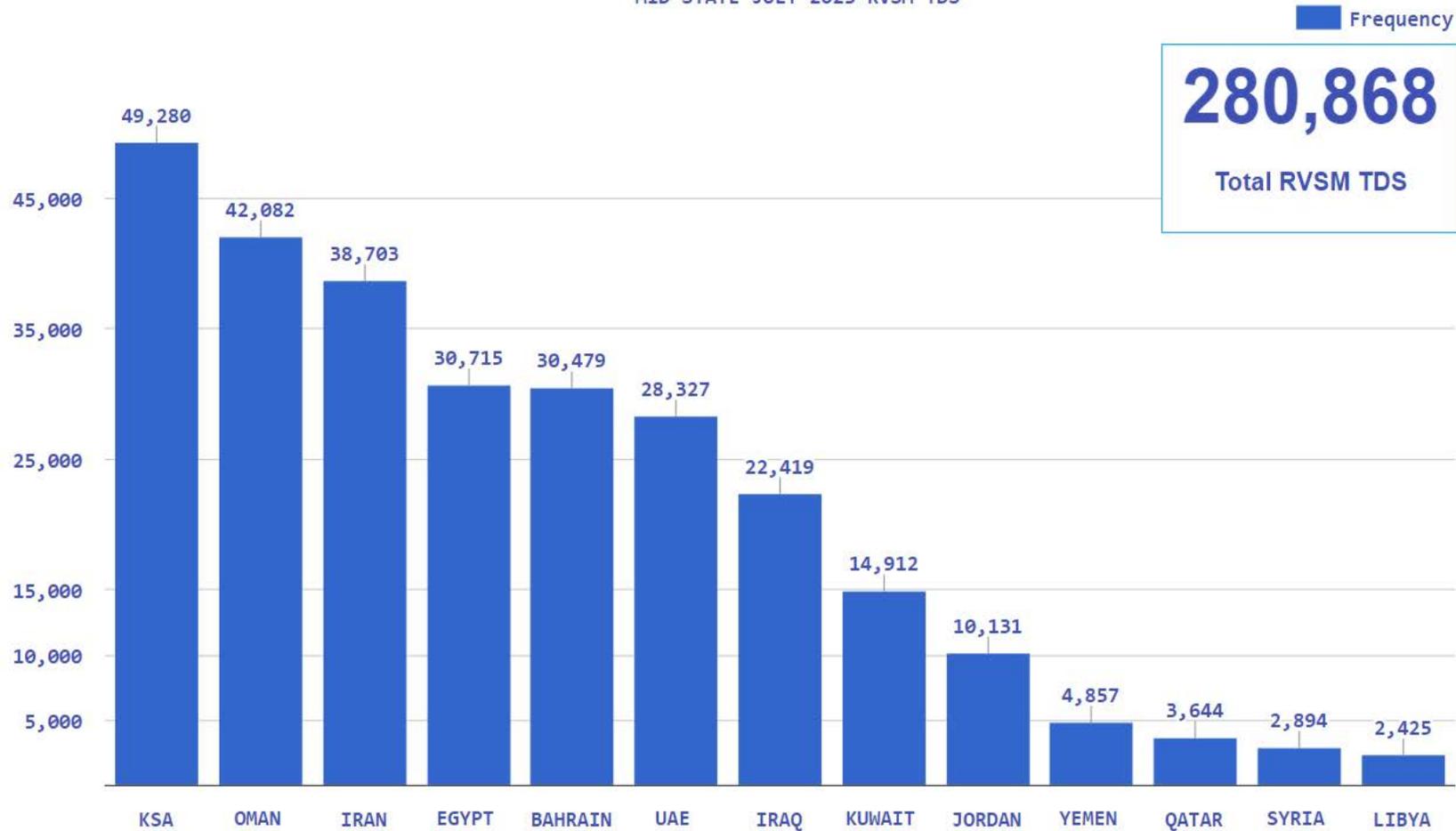
Conclusions:

- (i) The estimated risk of collision associated with aircraft height-keeping performance is **1.012×10^{-10}** and meets the ICAO TLS of **2.5×10^{-9}** fatal accidents per flight hour (RVSM Safety Objective 1).
- (ii) The estimated overall risk of collision due to all causes which includes the technical risk and all risk due to operational errors and in-flight contingencies is 6.530×10^{-10} this value is below the ICAO overall TLS of 5×10^{-9} fatal accidents per flight hour (RVSM Safety Objective 2)
- (iii) based on currently available information (Except for Tripoli, Khartoum, and Beirut FIRs), there is no evidence available to MIDRMA that the continued operations of RVSM adversely affects the overall vertical risk of collision during the SMR reporting cycle.
- (iv) The vertical risk estimation due to atypical errors has been demonstrated to be the major contributor in the overall vertical-risk estimation for the MID RVSM airspace, The final conclusions of the data processed have been severely limited by the continued NIL reporting of Large Height Deviations (LHDs) from some member states which does not support a high confidence in the results, the MIDRMA is reiterating the importance of submitting such reports especially from FIRs with high volume of traffic.

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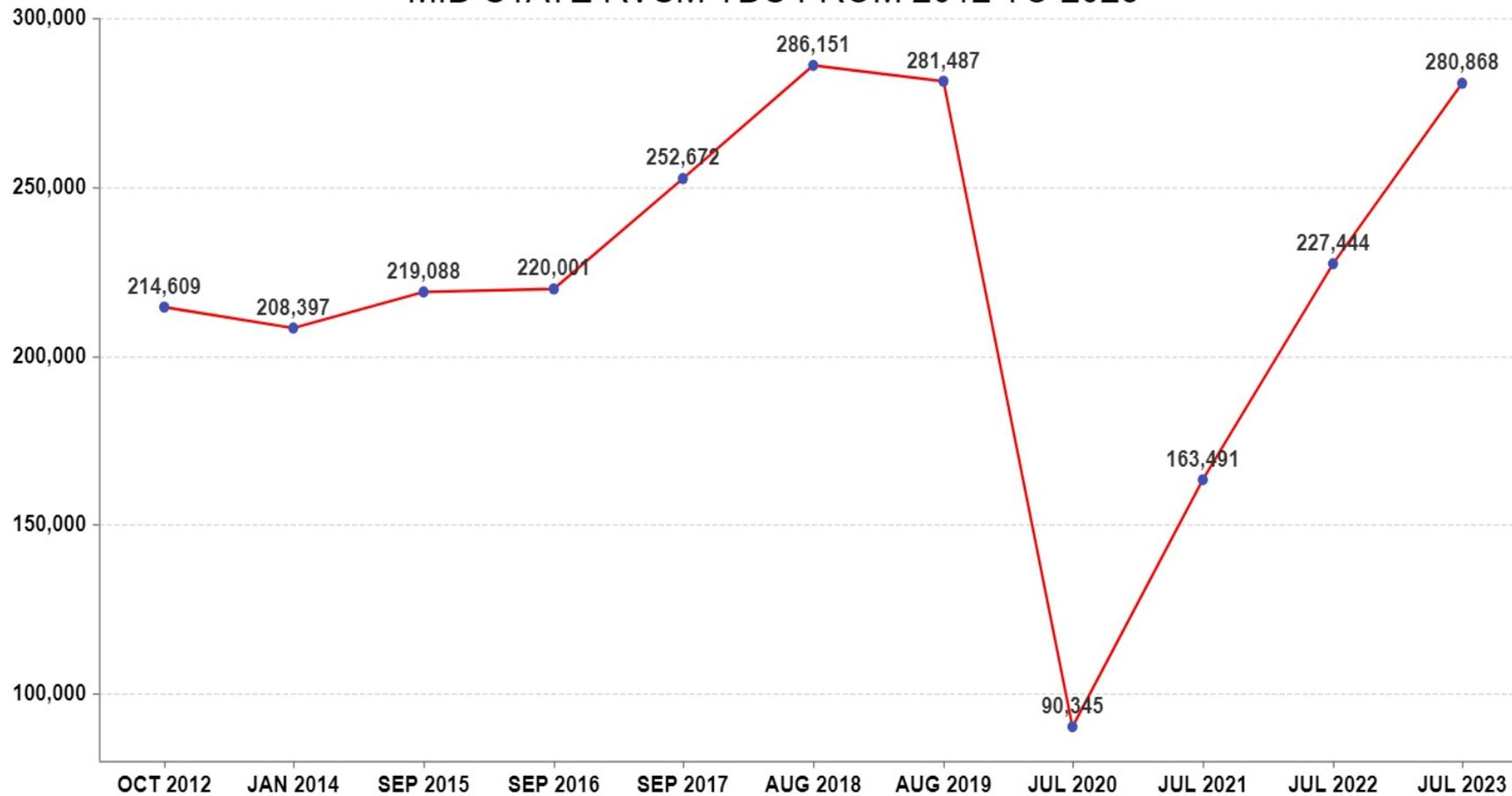
MID STATE JULY 2023 RVSM TDS



Traffic Frequency



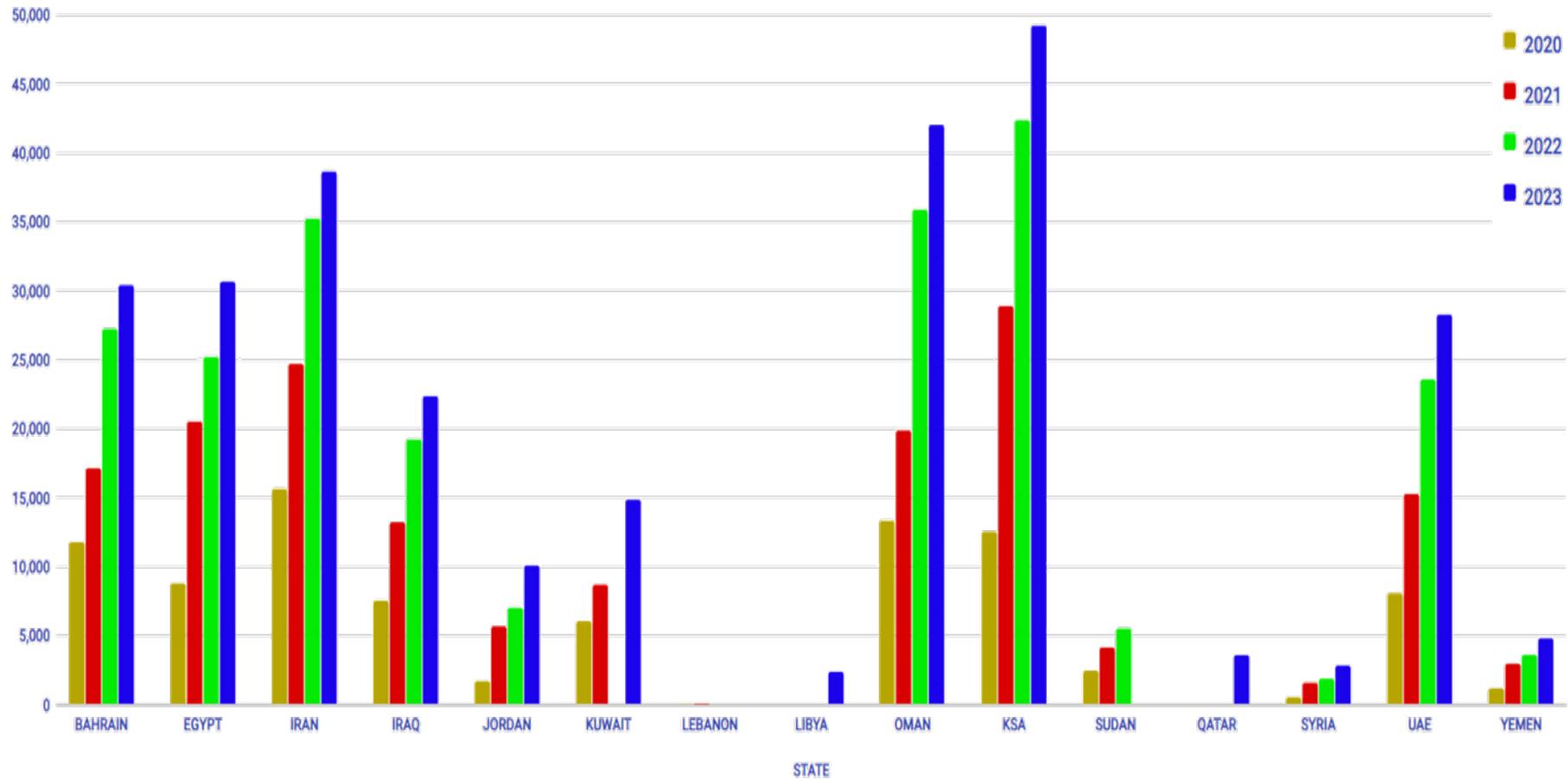
MID STATE RVSM TDS FROM 2012 TO 2023



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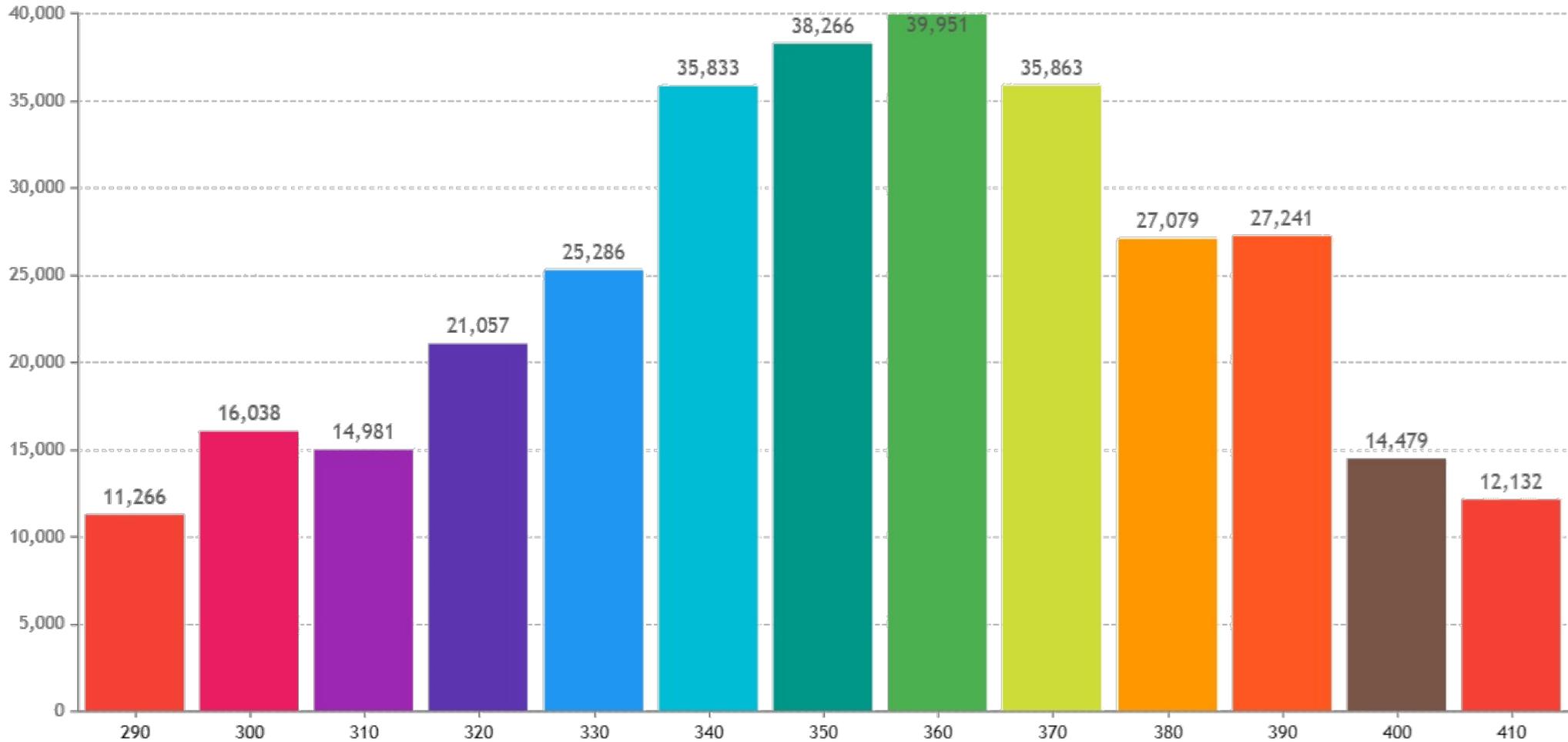
TREND OF THE NUMBER OF RVSM TDS OF 2020, 2021, 2022 and 2023



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MID RVSM FLIGHT LEVEL FREQUENCY



Top 20 Busiest Points in the ICAO Middle East RVSM Airspace

#	WAYPOINT	FIR	FREQ
1	TASMI	BAGHDAD/KUWAIT	9943
2	DAVUS	BAHRAIN/KUWAIT	8280
3	NINVA	BAGHDAD/ANKARA	7388
4	SIDAD	BAGHDAD/KUWAIT	7018
5	TUMAK	BAHRAIN/EMIRATES	6781
6	RATVO	BAGHDAD/ANKARA	6670
7	ULINA	CAIRO/AMMAN	5761
8	ULADA	BAHRAIN/JEDDAH	5701
9	GABKO	EMIRATES/TEHRAN	5591
10	PASAM	CAIRO/JEDDAH	5440
11	ALPOB	BAHRAIN/EMIRATES	5359
12	BONAM	TEHRAN/ANKARA	4820
13	DEESA	AMMAN/JEDDAH	4792
14	RASKI	MUSCAT/MUMBAI	4737
15	DAROR	BAHRAIN/JEDDAH	4531
16	NALPO	BAHRAIN/EMIRATES	4507
17	SODEX	EMIRATES/MUSCAT	4418
18	MENSA	EMIRATES/MUSCAT	4409
19	DASIS	TEHRAN/ANKARA	4278
20	KITOT	CAIRO/JEDDAH	3996



Middle East RVSM Airspace SMR2023 results

Average Aircraft Speed = 440.3 kts

Risk Type	Risk Estimation	ICAO TLS	Remarks
Technical Risk	1.012×10^{-10}	2.5×10^{-9}	Below ICAO TLS
Overall Risk	6.530×10^{-10}	5×10^{-9}	Below ICAO TLS

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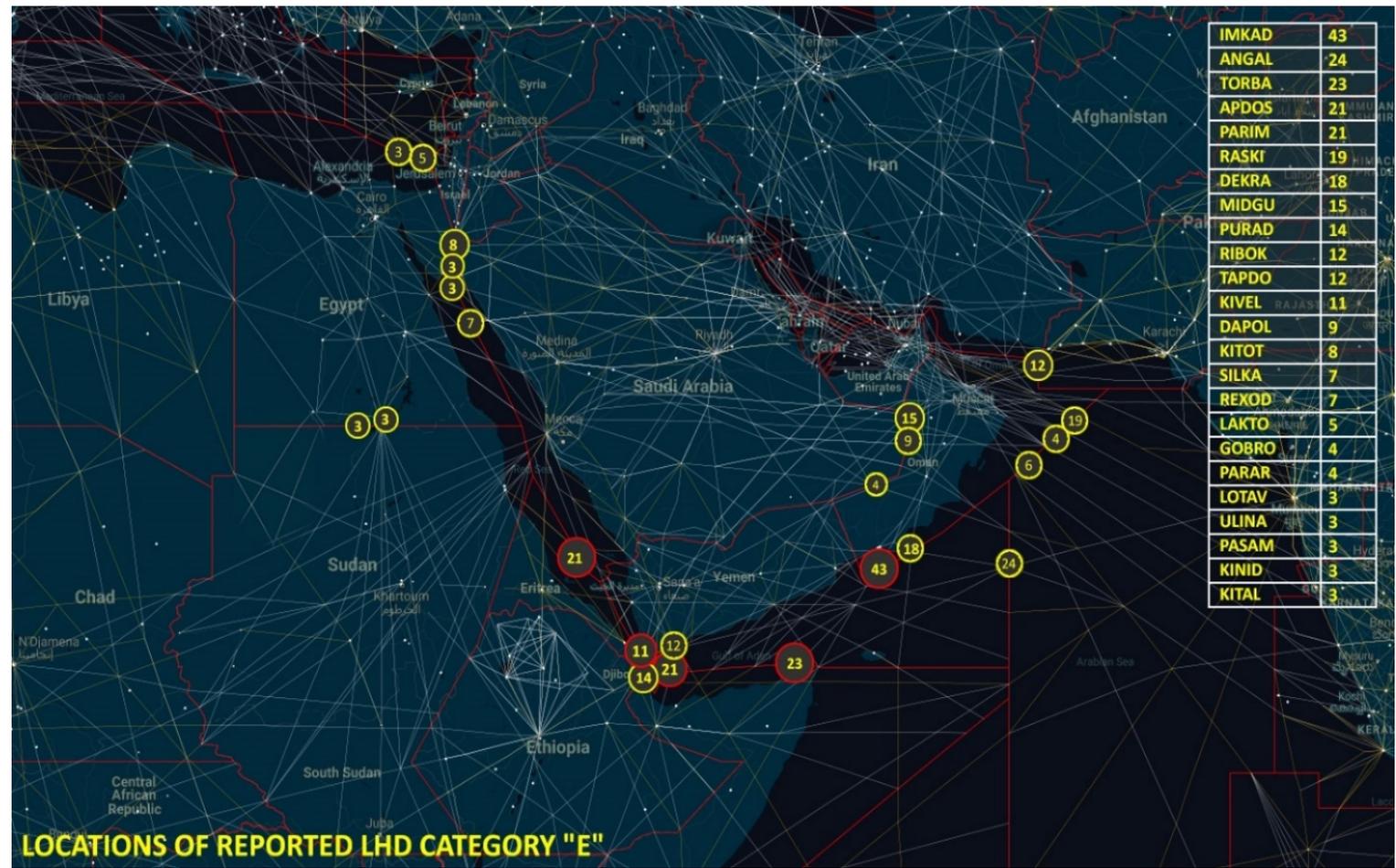
LHD Cat.	Large Height Deviation (LHD) Categories	No. of LHDs	LHD Duration (Sec.)
A	Flight crew fails to climb or descend the aircraft as cleared	-	-
B	Flight crew climbing or descending without ATC clearance	-	-
C	Incorrect operation or interpretation of airborne equipment	4	65
D	ATC system loop error	-	-
E	ATC transfer of control coordination errors due to human factors	5	360
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	-	-
I	Turbulence or other weather-related cause	3	70
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		
	Total	12	495



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LOCATIONS OF REPORTED LHD CATEGORY "E"

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02 Safety protocols

Oman reported during MIDRMA Board/19 meeting that LHD filed by Mumbai were received late at Muscat ACC, as the mechanism of reporting through Monitoring Agency of Asia Region (MAAR) and the MIDRMA; This delay hindered the prompt investigation of LHD events and timely corrective actions. However, Oman CAA called for ATM coordination meeting in Aug 2023, and now both ACCs in Muscat and Mumbai are exchanging the reports in more efficient manner which allows timely response to mitigate the raising issues. Additionally, Oman CAA has developed and implemented an internal mechanism for investigating LHD reports on a regular basis and is also following up on corrective actions with the relevant parties.

YEAR	LHD Reported by Muscat	LHD Reported by Mumbai
2022	16	41
2023	40	142

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02 Safety protocols

Reference to the AIDC connection implementation between Mumbai and Muscat ACCs; AIDC tests were conducted in September 2019, March 2021, February 2023, and August 2023.

The MIDRMA Decided to keep the RVSM Safety Protocol open until the installation of OLDI/AIDC between the two ACCs; and results in reduction in the number of LHD Report

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02 Safety protocols

The MIDRMA Board/18 has decided to open an RVSM Safety Protocol between Sanaa and Mogadishu FIRs in response to the increasing number of LHD reports submitted by Sana'a ACC related to Mogadishu and to its neighboring FIRs.

The first coordination meeting, organized by ICAO MID and attended by ICAO ESAF ARMA, MIDRMA, IATA and relevant ATM representatives near the Horn of Africa, discussed the surge in LHD reports from Sana'a ACC concerning its neighboring FIRs. During this meeting, the ATM representatives attended this meeting were briefed of the escalating risk associated with the rising number of LHD reports and their impact on the overall ICAO TLS within the MID region. They were urged to promptly implement corrective measures to resolve this problem as soon as possible.

The coordination meeting resulted in no LHD reports were filed by Sanaa related to Mogadishu from January 1st until December 31st, 2023. Therefore, MIDRMA sees no reason to keep the safety protocol open and requests to close it, however MIDRMA Board/19 meeting decided to keep this protocol open because of the increased number of LHD reports by the other surrounding FIRs.

03

List of Non-RVSM Aircraft

#	Observed Operating RVSM in	ACFT Reg.	ICAO Type	First Observed on	Responsible State
1	Jeddah	STALL	CRJ1	11-06-2022	SUDAN
2	EURRMA	5ALEX	BE200	09-07-2022	LIBYA

#	ACFT Reg.	ICAO Type	First Observed on	Responsible RMA
1	PKSJH	A320	06-11-2022	AAMA
2	PKLSW	B739	08-03-2023	AAMA
3	PKBGZ	B738	13-12-2022	AAMA
4	PKSTD	A320	19-01-2023	AAMA
5	PKLVF	B739	20-01-2023	AAMA
6	PKLSV	B739	21-12-2022	AAMA
7	40001A	C17	25-01-2020	AAMA
8	PKLSU	B739	27-11-2022	AAMA
9	PKSTH	A320	27-11-2022	AAMA
10	60208A	C17	30-03-2020	AAMA
11	PKBKM	A320	30-11-2022	AAMA
12	ZSCQP	CRJ9	07-07-2020	AFIRMA

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List of Non-RVSM Aircraft

#	ACFT Reg.	ICAO Type	First Observed on	Responsible RMA
13	ETATF	B350	08-07-2020	AFIRMA
14	5YWBH	C56X	14-07-2020	AFIRMA
15	5YFAN	CRJ2	15-07-2020	AFIRMA
16	5NBOD	GLF4	28-01-2022	AFIRMA
17	CCBGV	B789	08-06-2022	CARSAM
18	FAB2857	KC39	22-05-2022	CARSAM
19	21140	IL76	19-06-2022	CHINARMA
20	URAZN	B753	01-02-2022	EURRMA
21	URAZO	B753	01-02-2022	EURRMA
22	URSQO	B738	02-12-2021	EURRMA
23	URAZR	B77W	03-02-2022	EURRMA
24	EW550TH	IL76	04-12-2021	EURRMA
25	URFSC	IL76	05-12-2021	EURRMA
26	URFSA	IL76	09-05-2021	EURRMA
27	URFSE	IL76	11-12-2022	EURRMA
28	ICJSN	C25C	15-05-2023	EURRMA

03

List of Non-RVSM Aircraft

#	ACFT Reg.	ICAO Type	First Observed on	Responsible RMA
29	UR11316	AN12	22-07-2020	EURRMA
30	URFSD	IL76	24-12-2021	EURRMA
31	KJ3452	IL76	03-08-2020	MAAR
32	IN307	IL38	03-12-2020	MAAR
33	KJ3454	IL76	16-03-2020	MAAR
34	K3604	E35L	17-07-2020	MAAR
35	80002A	C17	23-07-2020	MAAR
36	CB8004	C17	24-07-2020	MAAR
37	CB8001	C17	29-07-2020	MAAR
38	N411VP	EA50	01-05-2022	NAARMO
39	N267LG	GLF4	02-01-2023	NAARMO
40	N981DB	H25B	05-04-2022	NAARMO
41	N980BA	GLEX	05-11-2022	NAARMO
42	N44UA	CL60	07-06-2020	NAARMO
43	N685MF	GLF4	08-12-2021	NAARMO
44	N800AJ	CL60	10-02-2023	NAARMO

03

List of Non-RVSM Aircraft

#	ACFT Reg.	ICAO Type	First Observed on	Responsible RMA
45	N605AS	PC12	11-04-2022	NAARMO
46	N866G	GALX	14-02-2022	NAARMO
47	N298RB	GLF4	14-05-2021	NAARMO
48	N28JV	PRM1	15-05-2023	NAARMO
49	N1112B	B350	16-07-2020	NAARMO
50	XAASP	CL60	17-11-2022	NAARMO
51	N920SA	F2TH	18-02-2021	NAARMO
52	N651CV	C650	21-11-2022	NAARMO
53	N145DB	E35L	22-01-2022	NAARMO
54	N46HB	F9000	22-08-2022	NAARMO
55	N320MK	GLF3	24-09-2022	NAARMO
56	N890DA	GLF5	25-02-2023	NAARMO
57	N604DT	CL60	26-02-2022	NAARMO
58	XAAYL	GLEX	26-04-2023	NAARMO
59	N405LL	H25B	29-05-2022	NAARMO

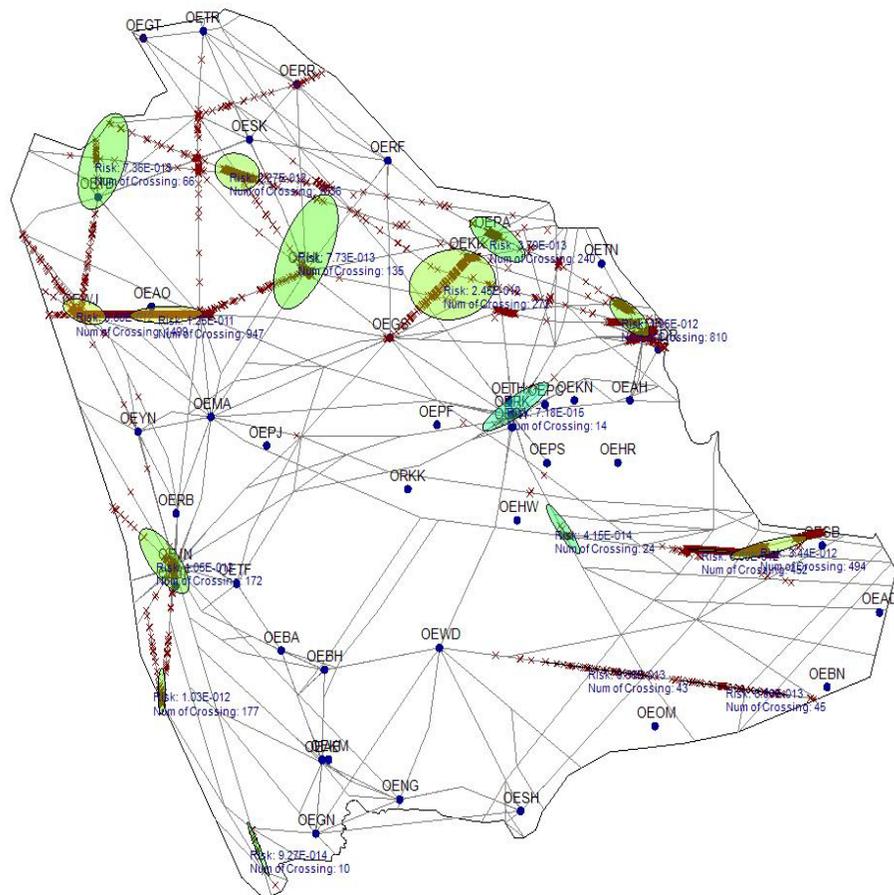
04 MMR list

MID STATES	RVSM APPROVED A/C	HAVE RESULTS OR COVERED	NOT COVERED	NOT COVERED IN %	A/C MMR
Bahrain	69	68	1	1%	1
Egypt	159	152	7	4%	5
Iran	168	93	75	45%	49
Iraq	59	58	1	2%	1
Jordan	44	41	3	7%	3
KSA	324	313	11	3%	5
Kuwait	73	69	4	5%	3
Lebanon	31	31	0	0%	0
Libya	49	30	19	39%	17
Oman	79	79	0	0%	0
Qatar	295	295	0	0%	0
Sudan	16	5	11	69%	8
Syria	15	13	2	13%	1
UAE	591	556	35	6%	17
Yemen	6	5	1	17%	1
TOTAL	1978	1808	170	9%	111

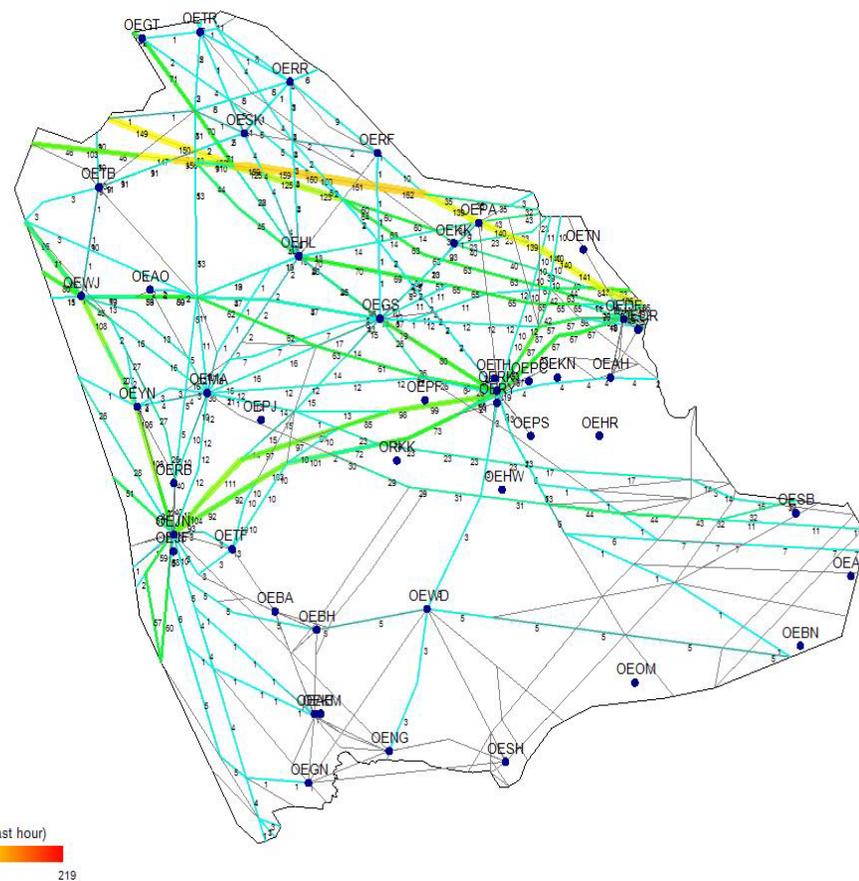
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Hotspots



AWYs Occupancy



Thank You

